

**The Grammar of Q:
Q-Particles and the Nature of Wh-Fronting,
As Revealed by the Wh-Questions of Tlingit**

by

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Submitted to the Department of Linguistics and Philosophy on August 15, 2007 in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Linguistics

Abstract

The central claim of this thesis is that the agent responsible for a variety of phenomena surrounding wh-operators is not those operators themselves, but rather a distinct element that we label a ‘Q(uestion)-particle’. In many languages, the Q-particle is phonologically empty, and so its role in various phenomena has not yet been recognized. Most importantly, careful study of these Q-particles reveals that the phenomenon known as ‘pied-piping’ does not exist, and that all putative examples of it are actually instances of normal phrasal movement of the Q-particle.

This thesis starts from the demonstration that wh-fronting in Tlingit (Na-Dene; Alaska, British Columbia, Yukon) does not involve a syntactic relationship between the interrogative C and the wh-word. Rather, it involves a probe/Agree relation between C and an overt Q-particle c-commanding the wh-word. Fronting of the wh-word in Tlingit wh-questions is a mere by-product of fronting the projection of the Q-particle. From this core observation, a syntax and semantics for Tlingit wh-questions is developed.

Given the strong similarity between the wh-constructions of Tlingit and those of more widely studied languages, the analysis developed for Tlingit is then applied to a range of other languages. It is found that such a ‘Q-based’ theory of wh-constructions holds a variety of analytic consequences.

Regarding so-called ‘pied-piping structures’, the Q-based theory provides an analysis of such structures where the very concept of ‘pied-piping’ is eliminated from the theory of grammar. Furthermore, the Q-based theory provides a semantics for wh-questions that correctly interprets pied-piping structures without recourse to any mechanisms beyond those needed for wh-questions without pied-piping. Finally, the Q-based theory accounts for various constraints on pied-piping, and correctly predicts the scope and limits of its variation across languages.

Beyond its treatment of pied-piping, the Q-based theory also provides a novel syntax and semantics for multiple wh-questions, which successfully ties the presence of Superiority Effects to the absence of Intervention Effects, and which correctly predicts a previously unnoticed Intervention Effect in English. Moreover, it provides a novel, unified account of the ill-formedness of left branch extractions, as well as of preposition stranding.

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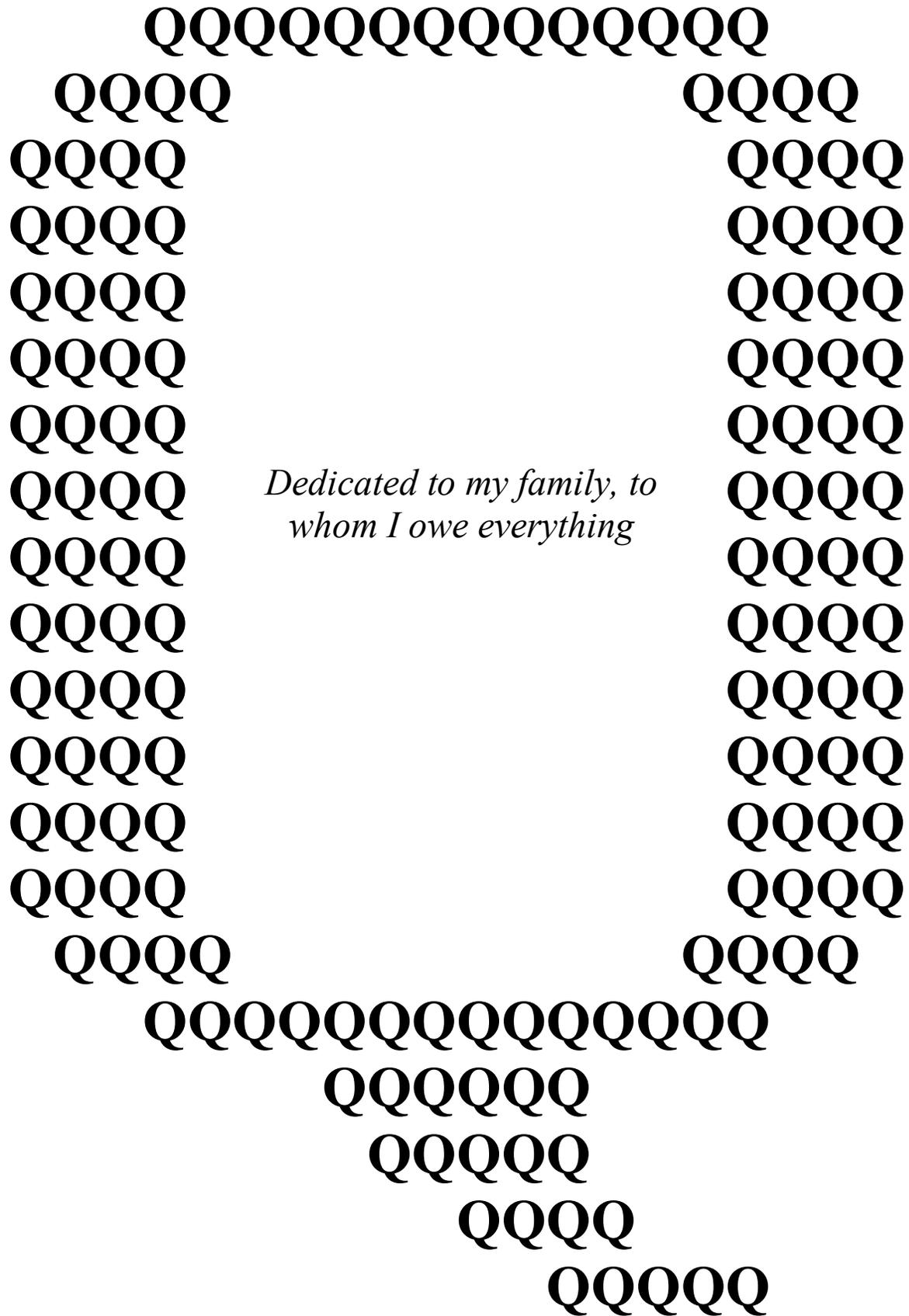
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Chapter 1

Introduction and Overview

1. Introduction

1.1 The Central Claim and the Main Character

The central theoretical claim of this thesis is that the ‘primary agent’ responsible for a variety of phenomena surrounding wh-operators is not those wh-operators themselves, but rather a distinct element bearing a special semantic (and sometimes syntactic) relationship to the wh-operator. In many languages, this distinct element – which I dub a ‘Q(uestion)-particle’ because particular instances of it have a tradition of being labeled as such – is phonologically empty, and for this reason its role in a variety of phenomena has not been widely recognized. Instead, accounts of these phenomena regularly have as their locus of explanation the wh-operator itself, a perspective that necessitates a variety of complications to the theory of grammar, complications which for decades have been tolerated and even sometimes treated as observed realities.

To help unpack this central claim, it will be useful to momentarily turn our attention to what could be called the ‘main character’ of the thesis, the wh-questions of Tlingit, a Na-Dene language of Alaska, British Columbia and the Yukon. As we will see, it is the wh-questions of Tlingit, illustrated below, that provide the most direct evidence in support of our central theoretical claim.

(1) Illustrative Examples of Wh-Questions in Tlingit

a. Waa sá sh tudinookw i éesh?
how Q he.feels your father
How is your father feeling? (Dauenhauer & Dauenhauer 2000; p. 138)

b. Daa sáwé i éesh al’óon?
what Q.foc-part your father he.hunts.it
What is your father hunting? (Dauenhauer & Dauenhauer 2000; p. 186)

The Tlingit sentences under (1) nicely illustrate the general structure of the language’s wh-questions, which may be schematized as in (2).

(2) General Form of a Wh-Question in Tlingit

[s ... [[... wh-word ...] sá] (focus particle) ... Main-Predicate]

The schema in (2) encapsulates the following properties of wh-questions in Tlingit. First, the wh-word must precede the main predicate of the wh-question, and is typically initial in the clause. Secondly, the wh-word is followed by the Q-particle *sá*, which either directly follows the wh-word or directly follows a phrase containing the wh-word. As a side-note here, the reader should observe that the presence of this Q-particle *sá* can sometimes be obscured by its forming a portmanteau with the ‘focus particles’ *áwé, áyá, áyú, áhé*, the two surfacing together as *sáwé, sáyá, sáyú, sáhé*. Finally, the remaining material of the sentence typically follows the wh-word, with a strong tendency to follow the verb.

Although this structure might not seem shockingly unfamiliar, an extended argument of this thesis is that, when examined carefully, the form of wh-questions in Tlingit challenges a variety of widely-held, fundamental views regarding the nature of wh-fronting. To get a sense of why this is so – and to eventually clarify our central theoretical claim – let us briefly review some background regarding the theory of wh-fronting.

1.2 Some Shared, ‘Classic’ Assumptions in the Theory of Wh-Questions

Since at least the mid-1960’s, a fundamental question in the theory of wh-questions has been “Why do wh-words have to front in the wh-questions of some languages?” Although there are currently a great variety of answers to this question, they all seem to share a common form. This common form is outlined under (3).

(3) Structure Common to Nearly All Theories of Wh-Fronting

- (i) Hypothesis 1:
Wh-words have a special property, X
- (ii) Hypothesis 2:
The position that wh-words move to has a special property, Y.
- (iii) Hypothesis 3:
The grammar of the language entails that things bearing property X must be located at positions bearing property Y.

That is, across many different frameworks and ideologies, linguists generally agree that wh-words front in some languages because *the wh-word* has a ‘special property’ that requires it to be located at the position that it fronts to. To substantiate the claim that so many different analyses share the structure in (3), I outline below a variety of different theories of wh-fronting, characterizing each in terms of its particular value for X, its value for Y, and its particular story regarding why X must be located at Y.

(4) Some Theories of Wh-Fronting, Characterized in Terms of the Structure in (3)

A GB Account (Pesetsky 1982, May 1985, Lasnik & Saito 1992)

X = the feature WH

Y = the feature COMP and the feature [+WH]

An LF filter (the ‘WH-Criterion’) requires that “all WHs be in a [+WH] COMP at LF.”

An MP Account (Chomsky 2000)

X = an interpretable Q-feature [*iQ*]

Y = an uninterpretable Q-feature [*uQ*] and an EPP feature.

*Agreement between [*iQ*] and [*uQ*] is required for convergence. Because of the EPP feature, such agreement triggers movement of the phrase bearing X to the position bearing Y.*

A Transformational Account (Chomsky 1957)

X = the output of a transformation T_{w2} that transforms an NP into a wh-word

Y = the position that T_{w2} targets

Given these definitions, only NPs at positions bearing property Y will be targeted by transformation T_{w2} . Since words with property X are trivially the output of T_{w2} , it follows that such words must necessarily be found at positions with property Y.

A GPSG Account (Bennett 1995) ¹

X = the feature [+Q]

Y = daughter of a root node bearing the feature [+Q]

A principle (the 'Foot Feature Principle') requires that a root node bearing the feature [+Q], such as the root node of a wh-question, have a daughter which is [+Q].

An LFG Account (Falk 2001)

X = the feature WH

Y = Specifier of CP

An ID rule requires that a specifier of CP (as opposed to an adjunct of S) bear the feature WH.

A Semantic Account (Karttunen 1977)

X = existential force

Y = scope above the 'proto-question'

In order for a structure to be interpreted as a wh-question, the existential force contributed by the wh-word must have scope above the 'proto-question'.

A Pragmatic/Discourse-Structural Account (Horvath 1986, Kiss 1995)

X = New, Non-Presupposed Content

Y = Focus Position

General principles entail that new, non-presupposed content appear at the designated Focus Position.

Although virtually every theory of wh-fronting possesses the 'classic structure' under (3), theories having such a structure are immediately faced with a rather fundamental challenge: how to analyze sentences like those in (5), where *more* than the maximal projection of the wh-word undergoes fronting.

¹ To my knowledge, there is no widely-held account in HPSG for why wh-words must front in the wh-questions of languages like English. On the other hand, as discussed in Sag, Wasow & Bender (2003), in 'Sign-Based Construction Grammar', which employs the HPSG formalism, there is such an account.

(5) **Some Pied-Piping Structures**

- a. [Whose book] did you read?
- b. [To whom] did you speak?
- c. [How long a book] did he write?

Although it's often not explicitly recognized, sentences like those in (5) directly challenge the view that a property of the *wh*-word is what's directly responsible for the fronting seen in the *wh*-question. After all, if it's a property of the *wh*-word that motivates the fronting, how did this property come to appear on the larger, fronted phrase, *a phrase that doesn't otherwise inherit the properties of the wh-word*? For example, we can see from sentences like (6) that a possessive DP doesn't inherit the *number* properties of a *wh*-possessor. How, then, does such a DP inherit the special 'wh-word properties' that trigger the fronting seen in (5a)?

(6) [Whose sisters] are / *is interesting?

There is, of course, a commonly accepted answer to these questions, a theoretical construct that renders sentences like those in (5) consistent with analyses bearing the 'classic structure' under (3). This commonly accepted answer is that the structures in (5) all illustrate something called 'pied-piping'. Although details of implementation vary across frameworks, generally speaking, the term 'pied piping' describes cases where an operation that targets the features of a particular lexical item applies to a phrase properly containing the maximal projection of that item. Therefore, to maintain that pied-piping exists is to maintain that there are simply cases of this sort, that it is simply sometimes possible for an operation to apply to a phrase that properly contains the maximal projection of the word whose features it is targeting.

Of course, what *makes* such cases possible – what mechanisms are responsible for pied-piping – is a separate, subsequent question, and one that has received much focused attention (Ross 1967, Sells 1985, Webelhuth 1992, Kayne 1994, Grimshaw 2000, Heck 2004, Horvath 2007). Here, a commonly accepted answer is that there is an operation, called 'feature percolation', which serves to extend the special, movement-triggering features of the *wh*-word out from its maximal projection and onto higher phrases. Again, there has been much work exploring the nature of this hypothetical 'percolation' device, particularly the ways in which the device appears to be constrained (Sells 1985, Webelhuth 1992, Grimshaw 2000, Heck 2004). Curiously, however, the most basic question of whether pied-piping actually exists has not yet (to my knowledge) received serious attention. This is largely due, I believe, to the ubiquity of the explanatory structure in (3). After all, if the only analytic option is that the fronting in *wh*-questions is directly triggered by a special property of *wh*-words, then the sentences in (5) clearly show that pied-piping *does* exist. Indeed, in most introductory discussions of pied-piping, pied-piping is presented as an *observable phenomenon*, a datum that must be explained, rather than as a technical solution to an empirical challenge faced by a particular kind of analysis.

We find, then, that when we survey the vast literature on *wh*-questions, despite all the variety over more specific issues, a shared, 'classic' picture clearly emerges, one where (a) the fronting of *wh*-words in *wh*-questions directly results from a property born by the *wh*-word, and (b) *wh*-questions where there is fronting of a phrase properly containing the maximal projection of the *wh*-word reveal the existence of pied-piping.

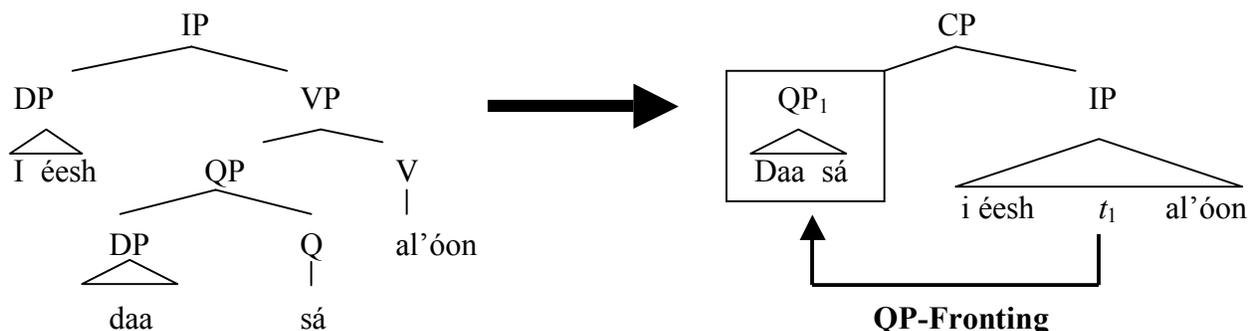
1.3 Tlingit Wh-Questions Force a New Approach

One of the central claims of this dissertation is that the wh-questions of Tlingit strongly challenge this classic picture of wh-fronting. Specifically, we will see that the wh-questions of Tlingit force a novel perspective, one where – contrary to the ‘classic’ assumptions in (3) – wh-fronting is not directly triggered by any properties of the wh-word. Rather, such fronting is found to result from the properties of a distinct, formal element, the aforementioned ‘Q-particle’. In many languages, the crucial role played by this formal element is obscured by the fact that it is phonologically invisible; for example, in English wh-questions, the Q-particle receives no overt pronunciation. In other languages, however, Q-particles are overtly pronounced, the most prominent example here being Tlingit, whose particle *sá* (illustrated in (1) and discussed under (2)) I claim to be an instance of this element. These languages, which also include the wh-fronting language Edo, as well as various wh-*in-situ* languages, provide us invaluable clues into the important role played by Q-particles in wh-fronting, as well as other phenomena surrounding wh-words.

As to the specific role played by Q-particles in triggering the fronting seen in wh-questions (for which we will retain the descriptive label ‘wh-fronting’), the basic idea is roughly sketched for Tlingit under (7); a more technical exposition will be provided later in Section 2 of this chapter.

(7) The Proposed Analysis of Wh-Questions in Tlingit

Daa sá i éesh al’óon?
 what Q your father he.hunts.it
What is your father hunting?



In outline, this analysis of Tlingit wh-questions runs as follows. First, as shown in the structure above, the Q-particle *sá* must c-command the wh-word. Moreover, this Q-particle heads its own projection, labeled a ‘QP’. Note that because of the c-command relation between the Q-particle and the wh-word, this QP projection must necessarily contain the wh-word. Finally, and most importantly, a careful examination of Tlingit wh-questions reveals that the ‘rule’ for forming wh-questions in Tlingit is that the *QP* is fronted, and *nothing about the wh-word specifically enters into the rule at all*. Nevertheless, because the QP necessarily contains the wh-word, such obligatory fronting of the QP has as a *secondary consequence* the obligatory appearance of the wh-word in the left periphery as well.

Thus, although it is true that a wh-word must appear in the left periphery of a Tlingit wh-question – and so the language is, descriptively speaking, a ‘wh-fronting’ language – this word order is not due to an operation directly triggered by the features of the wh-word. Rather, the movement operation is directly triggered by the features of the Q-particle that c-commands the wh-word, the left-peripheral position of the wh-word being a secondary consequence of the movement of Q-particle, given that the wh-word is contained inside the particle’s phrasal projection. To foreshadow our later arguments, the principal evidence for this analysis in (7) is the fact that the well-formedness of a Tlingit wh-question depends only upon the locality of the QP to the left periphery; the locality of the wh-word is irrelevant. This fact, illustrated by patterns like that under (8), suggests that the rules for forming wh-questions in Tlingit are sensitive *only* to the position of the Q-particle, and therefore it is only the features of the Q-particle that are referenced by those rules (cf. Hagstrom 1998, Kishimoto 2005).

(8) **Wh-Operators May Be Inside Islands Iff Q-Particle is Outside the Island**

- a. [[**Wáa** kligéiyi CP] xáat NP] **sá** i tuwáa sigóo?
 how it.is.big.REL fish Q your spirit it.is.glad
How big a fish do you want?
(A fish that is how big do you want?)
- b. * [[**Waa** **sá** kligéiyi CP] xáat NP] i tuwáa sigóo?
 how Q it.is.big.REL fish your spirit it.is.glad

Besides its empirical motivation by facts such as those in (8), the analysis in (7) also receives some indirect support from the ways in which it simplifies the analysis of other aspects of Tlingit grammar. For our present discussion, one of the most important of these concerns cases where a phrase strictly larger than the maximal projection of the wh-word is fronted in a wh-question, cases for which we will retain, as a purely descriptive label, the term ‘pied-piping structures’. Because the ‘rules’ for wh-questions in Tlingit refer only to the QP, and *not* to the wh-word itself, so-called pied-piping structures in Tlingit present no *prima facie* empirical challenge. To see this, let us consider the pied-piping structures of Tlingit, illustrated below.

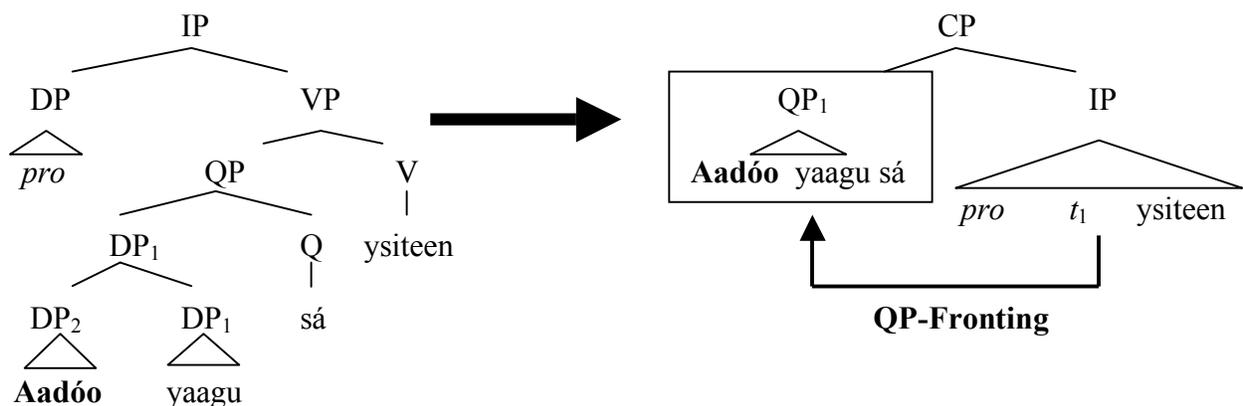
(9) **Pied-Piping Structures in Tlingit**

- a. **Aadóo** yaagu **sá** ysiteen?
 who boat Q you.saw.it
Whose boat did you see?
- b. **Aadóo** x’ashéeyi **sá** iya.aax?
 who song Q you.heard.it
Whose song did you hear?
- c. **Aadóo** teen **sá** yigoot?
 who with Q you.went
Who did you go with?

When we examine these and many other structures, it becomes strikingly clear that *the particle $sá$ always marks the right edge of whatever has been fronted in a Tlingit wh-question*. For this reason, we can adopt as our analysis of these structures the account illustrated under (10), which holds that they are simply cases where the Q-particle has as its sister a phrase larger than the maximal projection of the wh-word.

(10) **Pied-Piping Structures Without Pied-Piping in Tlingit**

Aadóo yaagu **sá** ysiteen?
 who boat Q you.saw.it
Whose boat did you see?



Under this analysis, then, a sentence like (9a) possesses a structure where the Q-particle *sá* is sister to the complex DP *aadóo yaagu* ‘whose boat’, which properly contains the maximal projection of the wh-word *aadóo* ‘who’. These structures, then, can be derived by normal phrasal movement of the QP, exactly as in the case of simple wh-questions like (7).

Moreover, since it is the QP – and not the wh-word – that bears the features triggering ‘wh-fronting’ in Tlingit, we find that the pied-piping structures of Tlingit are *not* cases where an operation triggered by the features of a lexical item applies to a phrase properly containing the maximal projection of that item. Thus, despite the (perhaps confusing) terminology, the ‘pied-piping structures’ of Tlingit are not instances of (true) pied-piping. Furthermore, since the Q-particle *sá* is *never* properly contained within the fronted constituent of a Tlingit wh-question, we find that there simply *aren’t* any true cases of pied-piping in Tlingit. For this reason, the special concept of ‘pied-piping’ can be eliminated without cost from our theory of Tlingit grammar, thus simplifying the overall theory. By adopting the analysis in (7), then, we needn’t deviate from the null hypothesis that if an operation (in Tlingit) targets the features of a given lexical item, then it applies only to the maximal projection of that lexical item.

1.4 Two Broader Consequences for Grammatical Theory

Besides the advantages that the analysis in (7) brings to the theory of Tlingit grammar, we will see that it also advances a variety of issues in grammatical theory more generally. Of course, for this to be the case, the analysis in (7) must not simply be peculiar to Tlingit, but must rather underlie the structure of wh-questions in many other languages. Indeed, a central claim of this

thesis is that this analysis actually holds for *all* wh-fronting languages. Some initial motivation for this ‘universalist’ position can be found in the following *Gedankenexperiment*. Suppose we were to remove the particle *sá* from all the sentences of Tlingit. The result would be a language that would not look significantly different from the well-known wh-fronting languages that all linguists are familiar with.² Thus, it seems possible to view the wh-questions of these more familiar wh-fronting languages as simply having the structure of Tlingit wh-questions, but with phonologically null Q-particles. Furthermore, since we will see that the analysis in (7) *must* hold for Tlingit wh-questions, it is most parsimonious to hold that all wh-fronting languages – even English – receive this analysis, the only real variation across languages being whether their Q-particles are or are not overtly pronounced. Otherwise, one would have to hold that two superficially very similar languages – Tlingit and English – receive two very different underlying syntactic analyses, which raises deeply challenging questions of learnability.

We will find, moreover, that beyond its offer of a simpler typology, the extension of the analysis in (7) to all wh-fronting languages brings with it a variety of further results. One of the most immediate of these is that the concept of ‘pied-piping’ may be entirely eliminated from the theory of grammar. It will be shown that such an elimination carries conceptual and analytic benefits, as (a) all extant theories of pied-piping require appeal to mechanisms beyond those needed for simple wh-questions, and (b) many of the subtler facts that theories of pied-piping seek to capture are best captured in a Q-based theory where there is no true pied-piping.

Another result (whose exposition requires little technical background) concerns the theory of certain well-known conditions on the subextraction of wh-words. In brief, we will find that certain apparent conditions on wh-movement can instead be seen as the result of independently visible conditions on the placement of Q-particles. To begin to unpack this claim, let us first observe an important property of wh-words functioning as indefinites in Tlingit. In many languages, Q-particles appear with wh-words functioning as indefinites (Hagstrom 1998). As sentences like (11) demonstrate, Tlingit falls into this pattern as well.

(11) **Wh-Indefinites in Tlingit Necessarily Co-Occur with the Q-Particle *Sá***

Tléil **aadóo** teen *(**sá**) xwagoot.
 not who with Q I.went
I didn't go with anyone.

Importantly, when the Q-particle *sá* appears with wh-indefinites, there are certain conditions on where in the sentence the particle can go. For example, it cannot appear between a postposition and its complement.

² On the other hand, such a language would exhibit one property that would saliently distinguish it from most wh-fronting languages we are familiar with. Given the possibility of structures like (8) in Tlingit, our hypothetical language would appear to allow the pied-piping of islands. However, as we discuss in greater detail in Chapter 5, English and all other well-known wh-fronting languages do not allow the pied-piping of islands. This variation will receive extensive discussion in Chapter 5, where we propose that it follows from a rather superficial difference in the morphology of the languages’ wh-words.

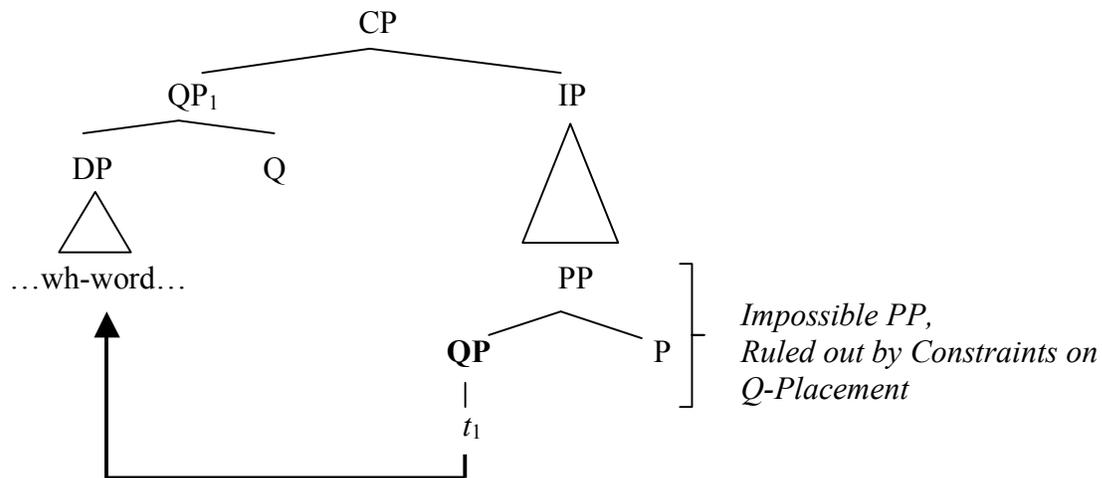
(12) **The Q-Particle *Sá* Cannot Appear Between a P and its DP Complement**

* Tléil **aadóo sá** teen xwagoot.
 not who Q with I.went

We will see in Chapter 2 that, as one might suspect, there is no fronting of the QP when the wh-word is functioning as an indefinite. Therefore, the impossibility of sentences like (12) must reflect a pure condition on the placement of the Q-particle, *and not any property of the movement relation itself*. We must conclude, then, that within Tlingit grammar, there is simply some condition that prevents a Q-particle from appearing between a P and its DP complement.

On its own, this condition on the placement of Q-particles might seem a rather parochial result. However, given the analysis in (7), we find that it has auspicious consequences. Note that, assuming the analysis in (7), this condition *alone* rules out postposition stranding in Tlingit. As the diagram below shows, under the analysis in (7), postposition stranding would be derived from a structure where a Q-particle appears between a P and its DP complement. However, such a structure would violate the observed conditions on the placement of Q-particles, and is thus predicted to be impossible. Given the impossibility of its ‘base’ structure, it follows that postposition stranding in Tlingit cannot be derived. We find, then, that the ban on postposition stranding in Tlingit is due to a property of the *Q-particle*, and not a property of the *movement relation* itself.

(13) **Wh-Fronting Cannot Strand a Postposition**



We will see in Chapter 2 that similar explanations account for the ill-formedness in Tlingit of various ‘left branch extractions’, phenomena which in other languages are also commonly thought to reflect a property of the movement relation.

In its inability to strand adpositions and form left branch extractions, ‘wh-fronting’ in Tlingit is very similar to that in other well-known wh-fronting languages. We should, of course, seek a uniform account of these phenomena in *all* wh-fronting languages. How strange it would be, after all, if the independent conditions on Q-placement in Tlingit *exactly* reproduced the conditions on movement responsible for these phenomena in other wh-fronting languages! Moreover, given the evidence that the account in (13) is correct for Tlingit, it follows that we

should pursue such an account for those phenomena in all other wh-fronting languages. We find, then, that the nature of postposition stranding and left branch extractions in Tlingit provides additional indirect support for our extending the analysis in (7) to all wh-fronting languages. Moreover, under such a uniform account, we see that what have commonly been thought of as constraints on *movement* – the inability to extract from PPs or ‘left branches’ – are ultimately the secondary consequences of more basic conditions on the placement of Q-particles.³

1.5 The Overarching Research Project, and Further Major Consequences

The two results described in the subsection above illustrate and motivate the broader research project undertaken in this thesis. As mentioned earlier, the perspective of this project is that the formal element which in Tlingit is pronounced *sá* is a structural component of the wh-questions of all human languages, including all wh-fronting languages. However, because of the phonological invisibility of this ‘Q-particle’ in the most well-studied wh-fronting languages, the important role played by this element in a variety of phenomena has not been recognized. For this reason, many phenomena surrounding wh-questions have been incorrectly analyzed, often in terms of the movement relation between the wh-word and the left-peripheral position that it occupies. However, the overt appearance and behavior of the Q-particle *sá* in Tlingit wh-questions and wh-indefinites gives us an invaluable empirical tool to factor out *three* possible sources of explanation. These are listed below.

(14) The Sources of Explanation Under the Q-Based Analysis

- (a) Conditions on the movement relation between the *QP* and the left-peripheral position that it occupies.
- (b) Conditions on the (initial) position of the Q-particle in the clause.
- (c) Conditions on the relation between the Q-particle and the wh-word.

The research reported in the following chapters attempts to characterize the contribution of each of these three factors to various phenomena related to wh-words. To the extent that such a project proves to be feasible, and interesting results are obtained, additional support may be

³ On the other hand, one cannot dispute that there are extraction types besides wh-fronting which are unable to extract from PPs or left branches. Indeed, this is the ultimate reason why the inability to extract from those two environments is commonly thought to be a property of *movement* in general, and not simply some idiosyncratic restriction on wh-fronting. One might worry, then, whether the account in (13) doesn’t incorrectly predict that extractions from PP and left branches should be *well-formed* for all other types of movement constructions, like focus-movement and relativization. If so, then our account in (13) would seem to be a huge step backwards, abandoning the immensely successful program of cross-constructural generalizations begun by Ross (1967).

Unfortunately, a thorough discussion of this important issue will have to wait until Chapter 6. There, we will see that the Q-based theory sketched in (13) can capture the cross-constructural ill-formedness of such extractions by assuming that all the constructions in question also involve some sub-variant of the Q-movement illustrated in (13). That is, besides the Q-particle found in wh-questions, there also exist separate, featurally distinct instances of the category ‘Q’ in focus-movement constructions, relative clauses, etc. As we will later see, this idea receives some independent support from recent work on focus-movement by Horvath (2000, 2005), who argues that so-called ‘focus-movement’ is actually movement of a (null) focus-sensitive operator, sitting just above the fronted phrase.

adduced in favor of the Q-based approach. We have already been introduced to two of the major results of this project. The following is a more complete list of the primary achievements of the Q-based approach detailed here.

(15) **Principal Results of the Q-Based Approach**

- A theory of so-called ‘pied-piping structures’, wherein the operation of ‘feature percolation’ and even the concept of ‘pied-piping’ itself are eliminated from the theory of grammar. [Chapter 2, 4, 5]
- A semantics for wh-questions that correctly interprets pied-piping structures without recourse to any mechanisms beyond those needed for wh-questions without pied-piping structures. [Chapter 2, 4]
- A theory of the constraints on pied-piping structures which correctly predicts the scope and limits of their variation across languages. [Chapter 5]
- A syntax and semantics for multiple wh-questions, which successfully ties the *presence* of Superiority Effects to the *absence* of Intervention Effects, and which correctly predicts a previously unnoticed Intervention Effect in English. [Chapter 4]
- A unified account of the ill-formedness of certain left branch extractions, as well as of adposition stranding. [Chapter 2, 4]
- A typology of wh-question formation, under which wh-*in-situ* languages do not form a homogeneous class, and which predicts subtle morphological features of wh-indefinites from the structure of wh-questions. [Chapter 3]

As these results indicate, a general message of this thesis is that the introduction of the ‘QP’ projection in (7) introduces a new and highly versatile analytic tool, which the theoretician can apply to older and newer puzzles. As we will see, many classic puzzles can be reconceived, and approached in new ways, thanks to the introduction of this element, which generally opens up many new analytic vistas for the linguist to explore. This thesis is therefore but one of potentially many future studies that could examine and reach consensus on the properties of Q-particles and the role that they play in a myriad of phenomena once thought to be specifically tied to wh-operators themselves.

This thesis might also offer an object lesson in the role played by the study of endangered languages in the development of linguistic theory. Often, when linguists are asked to explain the importance of research into endangered and understudied languages, it is recognized that the study of these languages advances linguistic theory by providing novel evidence to help adjudicate between competing analyses that may otherwise be difficult to empirically distinguish. In this way, careful documentation of endangered languages is seen to ‘broaden the empirical database’ that theories of language must cover, and thereby shrinks the field of potential analyses. However, it is often overlooked in these discussions that the study of such languages can also serve to introduce *new* analyses, ones that may offer entirely new approaches and perspectives to older, seemingly settled issues (cf. Matthewson 1996). That is, rather than

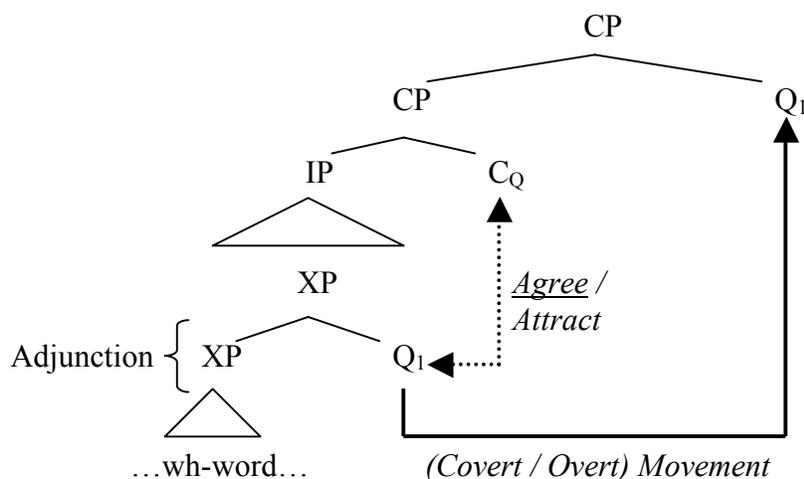
shrink the space of potential analyses, careful study of these languages can reveal that the current hypothesis space is *too narrow*, and fails to include hypotheses that would have otherwise never been imagined for more well-studied languages. I will argue at length that the study of Tlingit wh-questions presents us with precisely such a case, in that such study reveals that the analysis in (7) must be one permitted by Universal Grammar, and so significantly affects the field of hypotheses that linguists (and learners) must adjudicate between.

2. A More Technical Presentation of the Q-Based Analysis

The analysis sketched in (7) is vague on a number of details. The informality of the presentation in (7) was intended both to ease the discussion, as well as to demonstrate that the main proposals of this thesis possess very few architectural assumptions, and so can be exported into a variety of more specific frameworks and formalisms. Of course, in order to make some of our argumentation more rigid, we will have to adopt a more precise statement of our syntactic hypotheses than what appears in (7). In this section, I will present a more fleshed-out picture of the syntactic analysis I will be defending, so that one may gain a clearer idea of the theory that will ultimately be proposed. By way of introduction, however, it will help to begin with some recent proposals concerning *wh-in-situ* languages, which will provide our own proposals with some clarifying context.

In recent work, an operation of ‘Q-movement’ has been argued to be central to the formation of wh-questions in several *wh-in-situ* languages (Hagstrom 1998, Kishimoto 2005). Under this analysis, the formation of wh-questions in these languages proceeds as follows.

(16) Q-Movement in Wh-*In-Situ* Languages

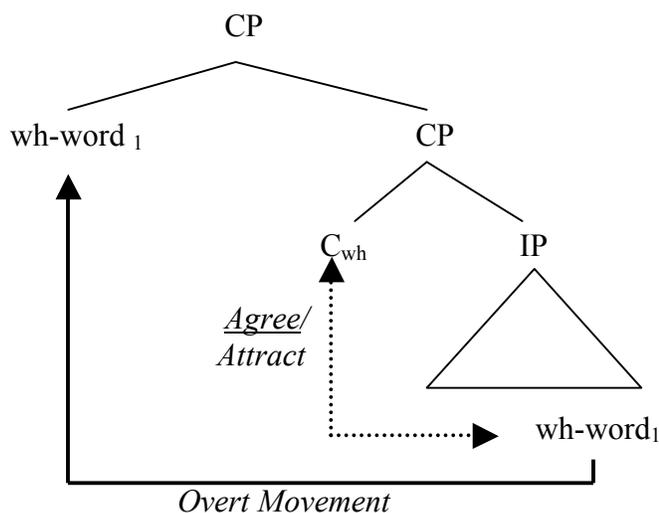


The structure in (16) represents the following claims. A wh-word is obligatorily c-commanded by a Q-particle, which adjoins to some phrase containing the wh-word. Under this analysis, it is the Q-particle, *and not the wh-word itself*, which is probed by and Agrees with the interrogative C head of the wh-question. More concretely, the interrogative C head bears an uninterpretable instance of the interpretable Q-feature born by the Q-particle. The interrogative C must therefore probe for an interpretable instance of the Q-feature. Upon reaching the adjoined Q-particle, the interrogative C Agrees with the particle, eliminating its own uninterpretable instance of Q. This

Agreement then triggers movement of the Goal, the Q-particle, into the projection of C. In some languages (e.g., Sinhala), this movement is usually covert; in others (e.g., Japanese), this movement is always overt.⁴

Under the ‘classic’ theory of wh-fronting in (3), the analysis in (16) would seem to entail that wh-questions in these wh-*in-situ* languages are syntactically quite different from wh-questions in wh-fronting languages like English. After all, under the assumptions in (3), the left-peripheral position of wh-words in wh-fronting languages reflects some syntactic relationship between the interrogative C and the wh-word itself. That is, under these assumptions, the derivation of wh-questions in wh-fronting language proceeds roughly as in (17).

(17) **Wh-Movement in Wh-Fronting Languages**

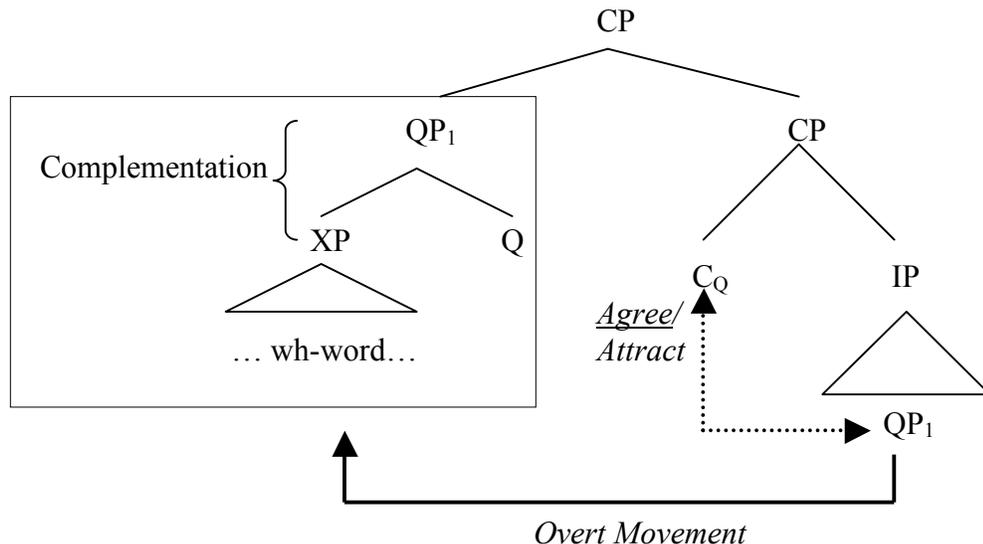


Thus, under one particular view, the interrogative C head probes and Agrees with a wh-feature of the wh-word itself. Since the wh-word is the Goal, the wh-word is then subsequently moved into the projection of the interrogative C.

As we’ve seen, however, one of the principle claims of this thesis is that the analysis of wh-fronting in (17) is incorrect. In its place, we will take up the view that wh-questions in wh-fronting languages are formed in a manner nearly identical to that represented in (16); their only difference from wh-questions in wh-*in-situ* languages is in the relationship between the Q-particle and its sister. Specifically, I will extensively argue that in all so-called ‘wh-fronting’ languages, the left-peripheral position of wh-words in wh-questions has the structural character represented below under (18).

⁴ It should be noted that the Q-particle in (16) is not part of the functional projection of the wh-word itself. As we will see, the sister of Q may contain lexical heads selecting for the wh-head. Thus, the analysis in (16) must be distinguished from the competing claim that wh-*in-situ* involves pure ‘feature-movement’ of [+wh] up to the projection of C (cf. Chomsky 1995).

(18) Wh-Fronting as a Secondary Effect of Q-Movement



The structure in (18) represents the following claims. As with *wh-in-situ* languages, a *wh*-word in a *wh*-fronting language is associated with an obligatory Q-particle, which c-commands the *wh*-word. In a *wh*-fronting language, however, this Q-particle takes *as complement* a phrase containing the *wh*-word, and thus projects the category of the phrase minimally dominating Q and Q's sister. As with *wh-in-situ* languages, the interrogative C head probes for an interpretable instance of the Q-feature born by the Q-particle, *and not any feature of the wh-word itself*. In a *wh*-fronting language, however, the first node which the C encounters bearing this feature is the QP projected by the Q-particle, and so the C head must Agree with this QP. As with *wh-in-situ* languages, this Agreement then triggers movement of the Goal into the projection of C. In a *wh*-fronting language, however, since the Goal is QP, the entire QP is moved into the periphery of the clause. Because the *wh*-word is necessarily contained within the QP, the *wh*-word is fronted into the periphery along with everything else inside the QP.⁵

We find, then, that the analysis in (18) more precisely implements the proposals vaguely sketched under (7). Specifically, we have replaced the vague notion that ‘the rules for *wh*-questions refer only to the QP’ with the more precise statement that the interrogative C in a Tlingit *wh*-question probes for the Q-feature of the Q-particle, and not for any features of the *wh*-word. Therefore, although different implementations of the proposals in (7) can be imagined, I will adopt (18) as the specific statement of the proposed theory of *wh*-fronting. Throughout the remainder of this thesis, and beginning in the next chapter, I will work to defend the analysis in (18) as the correct theory of *wh*-fronting across all languages.

Before I begin this work, though, I will give a chapter-by-chapter outline of the subsequent argumentation.

⁵ Again, it should be noted that, just as in (16), the Q-particle in (18) is not part of the functional projection of the *wh*-word, as its sister could contain a lexical head selecting for the *wh*-word. Thus, the proposal in (18) must be distinguished from the less interesting claim that the *wh*-feature of a *wh*-word heads its own projection within the functional projection of the *wh*-word.

3. Chapter Overview

Chapter 2

Wh-Fronting and Q-Movement in Tlingit

The goal of this chapter is to demonstrate that the analysis in (18) is required for Tlingit wh-questions. It begins with a background introduction to the Tlingit language and people. It then establishes that Tlingit is a ‘wh-fronting’ language. Next, it is argued that the Tlingit particle *sá* should be labeled a ‘Q-particle’. Once these two claims have been established, I argue that it is the particle *sá* – and not the wh-word itself – whose features are probed by the interrogative C of a Tlingit wh-question. With this last point established, I conclude that the analysis in (18) is required for Tlingit wh-questions.

Having established the analysis in (18), I discuss a range of constraints governing the placement of the particle *sá* in the clause. These constraints are derived from a single condition, dubbed *the QP-Intervention Condition*. This discussion will later be of much importance to our discussion in Chapter 4 of left branch extraction and adposition stranding. Finally, I provide a semantics for the structures generated by our syntactic theory, and point out some potentially advantageous properties it has.

Chapter 3

Applications to the Theory of Wh-In-Situ Languages

In this chapter, I demonstrate the applications of our proposed theory of wh-fronting to the analysis of wh-questions in wh-*in-situ* languages. I propose that wh-*in-situ* languages may be of two different types: those where Q-particles are adjoined to their sister as in (16), and those where QP fronting as in (18) occurs covertly. I tie this distinction between languages to a concomitant distinction in the form of their wh-indefinites. I next demonstrate that the semantic theory for wh-questions proposed in Chapter 2 for wh-fronting languages can be applied to the wh-questions of wh-*in-situ* languages. Finally, I demonstrate that our semantic theory predicts the existence of Intervention Effects in these languages in a manner akin to that proposed by Beck (2006).

Chapter 4

Applications to the Theory of Wh-Fronting Languages, Part 1: Pied-Piping and Intervention Effects

This chapter and its successor form the core of the dissertation, outlining how the analysis in (18) ought to be applied to more widely-studied wh-fronting languages.

The chapter begins by providing a few brief, initial arguments for extending the analysis in (18) to *all* other wh-fronting languages. These arguments include the fact that there are, besides Tlingit, several other wh-fronting languages where (18) is motivated by the overt structure of their wh-questions. In addition, extending the analysis in (18) to all wh-fronting languages would provide a uniform account for certain ill-formed wh-extractions in the languages of the world.

After these initial considerations, attention is then turned to two specific phenomena that provide support to the analysis in (18). The first is the phenomenon of pied-piping. It is shown that under the analysis in (18), pied-piping structures can be analyzed as instances of normal phrasal movement. Under this perspective, no special mechanisms are required to derive such structures, and indeed the very concept of ‘pied-piping’ is eliminated from the theory of grammar. Furthermore, it is shown that the semantics proposed in Chapter 2 correctly interprets pied-piping structures without recourse to any mechanisms beyond those needed for wh-questions without pied-piping structures, a distinct advantage over other semantic theories.

Finally, it is shown that extension of the analysis in (18) to all wh-fronting languages would provide an account of the distribution of Intervention Effects and Superiority Effects across languages, one that correctly ties the appearance of Superiority Effects in multiple wh-questions to the insusceptibility of *in-situ* wh-operators to Intervention Effects. It is shown that this Q-based account correctly predicts a previously unnoticed Intervention Effect in English.

Chapter 5

Applications to the Theory of Wh-Fronting Languages, Part 2: Constraints on Pied-Piping and Secondary Wh-Fronting

This chapter continues and expands upon the discussion of pied-piping begun in Chapter 4. The first and central topic of the chapter is the constraints on ‘pied-piping’. Unlike the pied-piping structures of Tlingit, there appear to be rather stringent limits on the pied-piping structures of the best-studied wh-fronting languages.

I take up the view, first proposed in Kratzer & Shimoyama (2002), that languages differ in whether an Agreement relation holds between the Q-particle and the wh-word. Under this assumption, the languages showing more limited pied-piping structures are found to be precisely those showing Q/Wh-Agreement. I then demonstrate that many of the constraints governing pied-piping structures in these languages result from constraints governing Q/Wh-Agreement, one of the most important of which is dubbed *the LP-Intervention Condition*. A primary consequence of the LP-Intervention Condition is that, in languages showing Q/Wh-Agreement, a wh-word cannot be dominated by a lexical projection inside a pied-piping structure. I show that this one generalization covers a wide variety of patterns that have been observed in the literature on pied-piping. Finally, I demonstrate that the general theory of pied-piping put forth here predicts many further features of pied-piping which have been observed in the literature, including: (a) the relation ‘X can pied-pipe Y’ is transitive (Heck 2004), (b) matrix predicates cannot be pied-piped (Heck 2004), (c) pied-pipers will often be left-peripheral, though not always (Heck 2004), (d) pied-piping can optionally co-vary with subextraction, (e) pied-piping is subject to the Coordinate Structure Constraint (Heck 2004).

Following the central discussion of pied-piping, attention is turned to a related phenomenon, so-called ‘Secondary Wh-fronting’ (Heck 2004). ‘Secondary Wh-fronting’ refers to structures where a wh-word is fronted *internal* to a pied-piping structure. In all known cases, such fronting occurs in order to put the wh-word in a position where the locality constraints on pied-piping can be met. I develop a Q-based theory of Secondary Wh-fronting, and demonstrate that it can correctly derive the well-known examples of this phenomenon. Finally, I provide evidence in favor of the Q-based theory over prior accounts, the most striking of which is that it

predicts certain patterns of Secondary Wh-fronting in the Mayan languages Chol and Tzotzil, patterns that do not receive a fully principled account in earlier treatments.

The final topic of this chapter is ‘Massive Pied-Piping’ (Heck 2004), the phenomenon wherein certain constraints on pied-piping appear to be weaker in non-subordinated environments. I propose that Massive Pied-Piping is due to the marginal ability for Q/Wh-Agreement not to occur in those environments. I note that this correctly predicts which constraints on pied-piping are observed to weaken in these contexts (i.e., those that derive from constraints on Q/Wh-Agreement), and which seem to retain their strength (i.e., those that are independent of Q/Wh-Agreement). I end the chapter by discussing some properties of Massive Pied-Piping that are not well-explained by this Q-based treatment.

Chapter 6

Conclusion:

Future Directions and Outstanding Problems

The concluding chapter of this thesis begins by summarizing the typological theory developed in the preceding chapters. We first list the five major parameters of variation appealed to in the preceding chapters, and then compute the full set of 32 language-types that this parametric theory predicts, noting which types have already been found attested and which haven’t.

After our typological discussion, this chapter principally explores the various ways in which the project begun with this study could be continued further. Perhaps the most important subject that our account must address concerns the theory of other A-bar movements besides wh-fronting. Given our arguments that the *Q-particle* is responsible for many phenomena previously ascribed to wh-operators and wh-movement (e.g. pied-piping and the ‘Left Branch Condition’), it follows that other types of movement evincing these properties must have their own correlate of the Q-particle. That is, we explore the hypothesis that, besides wh-fronting, instances of the category ‘Q’ actually underlie numerous other examples of unbounded dependencies, including focus-movement and relativization. That this idea has some independent merit can be seen from the work of Horvath (2000, 2005), who independently argues that so-called ‘focus movement’ is actually movement not of the focused phrase, but of a focus-sensitive operator c-commanding the focused element.

Following our discussion of other A-bar movements, we examine the ways in which our Q-based theory might impact the analysis of free relatives. I show that our Q-based theory allows us to adopt an analysis for free relatives where they are simply instances of subordinate interrogative CPs, and their peculiar ‘external’ syntax follows from certain independently observable properties of Q-particles. This analysis receives some independent support from the appearance of free relatives in Tlingit, which pattern with subordinate interrogatives in a number of important respects.

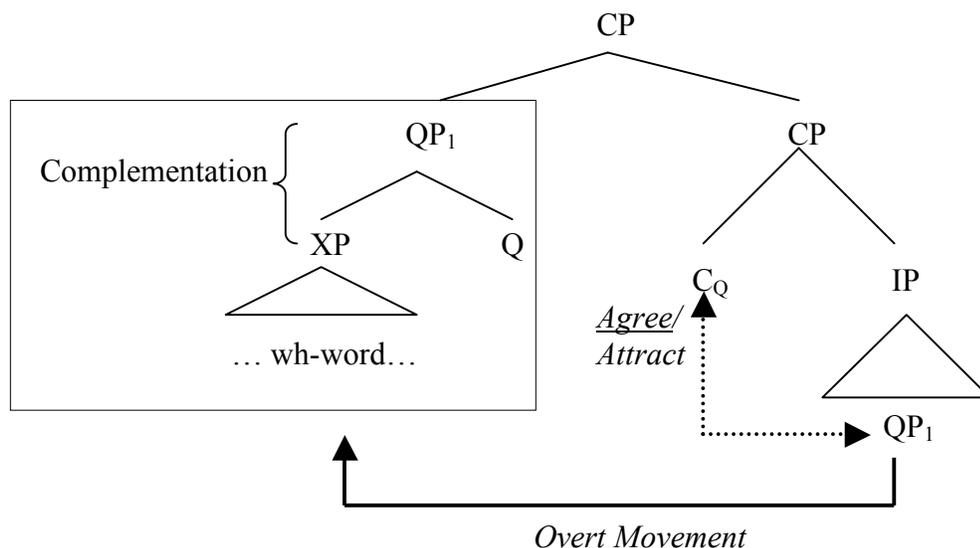
Chapter 2

Wh-Fronting and Q-Movement in Tlingit

1. Introduction and Chapter Outline

In this chapter, I argue that the structure in (18), repeated below, provides the best analysis of several features of the wh-questions of Tlingit. To recall, under this analysis, the left-peripheral position of a wh-word in a wh-question is a secondary consequence of the fronting of a QP projection containing the wh-word. No features of the wh-word itself are targeted by the left-peripheral interrogative C head, and moreover *no* direct syntactic relationship whatsoever holds between these two elements.

(18) Wh-Fronting as a Secondary Effect of Q-Movement



I begin in the following section by providing the reader with relevant background information regarding the Tlingit language and the Tlingit nation itself. I first outline the major socio-historical properties of the language, particularly its genetic affiliation and present vitality. In this first subsection, I also provide some very basic information regarding the history of the Tlingit people themselves, including some elementary facts concerning traditional culture. As Tlingit has been rather understudied by academic linguists, I next provide the reader with a catalog and description of the prior research that has been published regarding the language. In the third subsection, I put forth a brief grammatical sketch of the language, outlining its major syntactic, phonological and morphological features. Finally, I describe for the reader the

methodology I have followed in my study of the language, including the nature of the data upon which I base my linguistic generalizations regarding Tlingit.

Following these preliminaries, I then set about to defend the structure in (18) as the correct analysis of *wh*-questions in Tlingit. I begin in Section 3 by arguing that the *wh*-words in Tlingit *wh*-questions obligatorily appear within the left-periphery of the clause. Given the paucity of descriptive work on Tlingit syntax, this is an original claim regarding the structure of the language's *wh*-questions. I therefore take care to defend this claim at length, as it is so central to the primary theoretical claims that follow. In outline, I demonstrate that various word-order constraints found operable in Tlingit *wh*-questions are best explained by a generalization that *wh*-words in such questions must be located in the left-periphery of the clause.

Having established that Tlingit is indeed a 'wh-fronting language', I argue in Section 4 that the Tlingit particle *sá* – which obligatorily co-occurs with the language's *wh*-words – is most plausibly categorized along with other so-called 'Q-particles'. This categorization is based upon formal parallels between *sá*, the Japanese Q-particle *ka* and the Sinhala Q-particle *da*.¹ All three of these particles share a striking number of syntactic properties, and show parallel patterns of behavior in a variety of environments. I conclude from these similarities that all three particles should be analyzed as the same formal entity. Given the tradition for referring to Japanese *ka* and Sinhala *da* as 'Q-particles', that label must therefore be extended to Tlingit *sá*.

In Section 5, I present the core arguments supporting the structure in (18) as an analysis of Tlingit *wh*-questions. These arguments conclude that the interrogative C head of a Tlingit *wh*-question probes and Agrees with only the (projection of the) Q-particle *sá*, and not with the *wh*-word itself. I first provide arguments that the features of the Q-particle are indeed targeted by the interrogative C head of the *wh*-question. I then provide evidence that *only* these features are targeted, there being no features of the *wh*-word that the interrogative C must probe for. This evidence could be summarized with the generalization that the well-formedness of a Tlingit *wh*-question depends *only* upon the locality of the Q-particle to the interrogative C head, the locality of the *wh*-word being irrelevant to the sentence's well-formedness (cf. Hagstrom 1998).

That the *wh*-word is nonetheless fronted with the Q-particle in a Tlingit *wh*-question provides some initial motivation for the claim that the Q-particle *sá* takes its sister as complement, rather than being adjoined to its sister as in (16). Some further evidence that the Tlingit Q-particle *sá* takes its sister as complement is provided in Section 6. In this section, I argue that several additional conditions on the placement of *sá* would follow from a single generalization, the 'QP-Intervention Condition', under the assumption that both *sá* and its sister are contained within a QP projection. Furthermore, I note that, given the analysis in (18), these independent conditions on the placement of *sá* would alone account for constraints on the form of *wh*-questions that in many other languages are typically analyzed in terms of conditions on the operation of *movement*. This fact foreshadows my arguments in later chapters that the analysis in (18) applies not simply to Tlingit, but to all *wh*-fronting languages.

Finally, in Section 7 of this chapter, I provide a semantics that interprets the Tlingit structures generated by our syntactic theory. This semantics, based upon earlier research into the

¹ Since the transliteration conventions for Sinhala tend to vary between authors, let me briefly explain the conventions I follow here. Certain authors variably transliterate the Sinhala character representing the vowel /a/, transliterating it as "ə" in contexts where the vowel is reduced, and as "a" in all other contexts. Thus, certain authors transliterate the Sinhala Q-particle as "də". Throughout this paper, I follow the simpler convention of uniformly transliterating this character as "a"; thus, I transliterate the Sinhala Q-particle as "da". Aside from this, I make no changes in the transliterations of the authors whose data I cite.

semantics of wh-words and Q-particles, can successfully assign the correct interpretations to the perhaps exotic looking syntactic structures that our analysis in (18) employs. Moreover, the system brings some rather important analytic consequences, including the ability to derive some of the core grammatical properties of Q-particles observed in Section 4. Most important of all, however, is that the system can be shown to assign the correct interpretation to wh-questions with pied-piping structures, without employing any special machinery beyond that used for plain wh-questions without such structures.

2. Relevant Background Regarding the Tlingit Nation and Its Language

In this section, I provide the reader with some elementary background regarding the Tlingit people and their language. Section 2.1 covers key socio-historical features of the language – including its geographic distribution, genetic classification, and current vitality – as well as some introductory remarks on the cultural history of the Tlingit people. Section 2.2 provides the reader with an overview of prior scholarship on this rather understudied language, and Section 2.3 introduces the reader to certain of its major grammatical features.

2.1 Socio-Historical Background

This section treats of various key socio-historical features of the Tlingit people and their language. Section 2.1.1. describes the geographic distribution and genetic classification of the language. Section 2.1.2 describes the current and future vitality of the language. Section 2.1.3 introduces some basic cultural and historical facts concerning the Tlingit people.

2.1.1 Geographic Distribution and Genetic Classification of the Tlingit Language

Tlingit is spoken primarily in the southeastern panhandle of Alaska, stretching from Yakutat, Alaska (60 degrees N latitude) to Alaska's southern border (55 degrees N latitude) (Naish 1966, Story 1966, Leer 1991). Tlingit is also spoken in areas of northern British Columbia (Atlin) and in portions of the Yukon Territory (e.g. Carcross, Tagish, Teslin) (*ibid.*). A map illustrating this geographic distribution is provided under (19) below.

(19) **Geographic Distribution of the Tlingit Language**²



Despite its considerable geographic spread, there is rather little dialectal diversity within Tlingit (Leer 1991). The language is typically divided into four major dialects, all of which are mutually intelligible: Northern Tlingit, Transitional Southern Tlingit, Sanya-Henya Tlingit and Tongass Tlingit (Leer 1991). The latter three dialects share various properties that distinguish them from Northern Tlingit, which motivates grouping them together into a ‘Southern Tlingit’ dialect family (Leer 1991). Finally, the Northern Dialect of Tlingit may be seen as comprising several sub-dialects: Greater Northern Tlingit, Far Northern Tlingit and Interior Tlingit (Leer 1991). These various groupings are illustrated by the chart below.

(20) **The Major Dialects of Tlingit (Leer 1991)**

Southern Tlingit

- Transitional Southern Tlingit (spoken in Kake, Wrangell and Petersburg)
- Sanya-Henya Tlingit (spoken from Ketchikan to Klawock)
- Tongass Tlingit (spoken in Tongass)

Northern Tlingit

- Northern Tlingit
 - Greater Northern Tlingit
 - Far Northern Tlingit (spoken in Haines, Yakutat and Hoonah)
 - Interior Tlingit (spoken in Atlin, Carcross, Tagish, Teslin)

The most noticeable differences between the four principle dialects concern prosody, the inventory of tones, and certain morpho-phonological alternations (Dauenhauer & Dauenhauer 1987; Leer 1991). Any major differences in vocabulary or syntax have not been reported. To

² This image is taken from the Alaska Native Language Center Website (ANLC 2006).

my knowledge, there are no inter-dialectal differences with respect to my original claims regarding the syntax of the language.

The Tlingit language is the sole member of the Tlingit family of the Na-Dene language phylum (Thompson 1996, Campbell 1997, Mithun 1999). Besides Tlingit, the Na-Dene phylum also contains the Eyak language and the Athabaskan languages (e.g., Navajo, Apache, Slave) (*ibid.*).³ Although it does not seem possible to establish sub-groupings of the three families within the Na-Dene phylum, in several respects Tlingit appears to be further removed from the Athabaskan languages than Eyak does (Leer 1991). Most noticeably, while a substantial number of cognate forms are shared by Eyak and Athabaskan, there are remarkably few definitive cognates linking Tlingit to the other Na-Dene languages, and there do not seem to be any phoneme correspondences of convincing generality (Leer 1991). Furthermore, those cognates that do definitively exist between Tlingit and Eyak-Athabaskan are almost exclusively found within the domain of inflectional morphology. Nevertheless, the substantial similarities in inflectional morphology have commonly lead scholars to accept some form of genetic relationship between Tlingit and the other two Na-Dene languages. The nature of this relationship, however, has been the subject of some controversy, as scholars have sought to explain the existence of extensive inflectional cognates alongside the striking divergences in the rest of the vocabulary.⁴ Some prominent hypotheses on this subject are listed below.

(21) Major Hypotheses Regarding The Historical Development of Tlingit

Exceptional Relexification (Goddard 1920)

Speakers of (Proto-)Tlingit had, like some present-day Athabaskan peoples allegedly do, a tendency to avoid simplex roots in preference for more complex circumlocutions. Over millennia, this cultural habit led to a complete relexification of the language.

Non-Exceptional Development (Pinnow 1964, 1968)

The number of cognates between Tlingit and Eyak-Athabaskan has been underestimated. Although it's true that many apparent cognate pairs are simply back-borrowings from the other Na-Dene languages, some of these pairs *are* true cognates. Which are the true cognates, however, has been completely obscured by the extensive back-borrowings that have accrued over the millennia.

Tlingit as Creole (Krauss 1973)

Tlingit descends from an earlier creole that relexified a language / languages closely related to Eyak-Athabaskan with content words from a language / languages of some unknown stock.

³ Throughout this thesis, I follow Thompson (1996) in his use of the term 'Na-Dene' to mean a language phylum containing Tlingit, Eyak and Athabaskan. In other work, this phylum is also often referred to as 'Athabaskan-Eyak-Tlingit' (Leer 2000), since the term 'Na-Dene' originally denoted a hypothetical (and likely erroneous) grouping that includes the neighboring language Haida. Although the original 'Na-Dene Hypothesis' included Haida, the relatedness of Haida to the other three languages remains controversial. See Dürr & Renner (1995) and Manaster Ramer (1996) for excellent overviews and contemporary discussions of this debate.

⁴ Section 2.2 lists some of the key literature in this expansive, centuries-old debate.

Tlingit as ‘Endo-Hybrid’ (Leer 1990)

Tlingit descends from an ‘endo-hybrid’, a *lingua franca* blending various closely related Na-Dene languages and/or dialects.

2.1.2 Current and Future Vitality of the Language

According to the most recent edition of Ethnologue, Tlingit is spoken by approximately 845 individuals in an ethnic population of 10,000 (Gordon 2005). It should be noted, however, that this is simply an estimate attributed to Michael Krauss in 1995. As of Summer 2007, a rigorous documentation of the number of native Tlingit speakers has not been done, though scholars privately estimate the number as now being at most between 300 and 400 (James Crippen, p.c.).

The youngest native speakers of Tlingit are in their early fifties, and there is no known native speaker of the language below the age of 40 (Dauenhauer & Dauenhauer 1987). By the mid 1960’s, children largely ceased acquiring Tlingit as a native language (Naish 1966), though the language was reportedly spoken by a few children in the early 1970’s (Krauss 1973). All current native speakers of Tlingit are either bilingual or near-bilingual in English. Consequently, it is projected that within 50 years time there will no longer be native speakers (Dauenhauer & Dauenhauer 1987). For this reason, Tlingit is universally regarded as a highly endangered language, and has been categorized by some as ‘moribund’ (Leer 1991).

It should be noted, however, that there is extensive ongoing work aimed at documenting, maintaining and revitalizing the Tlingit language (SHI 2003). The Tlingit community generally has a positive attitude towards their language, and community interest in the language continues to grow (Gordon 2005), most importantly amongst the youth, who generally take pride in what knowledge they have of the language. Instruction in Tlingit as a second language is now comparably well-developed and enjoys a considerable degree of popularity and success. Courses in Tlingit are presently taught in Alaskan public schools and at the University of Alaska, Southeast, and a number of successful immersion camps have been held (SHI 2003). Moreover, work is currently underway at the University of Alaska, Southeast to establish a ‘Mentor-Apprentice’ program in Tlingit, of the kind pioneered by Leanne Hinton at UC, Berkeley for languages of California, as well as to offer official certification in Tlingit as a second language. Thanks in part to this activity, some younger adults (a few still in their 20s) have acquired a significant degree of fluency, and have made efforts to reintroduce the language into family and public life, including regular exposure of their children to the speech of fluent elders. Particularly strong L2 communities appear to be emerging in those areas that could be called the Tlingit cultural centers, such as Sitka, Klukwan, Hoonah, as well as in Anchorage, Juneau and Wrangell. The ever-growing visibility of the language is illustrated by the recent translation of *Macbeth* into Tlingit, which received performances in Alaska, as well as at the Smithsonian’s National Museum of the American Indian in Washington DC (Quinn 2007). All of this helps to dispel absolute pessimism concerning the survival of the language, and builds a certain amount of guarded optimism amongst specialists, an attitude nicely conveyed by the following, prescient remarks of Michael Krauss.

(With a well-organized and well-supported revitalization movement), it would be difficult to predict to what extent and in what sense or function the Tlingit language may yet survive. (Krauss 1973)

2.1.3 The Tlingit Nation: Some Basic Cultural and Historical Facts

In this section, I will briefly introduce some basic facts concerning the history and traditional culture of the Tlingit people. The reader is warned that the brevity of this overview, necessitated by the limitations of space, will inevitably lead to some simplification and distortion, which I have attempted to minimize. Nevertheless, I feel it better that some information be found here, so as to provide the Tlingit language with its surrounding human context, than for this information to be entirely lacking. For a more complete and accurate discussion of the issues presented here, I refer the reader to the works of Dauenhauer & Dauenhauer (1987, 1990, 1994), Black, Dauenhauer & Dauenhauer (2007), and Nyman & Leer (1993).

The original territory of the Tlingit Nation, indicated under (19), comprises the coastal rainforests of Southeast Alaska, particularly the islands of the Alexander Archipelago, as well as lands further inland in Northwest British Columbia and Southwest Yukon Territory. These latter, interior populations appear to represent a more recent migration from the older, coastal territories, though the Tlingit likely migrated to those coastal territories from inland territories to the south (Dauenhauer & Dauenhauer 1987). Tlingit history itself records the ancestral migration to the coast (Dauenhauer & Dauenhauer 1987), and a popular folk etymology of the name *Lingít* ‘Tlingit’ as *Léin Yéet* ‘sons/people of the tide flats’ suggests that their coastal habitation once distinguished them other (proto-)Tlingit-speaking groups.

Traditional Tlingit culture possesses many features that Western scholars view as typical of Pacific Northwest Native American culture, including such practices as the carving of ‘totem poles’ (*kootéeyaa*), ceremonies describable as ‘potlatches’ (*ku.éex*)⁵, the weaving of Chilkat blankets (*naaxein*), and various stylistic features of their art and architecture. The photo under (22), a rather famous and often reprinted one, illustrates some iconic features of traditional Tlingit ceremonial dress and artwork.

⁵ Bracken (1997) provides a thorough critique of the concept ‘potlatch’ found in Western anthropological and sociological scholarship. Although steeped in ‘post-colonialist’ terminology, Bracken makes the valid and oft-recognized point that there is nothing about the social practices of these Native peoples that objectively warrants the exceptionalizing term ‘potlatch’, as opposed to simply ‘ceremony’. In this context, it is worth noting that the Tlingit word *ku.éex*, often rendered in English as ‘potlatch’, simply means ‘a gathering by invitation’.

(22) Photograph of 1904 Sitka *Ku.éex'*



*Image taken from Emmons (1991); Raven guests at a *ku.éex'* given by a Wolf clan in Sitka, 1904.*

The Tlingit Nation is composed of approximately 60 distinct *naa* ‘clans’, which were traditionally the primary units of socio-political organization. Clans also were, and continue to be, the recognized possessors of many culturally and economically important resources. Although many goods can be individually owned, collective clan ownership applies to land and fishing waters, and extends to such cultural objects as sculptures and ceremonial clothing, including even such abstract intellectual objects as songs, stories, dances, images and designs (Dauenhauer & Dauenhauer 1987, 1990).⁶ Clan membership is matrilineal; children are members of their mother’s clan, though within the clan of their father they retain a special status as ‘clan children’. The sixty clans are themselves further divided into two types: the Raven

⁶ The reader should be made aware that the wide-spread appropriation of Pacific Northwest art in popular culture is wholly insensitive to these principles of clan ownership. Although non-Native men in Massachusetts may proudly sport tattoos featuring ravens, eagles or killer whales in the Northwest style, few are aware of even the cultures from which these images are taken, let alone the fact that in many cases they have been for centuries the intellectual property of a people that has never been compensated for their popular use. In this context, it should be noted that in Tlingit society, use of clan images, dances, songs, stories by non-members without advance permission of the clan remains a serious offense.

(*Yéil*) clans and the Eagle (*Ch'áak'*) or, alternately, Wolf (*Gooch*) clans. These two superordinate groupings have been referred to by Western scholars as 'moieties' or 'phratries', though there does not appear to be a specific Tlingit word for them.⁷ Although it did not traditionally function as a political division in the manner of the clan, a person's moiety bears on many aspects of their social existence. Traditionally, a person could not marry someone of their own moiety; a person of a Raven clan could only marry someone of an Eagle/Wolf clan, and *vice versa*, though these restrictions were greatly weakened in the 20th Century. Furthermore, a wide variety of cultural norms aim at a principle of 'balance' and 'reciprocity' between the moieties, including the principle that the funerary ceremonies for a given individual be organized by a clan of the *opposite* moiety (Dauenhauer & Dauenhauer 1990).

The history of the Tlingit people following contact with Europeans receives extraordinary treatment in Dauenhauer & Dauenhauer (1994), Grinev et al. (2005), and Black, Dauenhauer & Dauenhauer (2007); here, I will only briefly review some of the major events and themes. Following intermittent contact with explorers and traders in the 18th Century, the Tlingit faced Russian occupation of their lands at the turn of the 19th Century. In response, they lead a fierce and largely successful campaign, destroying Russian forts in Yakutat and Sitka. Eventually, the Russians were able to re-establish their fort at Sitka, but only after building an immense stockade. Armed Tlingit resistance prevented the development of any further Russian settlements in Southeast Alaska, and despite nominal 'rule' by the Russians, the Tlingit retained complete control of their traditional territory. Sadly, despite the relative isolation of the Russians, the Tlingit were at this time greatly affected by the introduction of European diseases, and outbreaks of measles and smallpox took a heavy toll on their population.

Following the Russian sale of Alaska to the United States in 1867, the Tlingit for the first time faced wide-scale European invasion of their lands. Homesteaders and prospectors swarmed the area in relatively huge numbers, seizing Tlingit lands and forcing aside the reduced Native population. Moreover, almost immediately Presbyterian missionaries began to stream in, determined to force the Tlingit to assimilate to the culture of Victorian America. American military rule during this period was particularly brutal, and included such atrocities as the Bombing of Angoon, where, in response to the Tlingit seizure of an American fishing boat, the U.S. Navy destroyed the village of Angoon (*Aangóon*), killing untold numbers of innocent men, women and children. The establishment of an Alaskan civil government in 1884 only served to introduce further abuses upon the Tlingit, through the institutionalized racism of its laws and its explicit exclusion of Native peoples.

The founding of the Alaska Native Brotherhood (ANB) in 1912, however, would eventually bring about a successful campaign for Native civil rights and land rights throughout Alaska. The story of the ANB's legal struggle for land and civil rights nicely introduces and illustrates the major changes that occurred in Tlingit society during the 20th Century, and so some space will be devoted to it here.

Founded by Tlingit, Haida and Tsimshian graduates of the Presbyterian mission schools, the ANB initially had as its organizational goal the assimilation of Native people into American culture. In line with its assimilatory goals, the ANB provided its members with extensive education and practice in the Anglo-American conventions of public speaking and debate, as well as its peculiar legal and parliamentary procedures. Over time ANB members began to reject the founding goal of 'assimilation', and instead began to view Native land claims and civil rights

⁷ In Tlingit, the word *naa* refers ambiguously to either one's specific clan or one's broader categorization as Raven/Eagle-Wolf.

as the unifying goal of the Brotherhood. Following the Indian Reorganization Act of 1934, the ANB formed the Central Council of Tlingit and Haida Indian Tribes of Alaska (CCTHITA), as the entity to legally pursue the Native land claims against the United States; the CCTHITA remains today the official 'tribal government' recognized by the US for the Tlingit and Haida peoples of Alaska.

After successfully fighting for the right to bring suit against the US in 1935, various delays and obstructions prevented the CCTHITA from receiving a decision in their case until 1959, when the US Court of Claims ruled that the Tlingit and Haida were indeed the original owners of Southeast Alaska, and so Russia lacked the right to sell that territory to the US. The United States immediately began a strong, decade-long opposition to the court's ruling, a confrontation that was finally ended by a settlement between the CCTHITA and the US government, a settlement enshrined in law as the Alaska Native Claims Settlement Act (ANCSA) of 1971. The terms of ANCSA are summarized by the following passage from Dauenhauer & Dauenhauer (1994).

...in return for relinquishing aboriginal claim to their lands, Native people were [under ANCSA] to receive \$962.5 million dollars from the state and federal governments and were to retain title to approximately forty million acres. Money and land would not go directly to the people, but would be held and managed by [Native owned] corporations... Natives are enrolled as shareholders, but only those born "on or before the date of enactment," (December 18, 1971) are eligible... (Dauenhauer & Dauenhauer 1994; pp. 98 – 99)

Although this unique situation presents its own unique challenges, "for better or worse, the corporate model is the vehicle for settlement in Alaska, in contrast to reservations and other models of tribal management" (Dauenhauer & Dauenhauer 1994; p. 99).

2.2 Prior Scholarship Regarding the Tlingit Language

Study of the Tlingit language began in the early 19th Century, during the period of Russian colonization (Leer 1991, Mithun 1999). The most notable work of this period is the grammatical sketch by Veniaminov (1846). The bibliography of Naish (1966) lists many works of this period that are typically not referenced in more modern work. Kelley & Willard (1904) presents a fairly complete listing of the language's phonemic inventory, and some sample verb paradigms, but does not otherwise contain grammatical description. The first extensive collection of Tlingit texts is Swanton (1909), and Swanton (1911) provides a comparatively extensive grammatical sketch. However, this latter work is superceded by Boas (1917), widely regarded as the first adequate and fully accurate description of Tlingit phonology and verbal morphology. Miller (1931) provides early phonetic study of Tlingit, with accompanying texts; a much more advanced phonetic study has been carried out by Maddieson et al. (2001). A small number of Tlingit texts were collected by Velten (1939, 1944). It should be noted that all grammatical description of Tlingit preceding 1960 is superceded by work following that date.

The 'modern period' of Tlingit language research begins with the ground-breaking work of Naish (1966) and Story (1966). Story (1966) surpasses Boas (1917) in description of the phonology and verbal morphology of Tlingit, and Naish (1966) far exceeds the latter work in its coverage of the language's syntax. Indeed, Naish (1966) is the first *and only* extensive work

focusing primarily on the syntax of Tlingit. For this reason, it remains today the principal reference regarding the language's syntax, and represents virtually all that is known within this subject. It should be noted, however, that only about 130 pages of Naish's work are given to syntactic description. The rest are taken up with phonological and morphological information (overlapping with Story 1966), and with the analysis of an annotated text.

Following their study of Tlingit grammar, Naish and Story collaborated on both a verb dictionary (Story & Naish 1973) and a noun dictionary (Story et al. 1976). The verb dictionary contains a grammatical sketch and numerous example sentences. It should be noted that Story & Naish (1973) contains some grammatical information not found in either Story (1966) or Naish (1966). Other Tlingit noun dictionaries besides Story et al. (1976) include Leer et al. (2001) and Twitchell (2005). Story & Naish (1973) remains the only verb dictionary for the language.

Dryer (1985) provides a brief, 11-page study of word order in the Tlingit texts collected by Swanton (1911). The only other purely grammatical study of the Tlingit language is the PhD dissertation of Jeff Leer (Leer 1991), whose treatment of Tlingit verbal morphology and phonology improves greatly upon the work of Story (1966). Although it clarifies a great many issues in the grammar of Tlingit, Leer (1991) focuses primarily on verbal morphology and phonology, and only 20 pages in 500 are given to syntactic description. It should be noted, though, that those 20 pages contain important, novel insights regarding the structure of the language's noun phrase and clausal architecture.

Since the 1960's, there has been collected and published a sizeable amount of Tlingit textual material. Worthy of special mention are the three volumes of texts edited by Nora and Dick Dauenhauer (Dauenhauer & Dauenhauer 1987, 1990, 1994), each of which contain some original grammatical observations. Williams, Williams & Leer (1978) and Nyman & Leer (1993) are also deserving of special mention. Other published textual material from this period includes Story (1995) and Dauenhauer & Dauenhauer (1981, 1995). The majority of Tlingit textual material is published by SHI. In addition, some unpublished Tlingit textual material is archived at the SHI offices in Juneau, Alaska. Finally, work is currently underway at the University of Alaska, Southeast to create a comprehensive electronic database of annotated Tlingit texts.

A small number of educational materials are available for the study of Tlingit as a second language. Besides the aforementioned dictionaries, there is an introductory textbook with audio CDs (Dauenhauer & Dauenhauer 2000), a phrase book (Dauenhauer & Dauenhauer 2002), and a phrase book with accompanying CDs (Edwards et al. 2005). An intermediate textbook is presently under development (Dauenhauer & Dauenhauer *to appear*), as well as a more comprehensive verb and noun dictionary (Edwards *to appear*). All the aforementioned educational materials are either published or distributed by the Sealaska Heritage Institute.

For reasons of space and relevance, the extensive literature on the genetic affiliation of Tlingit will not be mentioned here. Summaries of this literature can be found in Dürr et al. (1995) and Campbell (1997). Some of the most notable works are: Sapir 1915; Goddard 1920; Pinnow 1962, 1964, 1968; Krauss 1965, 1968, 1969, 1977; Hamp 1979; Leer 1979, 1990; Levine 1979; Krauss & Leer 1981; Greenberg 1987; Manaster-Ramer 1996. It should be noted that the works concerning the genetic affiliation of Tlingit and the structure of its ancestral source far outnumber the handful devoted to grammatical description of the language, the latter consisting essentially of Naish (1966) and Leer (1991). Again, the only work providing extensive discussion of Tlingit syntax is Naish (1966).

2.3 Grammatical Sketch

In this section, I provide the reader with a brief, introductory overview of the Tlingit language. Later sections will direct the reader to portions of this sketch where they are relevant for the argumentation.

2.3.1 Phonology

Throughout this thesis, I represent the sounds of Tlingit using the ‘American orthography’ for the language (Dauenhauer & Dauenhauer 2000). This orthography is used in the Alaskan school system and in all publications by the Sealaska Heritage Institute. A different, ‘Canadian orthography’ is used by Tlingit living Canada and by the Yukon Native Language Center (Nyman & Leer 1993). A third, ‘E-mail orthography’ – a hybrid of the American and Canadian systems – has organically developed in recent years, and frees speakers from having to use the special diacritics needed in the earlier two orthographies (Crippen 2006).

The chart below provides featural descriptions of the consonantal sounds represented by each of the consonant symbols of the American orthography.

(23) Consonantal Inventory of Tlingit

| | | Alveolar | Lateral | Palatal | Velar | | Uvular | | Glottal | |
|-----------|-------------|----------|---------|---------|-------|-------|--------|-------|---------|-------|
| | | | | | plain | round | plain | round | plain | round |
| Stop | plain | d | | | g | gw | g̥ | g̥w | . | .w |
| | aspirated | t | | | k | kw | k̥ | k̥w | | |
| | glottalized | tʼ | | | kʼ | kʼw | k̥ʼ | k̥ʼw | | |
| Affricate | plain | dz | dl | j | | | | | | |
| | aspirated | ts | tl | ch | | | | | | |
| | glottalized | tsʼ | tlʼ | chʼ | | | | | | |
| Fricative | plain | s | l | sh | x | xw | x̥ | x̥w | h | hw |
| | glottalized | sʼ | lʼ | | xʼ | xʼw | x̥ʼ | x̥ʼw | | |
| Nasal | | n | | | | | | | | |
| Glide | | | | y | | w | | | | |

As this chart indicates, the consonantal system of Tlingit has the following properties. There are no bilabial consonants. Velar, uvular and glottal sounds contrast in rounding; coronal, palatal and lateral sounds do not. All obstruents may be glottalized, except for “sh” and “h” and “.”;

thus, Tlingit is one of the very few languages in the world to possess ejective fricatives (Maddieson et al. 2001). Finally, the only voiced segments are “n”, “y” and “w”; the contrast between the sounds represented, for example, by “d” and “t” is one of aspiration, not voicing. Thus, although Tlingit has a particularly rich inventory of lateral sounds, none of its five contrasting laterals is the voiced liquid /l/.

The orthography used to represent the vocal segments of Tlingit is introduced in the chart below.

(24) **Vowel Inventory of Tlingit**

| | | Front | Central | Back |
|------|------------|-------|---------|------|
| High | long/tense | ee | | oo |
| | short/lax | i | | u |
| Mid | long/tense | ei | | |
| | short/lax | e | a | |
| Low | long/tense | | aa | |
| | short/lax | | | |

As this chart indicates, the vocalic system of Tlingit has the following properties. It contains a high front vowel “ee”, a mid front vowel “ei”, a low central vowel “aa” and a high back vowel “oo”. The high back vowel is the only rounded vocal segment. Vowels contrast in quantitative length. Furthermore, quantitative length is correlated with tenseness (or ATR). Not indicated in this chart is Tlingit’s contrast between high and low toned vowels. Tlingit is a ‘high-toned’ language; its default tone is low. Contour tones do not exist in Tlingit. Tone value is unpredictable in Tlingit nouns. However, tone is largely predictable in Tlingit verbs, where it has a paradigmatic status (see Story & Naish 1973; pp. 379 – 382).

Tlingit possesses a variety of phonological processes that alter the underlying forms of words and phrases. These processes are all carefully described in Story (1966) and Leer (1991), and some receive formal analysis in Cable (2004a, 2006a, 2006b). As with other Na-Dene languages, the most complex of these processes take place amongst the verbal prefixes, and serve to greatly reduce the surface form of the potentially long chain of prefixes preceding a verbal root. The sometimes drastic effect of these processes is illustrated below, under (25). Note that, although the underlying forms of the verbal prefix strings differ in only one syllable, the surface forms differ remarkably in their appearance.

(25) **Phonological Alternations in the Tlingit Verbal Prefix String**

- a. Surface Form: Daa sá kkwaxá?
Underlying Form: Daa sá ga-u-ga-xa-xá?
Morpheme Gloss: what Q future-irrealis-modal-1sSubj-eat
Translation: *What will I eat?*
- b. Surface Form: Daa sá gaxtooxá?
Underlying Form: Daa sá ga-u-ga-too-xá?
Morpheme Gloss: what Q future-irrealis-modal-1plSubj-eat
Translation: *What will we eat?*

2.3.2 Morphology

Tlingit may be described as a ‘head-marking’ language (Nichols 1986). Rather than overtly mark nominal arguments with case affixes, Tlingit marks the main predicate of the clause with complex agreement morphology. Correspondingly, nominal morphology in Tlingit is comparatively poor – it primarily consists of possessive marking and (optional) plural marking – while verbal morphology is quite rich, and contributes a wide variety of information about the event described.

Tlingit shares with the related Athabaskan languages a rich verbal morphology consisting predominately of prefixes. The order of prefixes in Tlingit is not easily derivable from general principles, and so it is standardly described by use of a stipulative ‘morphological template’. The template encodes certain co-occurrence restrictions as well as linear ordering.

I adopt here a morphological template for Tlingit that amalgamates those employed in Naish (1966), Story (1966), Story & Naish (1973), Leer (1991) and Dauenhauer & Dauenhauer (2000). I emphasize that I adopt this template purely as a descriptive device; see McDonough (2000) p. 139 – 141 and Rice (2000) for strong arguments against the use of the template in the theoretical analysis of Na-Dene morphology.

The Tlingit verb contains sixteen prefixal ‘positions’.

(26) **Shape of the Tlingit Verb**

16 – 15 – 14 – 13 – 12 – 11 – 10 – 9 – 8 – 7 – 6 – 5 – 4 – 3 – 2 – 1 – ROOT-Suffixes

Most positions may only be occupied by at most one prefix, though prefix positions 16 and 14 (and also possibly 10 and 9) may be occupied by more than one prefix. The prefixes occupying a given templatic slot generally share some morpho-syntactic property. Given these shared properties, we can further describe and characterize the various templatic slots as follows.

(27) **Morpho-Syntactic Characterization of the Templatic Slots**

| | |
|--------------|--|
| Position 16: | Adverbial Proclitics |
| Position 15: | Reciprocal Marking |
| Position 14: | 3 rd Person Number Agreement |
| Position 13: | Object Agreement |
| Position 12: | Alienably Possessed Incorporated Nouns |
| Position 11: | Inalienably possessed Incorporated Nouns |
| Position 10: | Thematic Prefix 1 |
| Position 9: | Thematic Prefix 2 |
| Position 8: | Self-Benefactive Marking |
| Position 7: | Aspect/Conjugation Marker 1 |
| Position 6: | Irrealis Marking |
| Position 5: | Aspect/Conjugation Marker 2 |
| Position 4: | Aspect |
| Position 3: | Distributive Marking |
| Position 2: | Subject Agreement |
| Position 1: | Verbal Classifier |

For the reader's interest, I provide below a comprehensive list of the verbal prefixes of Tlingit.

(28) **The Verbal Prefixes of Tlingit**⁸

Position 16: Adverbial Proclitics

gunayéi, áa, shóo, héeni, gági, éegi, dáagi,
yan, yax, neil, neilx, haat, haax, yóot, yóox, kut, kux, kuxx, yaax, hinx, kwáakx, yetx, (etc.)
kei, yeik, daak, daak
yei, yoo, yaa

Position 15: Reciprocal: woosh (alternately: wooch)

Position 14: Number (3rd Person Subject Agreement)

has (*animate plural*)
dax (*inanimate plural/distributive*)

⁸ Note that some prefixes are orthographically represented as 'separate words', with a 'space' intervening between them and the verb.

Position 13: Object Agreement

| | |
|-----|-----------------------------------|
| xat | (<i>first person singular</i>) |
| haa | (<i>first person plural</i>) |
| i | (<i>second person singular</i>) |
| yee | (<i>second person plural</i>) |
| a | (<i>third person obviative</i>) |
| ash | (<i>third person proximate</i>) |
| ku | (<i>areal</i>) |
| at | (<i>indefinite</i>) |
| aa | (<i>partitive</i>) |
| sh | (<i>reflexive</i>). |

Position 12: Alienably Possessed Incorporated Nouns

yaan, shakux, yata, x'asakw, gax, kanik, xei, kee, yee, yaka, saa, .aan, naa, sha.axw, yakw, hin, tux'

Position 11: Inalienably Possessed Incorporated Nouns

ji, x'e, tu, sha, lu, se, sa, xa, shu, gu, ta, (etc.)

Position 10: Theme Prefix: ya

Position 9: Theme Prefix: ka

Position 8: Self-Benefactive Marker: ga

Position 7: Aspect/Conjugation Marker 1

| | |
|----|--------------------------------------|
| ga | (<i>future; third conjugation</i>) |
| Ø | (<i>first conjugation</i>) |

Position 6: Irrealis Prefix: u⁹

Position 5: Aspect/Conjugation Marker 2

| | |
|----|--|
| ga | (<i>fourth conjugation</i>) |
| na | (<i>progressive; second conjugation</i>) |

⁹ There is perhaps evidence of up to three different prefixes with the form u/oo occupying this position. The evidence comes primarily from differences in how hiatus introduced by u is resolved, depending on the morphosyntactic context of the prefix (Leer 1991; p. 111). Although important, I leave these details aside, and adopt the simplifying assumption that there is a single 'irrealis' prefix matched to Position 6.

Position 4: Aspect

ga (modal)
wu (perfective)

Position 3: Distributive Prefix: daga

Position 2: Subject Agreement

x̣a (first person singular)
too (first person plural)
ee (second person singular)
yi (second person plural)
du (fourth person)
∅ (third person)

Position 1: Classifier

ya, da, di, ∅, li, l, dli, la, si, s, dzi, sa, shi, sh, ji, sha

Given this morphological system, a particular surface verbal form of Tlingit may underlyingly contain a sizeable number of prefixes, as can already be seen from our examples under (25) above. For this reason, and because this chapter principally concerns Tlingit syntax, I will only provide the roughest of glosses for the Tlingit verbs exemplified throughout. I will not provide a full morphological break-down of every verbal form, but will rather gloss only the ‘propositional content’ of a given verb, as illustrated below (cf. the gloss in (25)).

(29) **Propositional Gloss of Verbal Forms in Tlingit Sentences**

- a. Daa sá kkwaxá?
what Q **I.will.eat.it**
What will I eat?
- b. Daa sá gaxtooxá?
what Q **we.will.eat.it**
What will we eat?

Note that these ‘propositional glosses’ are merely a notational convenience, and do not represent any serious proposals regarding the morpho-syntax of Tlingit. Thus, although these glosses contain English pronouns, I do not seriously adopt the ‘Pronominal Argument Hypothesis’ (Jelinek 1984) for Tlingit. Rather, I hold the view that full DPs in Tlingit can function as verbal arguments, and are not necessarily mere clausal adjuncts.

2.3.3 Syntax

As mentioned in Section 2.2, the only work providing focused discussion of Tlingit syntax is Naish (1966) and Leer (1991). Although many aspects of Tlingit syntax have yet to be studied, certain general features are well documented. Since many of the more specific details of Tlingit syntax will be introduced as they become relevant, I introduce here for the reader only the most basic facts about its gross syntactic structure.

Generally speaking, the Tlingit language is syntactically not very different from its Athabaskan relatives. Indeed, the extensive syntactic parallels between Tlingit and the other Na-Dene languages were an early (though ultimately invalid) argument for their relatedness. Like the other Na-Dene languages, Tlingit is a head-marking language with extensive null anaphora; in a connected Tlingit discourse, one very rarely finds sentences where all the nominal arguments of the predicate are overtly represented (Dryer 1985). Also like its Athabaskan relatives, Tlingit largely displays a head-final alignment: the language employs post-positions, and no prepositions; possessors and other nominal complements precede the head noun; demonstratives, adjectives, relative clauses and other nominal modifiers precede the head noun; auxiliary verbs follow main verbs. In addition to this, the most frequent word order in Tlingit texts is typically OV (Dryer 1985).

Unlike its Athabaskan relatives, however, Tlingit has rather free word order, and freely permits the positioning of major constituents after the verb.¹⁰ Generally speaking, any permutation of S, V, O is an allowable sentence of Tlingit, though there are of course discourse-structural effects associated with particular orders (see Leer 1991; Chapter 2). This freedom of word order is illustrated below, via both elicited structures and naturally occurring textual examples.

(30) **Word Order Freedom in Tlingit: Elicited Examples**¹¹

- a. SOV Wé shaawách xóots awsiteen.
 that woman.erg bear she.saw.it
 The woman saw the bear.
- b. SVO Wé shaawách wusiteen xóots.¹²
 that woman.erg she.saw.it bear
 The woman saw the bear.

¹⁰ Indeed, in some texts, (S)VO order slightly outnumbers (S)OV order. This is reported in Dryer (1985) and also conforms to my own experience.

¹¹ Keri Edwards (p.c.) reports that some speakers find the SVO and VSO orders in (30b,e) to be highly awkward, characterizing them as ‘backwards’ and only said in moments of great excitement. A generalization that would cover this pattern might be that, for such speakers, if the object follows the verb (V > O), then the subject must follow the object (O > S).

¹² The reader may note that the verbal form in (30b) differs from that in (30a). This is due to a morpho-phonological rule that deletes 3rd obviative object agreement when the verb is directly preceded by an NP marked by the optional ergative post-position. The effect of this rule appears in many of the examples throughout this thesis.

- c. OVS Xóots awsiteen wé shaawátch.
bear she.saw.it that woman.erg
The woman saw the bear
- d. OSV Xóots wé shaawátch wusiteen.
bear that woman.erg she.saw.it
The woman saw the bear
- e. VSO Awsiteen wé shaawátch xóots.
she.saw.it that woman.erg bear
The woman saw the bear
- f. VOS Awsiteen xóots wé shaawátch.
she.saw.it bear that woman.erg
The woman saw the bear

(31) **Word Order Freedom in Tlingit: Textually Represented Examples**

- a. SOV Dikée Aankáawu yá Lingit'aaní awliyéx.
God this world he.made.it
The lord above created this world.
(Dauenhauer & Dauenhauer 1987; p. 78; line 130-131)
- b. OSV¹³ Ch'a á áyá ch'a yá Lingit'aaních áyá wliyéix, yá t'áax'aa.
prtcl it foc-part prtcl this world.erg foc-part it.made.it this mosquito
*Mosquitoes were created by the world.*¹⁴
(Dauenhauer & Dauenhauer 1987; p. 78; line 135-136)
- c. (S)VO Aya du kaa'k shatch wuskoo' yoo naa'kw.
prtcl his uncle wife.erg she.knew.it that medicine
His uncle's wife knew (about) that medicine.
(Williams, Williams & Leer 1978; "Lingi't Naa'gu Daa't At"; line 274)
- Xwasikóo áyá xwajaagí yáa kusaxa kwáan.
I.know foc-part I.killed.it this cannibal
I know I killed this cannibal.
(Dauenhauer & Dauenhauer 1987; p. 78; line 105)

¹³ Outside of wh-questions, OSV word order seems especially rare in texts. Dryer (1985), for example, reports not a single instance of the order in his textual counts. In my own experience, the order is attested, though vanishingly rare in non-interrogative clauses. Speakers do, however, readily accept constructed OSV sentences, especially when the optional 'ergative' subject marker is used, as in (31b) and in (30d). In general, though, the 'post-verbal field' is where the 'action' lies with respect to word-order flexibility in Tlingit.

¹⁴ Tlingit lacks a passive voice; the passive in the English gloss is simply the translator's means of rendering the discourse structural properties of Tlingit OSV order.

- d. OVS Kaa x'aya.áxch wé át, wé shaa tsú.
 men it.understands.it that thing that mountain too
That mountain could understand human speech too.
 (Nyman & Leer 1993; p. 6; line 111)
- e. VSO Daxásh eekx' du tláa xáat.
 she.cuts.it beach.at his mother salmon
His mother was cutting salmon at the beach.
 (Swanton 1909; p. 306)
- f. VOS Ldakát áwé aawa xáa wé sakwnéin i éesh.
 all foc-part he.ate.it that bread your father
Your father ate all the bread.
 (John Marks; June 2005)

2.4 Methodology Used in This Study

2.4.1 Methodology

In this final introductory section, I will say a few words regarding the methodology followed by this study, as well as the nature of the data on which I base my linguistic generalizations regarding Tlingit.

As the reader will see, much of the data in this thesis is taken from published Tlingit texts. Many of the illustrative example sentences found throughout the thesis are taken from published texts, and most of the grammatical generalizations are supported by textual analysis. In many cases, we will see that the textual absence of a putative structural type is robust enough to warrant the conclusion that such structures are ill-formed in Tlingit. Thus, for many of the subjects that this thesis examines, published texts are not simply a source of *positive* data, but also provide much (implicit) *negative* data as well. Fortunately, then, there are a comparatively sizeable number of published Tlingit texts, as mentioned in Section 2.2. In the course of this study, the following texts were examined: Boas 1917; Dauenhauer & Dauenhauer 1981, 1987, 1990, 1994, 2000, 2002; Naish 1966; Nyman & Leer 1993; Story & Naish 1973; Story 1995; Swanton 1909; Velten 1939, 1944; Williams, Williams & Leer 1978. In addition to these published texts, I have also been able to examine some currently unpublished material, including Dauenhauer & Dauenhauer (to appear) and Edwards (to appear), as well as certain unpublished materials archived at the SHI offices in Juneau, Alaska.

Although all these texts were examined and found to be consistent with the grammatical generalizations proposed here, a 'core' set of five book-length texts were analyzed to obtain specific word-order counts for a variety of subjects: Dauenhauer & Dauenhauer 1987, 1990, 2000, 2002, and Nyman & Leer 1993. The analyses that these five 'core' texts were subject to will be introduced as they become relevant to the linguistic argumentation. All the textual analysis reported here was carried out entirely by hand; no digitized files were analyzed by algorithmic means.

Besides the analysis of texts, data for this project has been obtained through interviews with native speakers of Tlingit. In the course of this project, four native speakers of Tlingit were consulted, three men – David Katzeek (Juneau), John Marks (Juneau), Fred White (Yakutat) –

and one woman – Anita Lafferty (Hoonah). All four individuals speak some sub-variety of the Northern Dialect of Tlingit. My access to these speakers was facilitated by the Sealaska Heritage Institute (SHI), and more specifically by Keri Edwards, who is a linguist on staff with SHI. All four speakers were independently employed by SHI as language consultants, serving as an invaluable resource for the various language programs, classes, materials and projects administered by SHI.¹⁵

Interview sessions with these native speakers consisted primarily of the following activities, paradigmatic of field linguistics throughout its history (Samarin 1967, Newman & Ratliff 2001). First, speakers were asked to directly translate short English passages, or English sentences supplied with a clarifying context. Sentences offered by native speakers as translations were thus one source of ‘positive data’, illustrating what structures are permissible in the language. Subsequently, speakers were often asked to compare the correctness of novel, constructed examples to ones previously uttered by the speakers or categorized by the speakers as correct. Structures accepted as correct were thus an additional source of positive data, while structures rejected as incorrect were often a source of negative data. I should note here that, through their experiences as language educators and in doing extensive linguistic work with Keri Edwards, these speakers were very comfortable with the task of judging the correctness of novel sentences, and usually offered much more extensive commentary and information than simple judgments of ‘correct’ or ‘incorrect’. Besides these sorts of tasks, further information about the Tlingit language was obtained directly from the speakers’ own observations about their language. Speakers would sometimes draw my attention towards other ways of translating a given English sentence, or other interesting structures that a given word or phrase might appear in (John Marks, in particular, would often point out interesting facts related to the sentences we were discussing).

These interview sessions included both group sessions and one-on-one sessions with individual speakers. Generally speaking, at a given time I worked with all the people who were available. If more than one person was available, then all the speakers were interviewed together as a group, but if only one was available, I would meet with that person individually.

With the permission of the speakers, all interview sessions were recorded on a Tascam digital 8-track recorder. I later made transcriptions based upon these recordings. For each session, each speaker in that session was later given a copy of the recording and of the transcription. Furthermore, a copy of every recording and its transcription were given to SHI, for inclusion in their Tlingit language archives. In the following section, I provide more information regarding the Sealaska Heritage Institute and its archives of Tlingit linguistic material.

2.4.2 The Sealaska Heritage Institute

Given its central role in the procurement of the data upon which this thesis is based, I provide here some information regarding the Sealaska Heritage Institute, my relationship to them, and their official archives.

The Sealaska Heritage Institute is a Native nonprofit organization established for the Tlingit, Haida and Tsimshian people of Southeast Alaska, whose mission is to “perpetuate and

¹⁵ I should note here that two of these individuals (Fred White and Anita Lafferty) were at SHI specifically to assist in the development of Edwards (to appear). Thus, my own opportunity to work with these individuals was entirely thanks to the original efforts of Keri Edwards in bringing them to SHI. As I mention throughout, I am deeply grateful to Keri Edwards and SHI for the opportunities they have given me to study the Tlingit language.

enhance Tlingit, Haida and Tsimshian Cultures” (SHI 2003). The organization (formerly named “Sealaska Heritage Foundation”) was founded in 1981 by the Sealaska Corporation (SHI 2003). The Sealaska Corporation is a for-profit company created under the 1971 Alaska Native Claims Settlement Act as the regional ANCSA corporation for Southeast Alaska. Some fundamental background concerning Sealaska and ANCSA was provided earlier in Section 2.1.3. For information concerning SHI and its history, I refer the reader to SHI (2003).

Since 1997, SHI has adopted as its “foremost priority” the revitalization of the Tlingit, Haida and Tsimshian languages. As one small part of its many ongoing programs related to language restoration, SHI provides “logistical support and introductions [for] visiting scholars [whose work] may advance the mission of SHI, provided that the Institute may share in the results” (SHI 2003). It is through this Visiting Scholar program that I was able to conduct work at SHI in June of 2005, May of 2006 and in the Summer of 2007. Several native speakers of Tlingit and Haida work for SHI as language consultants, including all the remaining speakers of Alaskan (Kaigani) Haida. Also on staff at SHI are two linguists specializing in the Tlingit language (Keri Edwards and Yarrow Vaara) and one linguist specializing in the Haida language (Jordan Lachler). In addition, the Tlingit scholars Dick and Nora Dauenhauer, who perform contract work for the Institute, are regular visitors. As a visiting scholar, I was granted interviews with the Institute’s Tlingit language consultants, and regularly conferred with the linguists there.

Following each of my visits to SHI, I composed for the Institute a report detailing the results of my study. These reports present the main descriptive results of the study in clear, non-technical language, as the intended audience of the reports is the staff at SHI, as well as all those who may study the language in the future. The purpose of these reports is to make the primary descriptive results of the study available to the community, and to fulfill my obligation to share with SHI the results of the work I conducted as a visiting scholar. SHI has my permission to distribute these reports as they see fit. They are currently on file in the SHI archives at the SHI offices in Juneau, AK. These archives are not generally open to the public, but are accessible with the permission of SHI. Access is granted to individuals by SHI on a case-by-case basis.

3. The Behavior of Wh-Words in Tlingit Wh-Questions

Having provided a basic introduction to the Tlingit people and their language, I begin in this section to establish the principle claim of this chapter, namely, that the structure in (18) is the correct analysis of wh-questions in Tlingit. Specifically, this section argues that Tlingit may be described as a ‘wh-fronting language’, in that the wh-words in a Tlingit wh-question obligatorily appear within the left-periphery of the clause.

Given the paucity of descriptive work on Tlingit syntax, this is an original claim regarding the structure of the language’s wh-questions, and so I take care to defend it at length. I begin in Section 3.1 by introducing various basic properties of Tlingit wh-questions. Then, in Section 3.2, I outline a variety of word-order constraints found operable in Tlingit wh-questions, and argue that they are best explained by the generalization that wh-words in such questions must be located in the left-periphery of the clause.

3.1 Basic Properties of Tlingit Wh-Questions

A wh-question of Tlingit necessarily contains one of its wh-words, which are listed below.

(32) **The Wh-Words of Tlingit**

- | | | |
|----|----------|-------------------------------------|
| a. | Daat | <i>What</i> ¹⁶ |
| b. | Daakw | <i>Which</i> ¹⁷ |
| c. | Aa | <i>Who</i> |
| d. | Aadóo | <i>Who</i> ¹⁸ |
| e. | Goo | <i>Where</i> |
| f. | Wáa | <i>How, why, what</i> ¹⁹ |
| g. | X'oon | <i>How much</i> |
| h. | Gwatk | <i>When (in the past)</i> |
| i. | Gwatgeen | <i>When (in the future)</i> |

In Chapter 1, we received our first introduction to Tlingit wh-questions via the sentences under (1), repeated below as (33).

(33) **Illustrative Examples of Wh-Questions in Tlingit**

- | | | |
|----|---|----------------------------------|
| a. | Waa sá sh tudinookw i éesh? | |
| | how Q he.feels your father | |
| | <i>How is your father feeling?</i> | (D&D 2000; p. 138) ²⁰ |
| b. | Daa sáwé i éesh al'óon? | |
| | what Q.foc-part your father he.hunts.it | |
| | <i>What is your father hunting?</i> | (D&D 2000; p. 186) |

As noted earlier, the Tlingit sentences under (33) illustrate the general structure of the language's wh-questions, which may be schematized as in (34).

(34) **General Form of a Wh-Question in Tlingit**

[s ... [[... wh-word ...] sá] (focus particle) ... Main-Predicate]

The schema in (34) encapsulates the following properties of wh-questions in Tlingit. First, as we will soon see, the wh-word must precede the main predicate of the wh-question, and is typically initial in the clause. Secondly, the wh-word is followed by the Q-particle *sá*, which either directly follows the wh-word or directly follows a phrase containing the wh-word; i.e., the Q-particle must *c-command* the wh-word. As shown in (33b), this Q-particle can form a

¹⁶ The words *daat* and *wáa* undergo important phonological changes in certain environments. In particular, *daat* surfaces as *daa* and *wáa* surfaces as *waa* when they are directly followed by the particle *sá*.

¹⁷ This word is recorded as *daakw* in Naish (1966) and Story & Naish (1973).

¹⁸ It is not known to me whether there is any difference in meaning or grammar between 'aa' and 'aadoo'. Their origins are also unknown to me, as well as which – if any – is the older form.

¹⁹ *Wáa* is translatable as 'what' when it functions as the object of a verb of speaking or thinking. In other words, one does not ask in Tlingit the direct equivalent of 'what did you say', but rather 'how did you say'. This is, indeed, a not-unusual pattern in the languages of the world (Norvin Richards, p.c.).

²⁰ To save space, I will henceforth abbreviate the names "Dauenhauer & Dauenhauer" to "D&D".

portmanteau with the ‘focus particles’ *áwé, áyá, áyú, áhé*, the two surfacing together as *sáwé, sáyá, sáyú, sáhé*.²¹ Finally, the remaining material of the sentence typically follows the wh-word, with a strong tendency to follow the verb.

Because of the freedom of word order in Tlingit (Section 2.3.3), it isn’t obvious upon casual examination whether the language requires wh-words to occupy a left-peripheral position in wh-questions. Indeed, this issue has not yet been addressed in the published grammatical descriptions of Tlingit. Nevertheless, certain facts indicate that such wh-words are left-peripheral in Tlingit wh-questions.²²

3.2 Evidence that Tlingit is a Wh-Fronting Language

In this section, I present evidence that Tlingit is a wh-fronting language. In Section 3.2.1, I demonstrate that the wh-word of a wh-question must precede the main predicate of the clause. In Section 3.2.2, I demonstrate that material preceding the wh-word of the wh-question must be interpreted as a discourse topic, and so is likely to occupy a left-peripheral discourse-structural position. In Section 3.2.3, I demonstrate that long-distance questions in Tlingit require fronting of the wh-word to a position before the matrix predicate. In Section 3.2.4, I demonstrate that multiple wh-questions in Tlingit are subject to Superiority Effects.

Taken together, I conclude that these facts effectively show Tlingit to be a wh-fronting language, in that the wh-words of its wh-questions must occupy left-peripheral positions.

3.2.1 Obligatory Pre-Predicate Position of Wh-Operators in Wh-Questions

As was shown in Section 2.3.3, word order in Tlingit is generally free, and any permutation of S, V and O is a well-formed sentence. In a Tlingit wh-question, however, the phrase understood to be the wh-operator *must* appear left of the main predicate of the clause.²³ By the term “predicate” here, I mean either the verb of the clause (if one is present) or the so-called ‘focus particles’ *áwé, áyá, áyú, áhé* in their ‘copular use’. Examples of copular use of a focus particle are given in sentences (35 a, b) below.

²¹ I borrow the label ‘focus particle’ from Leer (1991). It isn’t clear to me, however, whether ‘focus particle’ is the best label for these particles. Story (1995) notes that the particles can serve equally well to either ‘background’ or to ‘foreground’ material. My own suspicion is that these particles can simply follow any element in any left peripheral position, whether Topic or Focus. Such a particle has been independently reported for the neighboring language Haida (Enrico 2003), where it actually seems cognate with the Tlingit particle. I should note that such an account of these particles is essentially that proposed in Leer (1991), though it seems out of sorts with the label ‘focus particle’. Finally, D&D (1990) takes the view that these particles are semantically empty, and can simply be optionally added to any prosodic phrase in the sentence.

²² Much of the evidence that follows is consistent with an analysis where wh-words in Tlingit wh-questions must be fronted to an immediately pre-verbal focus position, akin to wh-questions in other so-called ‘discourse configurational languages’ (Kiss 1995). It has been argued by some authors that such immediately preverbal focus positions are not left-peripheral positions (Arregi 2003a). Note, however, that sentences such as (33b) indicate that Tlingit does not require wh-words in wh-questions to occupy an *immediately* preverbal position, which indicates that wh-fronting in Tlingit is to a left-peripheral CP position.

²³ Throughout this chapter, I use the term ‘wh-operator’ in a purely informal, descriptive sense, as (roughly) ‘the wh-word representing the information being sought by the speaker’. As will be clear from the semantics proposed in Section 7, I do not believe that such wh-words are operators in any real semantic sense. Rather, they are argued to be elements that obligatorily introduce ‘focus alternatives’ into the meaning of the sentence.

(35) **Copular Use of the Focus Particles**

- a. Tás áyá.
thread foc-part
This is thread. (D&D 2000; p. 77)
- b. Daa sáwé?
what Q.foc-part
What is that? (D&D 2000; p. 77)

The requirement that a Tlingit wh-operator precede the predicate is apparent both from patterns within published texts and from the well-formedness judgments of native speakers. The following chart demonstrates how this pattern emerges across a range of published texts.

(36) **The Pre-Predicate Position of Wh-Operators in Wh-Questions**

| Text | Wh-Questions Containing an Overt Predicate (Either Verb or Focus Particle) | Of Those in First Column, Number in Which the Wh-Operator Precedes the Predicate |
|-------------------|--|--|
| D&D 1987 | 117 | 117 |
| D&D 1990 | 31 | 31 |
| D&D 2000 | 170 | 170 |
| D&D 2002 | 84 | 84 |
| Nyman & Leer 1993 | 114 | 114 |
| TOTAL | 516 | 516 |

In this chart, the middle column lists the number of wh-questions in the text that contain an overt predicate. The last column lists the number of those questions counted in the middle column in which the wh-operator of the question precedes the main predicate of the clause. As the chart indicates, all the wh-questions in the selected corpus containing an overt predicate place the wh-operator *before* the predicate.

This pattern is also confirmed by the grammaticality judgments offered by native speakers. As the following data show, speakers reject as ill-formed any wh-question where the wh-operator follows the main predicate.²⁴ Such sentences are consistently corrected by speakers to ones in which the wh-operator *precedes* the predicate.

(37) **Wh-Operators in Tlingit Must Precede the Main Predicate**

- a. Aadóoch sá **kgwatóow** yá x'úx'?'
who.erg Q he.will.read.it this book
Who will read this book?
- b. Aadóoch sá yá x'úx' **akgwatóow?**
who.erg Q this book he.will.read.it

²⁴ Interestingly, one speaker commented that such sentences sound like 'baby Tlingit'.

- c. Yá x'úx' **aadóoch** sá **kgwatóow**?
 this book who.erg Q he.will.read.it
- d. * Yá x'úx' **akgwatóow** **aadóoch** sá ?
 this book he.will.read.it who.erg Q

(38) **Wh-Operators in Tlingit Must Precede the Main Predicate**

- a. **Aadóoch** sá **kawshixít** yá x'úx'?
 who.erg Q he.wrote.it this book
Who wrote this book?
- b. Yá x'úx' **aadóoch** sá **kawshixít**?
 this book who.erg Q he.wrote.it
- c. * Yá x'úx' **akawshixít** **aadóoch** sá?
 this book he.wrote.it who.erg Q

(39) **Wh-Operators in Tlingit Must Precede the Main Predicate**

- a. **Aadóoch** sá **ax** sakwnéini **aawaxáa**?
 who.erg Q my bread he.ate.it
Who ate my bread?
- b. **Ax** sakwnéini **aadóoch** sá **uwaxáa**?
 my bread who.erg Q he.ate.it
- c. * **Ax** sakwnéini **aawaxáa** **aadóoch** sá?
 my bread he.ate.it who.erg Q

(40) **Wh-Operators in Tlingit Must Precede the Main Predicate**

- a. **Daa** sá kéet **axá**?
 what Q killerwhale he.eats.it
What do killerwhales eat?
- b. Kéet **daa** sá **axá**?
 killerwhale what Q he.eats.it
- c. * Kéet **axá** **daa** sá?
 killerwhale he.eats.it what Q

(41) **Wh-Operators in Tlingit Must Precede the Main Predicate**

- a. **Waa** sáyá **at** **kuwanóok**?
how Q.foc-part they.do.it
What are those people doing?
- b. * **At** **kuwanóok** **waa** sáyá?
they.do.it how Q.foc-part

Of course, one might justifiably wonder whether the ill-formedness of the starred sentences above is due, not to a rule of obligatory wh-fronting, but to independent semantic conditions on post-predicate NPs. Perhaps post-predicate NPs must possess qualities that wh-words inherently lack, such as definiteness? Note, however, that wh-words in Tlingit can function as indefinites in declarative clauses. When a wh-word is used as an indefinite, it is not required to appear before the predicate of the clause. This fact is clearly indicated both by textual examination and by the well-formedness judgments of native speakers. The following chart demonstrates that the selected corpus of texts supports this grammatical generalization.

(42) **Wh-Indefinites May Freely Follow the Main Predicate of the Clause**

| Text | Sentences Containing Wh-Indefinite and Overt Predicate (Either Verb or Focus Particle) | Of Those in First Column, Number in Which the Wh-Indefinite Precedes the Predicate |
|-------------------|---|---|
| D&D 1987 | 74 | 63 |
| D&D 1990 | 26 | 24 |
| D&D 2000 | 0 | 0 |
| D&D 2002 | 6 | 6 |
| Nyman & Leer 1993 | 205 | 187 |
| TOTAL | 311 | 280 |

In this chart, the middle column lists the number of sentences in the text that contain a wh-indefinite and an overt predicate. The last column lists the number of those sentences counted in the middle column in which the wh-indefinite precedes the main predicate of the clause. As the chart indicates, not all wh-indefinites in the selected corpus precede the main predicate of their clause. The following two sentences illustrate these textually attested cases of post-predicative wh-indefinites.

(43) **Textual Examples of Post-Predicative Wh-Indefinites**

- a. **Áa** haa uwaxée **x'oon** **sákwhéwé**
there we.spend.night how.much Q.dubitative
We stayed there I don't know how long.
(Nyman & Leer 1993; p. 176; line 190)

- b. K'e s kaawashoo **daat** yáx sá.
 exclm they.got.drunk what like Q
Well, they got really drunk.
 (Nyman & Leer 1993; p. 176; line 591)

This pattern is also confirmed by comments offered by native speakers. Although sentences such as (37d) and (40c) are not acceptable as wh-questions, speakers note that they can function as declarative sentences containing wh-indefinites.

(44) **Post-Predicative Wh-Indefinites**²⁵

- a. Yá x'úx' **akw**gwatóow **aadóoch** sá.
 this book he.will.read.it who.erg Q
People will read this book.
- b. Kéet **axá** **daa** sá.
 killer.whale he.eats.it what Q
A killerwhale will eat anything.
- c. **Yéi** uwatee **x'oon** táakw sá.
 he.lived.there how.many winters Q
He lived there for a number of years (= many years).

We see, then, that there is no condition requiring wh-indefinites in Tlingit to appear before the main predicate of the clause; such wh-words may freely appear in the post-verbal field. I conclude that the inability for wh-operators in wh-questions to appear following the predicate is not due to their lacking some inherent semantic property that post-predicate NPs are required to have. Indeed, the only relevant difference between the wh-words in (43) – (44) and those in (37) – (41) is that the latter function as wh-operators while the former do not. I conclude that the best explanation for the requirement that wh-operators appear before the predicate of the clause is that such wh-words are fronted into the left periphery. Further evidence for such an obligatory rule of wh-fronting will be provided in the next few sections.

3.2.2 Topic Status of Material Preceding Wh-Operators in Wh-Questions

Additional evidence that wh-operators are left-peripheral in Tlingit wh-questions may be found in the discourse-structural properties of material preceding such wh-words. As shown by sentences like (37c), it is possible for other XPs to precede the wh-word in a Tlingit wh-question. Placement of an XP before the wh-word, however, creates a structure with special discourse properties: the fronted XP must be construed as a discourse topic. This is suggested both by textual examination and by speaker judgments.

²⁵ Keri Edwards (p.c.) reports that some speakers find these sentences to be unacceptable, and require the wh-indefinites to appear before the main predicate. I would hypothesize that for such speakers, there are additional conditions on post-predicate placement that independently rule out the appearance of post-predicative wh-indefinites. It is worth noting that these speakers do seem to exhibit a more restricted post-verbal field (see Footnote 11).

Although often accepted by speakers, sentences such as (37c) are remarkably rare in texts. Indeed, the overwhelmingly predominant pattern is for wh-words in wh-questions to precede all other major constituents in the sentence. The following chart illustrates.

(45) **The Initial Position of Wh-Words in Tlingit Wh-Questions**

| Text | Wh-Questions Containing Wh-Word and a Second Major, Non-Predicate Constituent | Of Those in First Column, Those in Which Wh-Word is Initial in the Clause | Of Those in Second Column, Those in Which the Initial Position of the Wh- Word Does not Follow From Typical Word Order |
|-------------------|--|--|---|
| D&D 1987 | 43 | 43 | 32 |
| D&D 1990 | 21 | 20 | 11 |
| D&D 2000 | 27 | 27 | 19 |
| D&D 2002 | 18 | 18 | 8 |
| Nyman & Leer 1993 | 58 | 58 | 44 |
| TOTAL | 167 | 166 | 114 |

In this chart, the left-hand column indicates the number of wh-questions in the corpus containing some major constituent besides the wh-word and the predicate. The middle column reports how many, from the questions represented in the left column, place the wh-word initially in the clause. Finally, the right column indicates the number of questions in the middle column in which the initial position of the wh-word does *not* follow from more general word-order frequencies in Tlingit, such as the fact that subjects tend to precede objects in the language (Dryer 1985). The totals at the bottom of the chart indicate an overwhelming preference for wh-questions to begin with wh-words.

Consonant with their textual rarity, sentences like (37c) are occasionally judged by speakers to be marginal or ill-formed, a classification that is sometimes revised upon further reflection. The textual rarity of sentences like (37c) would, of course, follow from their possessing special discourse properties, ones that place strong limits on the kind of context in which such structures might be embedded. Such special discourse properties would also account for their occasional rejection by speakers, rejection occurring when the licensing context is difficult for the speaker to imagine or strikes them as far-fetched.

It seems likely, then, that sentences like (37c) possess some special discourse-structural property. That this property is the ‘topichood’ of the material preceding the wh-word comports well with a number of other facts. First, in all the naturally occurring instances of non-initial wh-operators I have encountered, the material preceding the wh-operator is a referential expression. The following two examples illustrate the general pattern.

(46) **Textually Attested Examples of the Order [XP ... Wh-Operator ... V]**

- a. Wé i sée daakw aa sáwé?
that your daughter which of.them Q.foc-part
Which one is your daughter? (D&D 1990; p. 298; line 10)
- b. I kutaaní waa sá wootee?
your summer how Q it.was
How was your summer?
(SHI; Tlingit Phrase of the Week; September 6, 2005)²⁶

Note that this pattern is also evident in sentences (37c), (38b), (39b) and (40b).²⁷ Indeed, speakers do not allow fully *non-referential* material to precede the wh-operator of a wh-question.

(47) **Non-Referential DPs Cannot Precede Wh-Operators**

- a. Aa sáyá l daa sá uxá?
who Q.foc-part nothing he.eats.it
Who ate nothing?
- b. * L daa sá aa sáyá uxá?
nothing who Q.foc-part he.eats.it

These data indicate that only *referential* XPs may precede the wh-operator of a wh-question. Of course, one of the core properties of ‘topics’ is that they can only be denoted by referential expressions (Li 1976), and so these data argue that any material preceding the wh-operator of a Tlingit wh-question must be construed as a discourse topic.

A final suggestive piece of evidence is the translations offered by speakers for sentences like (37c). When these sentences are accepted by native speakers, they are regularly translated into English using hanging topic left dislocation structures, such as the following.

(48) **The Order [XP ... Wh-Operator ... V] Translated as Left Dislocation**

- a. Ax éesh daa sá aawaxáa?
my father what Q he.ate.it
Translated as ‘My father, though, what did he eat?’
- b. Yá xáat aadóoch sá uwaxáa?
this fish who.erg Q he.ate.it
Translated as ‘That fish – who ate it?’

²⁶ The Sealaska Heritage Institute regularly posts a ‘Tlingit Phrase of the Week’. This and others may be found at http://www.sealaskaheritage.org/programs/tlingit_phrase_of_week.htm.

²⁷ The appearance of the generic NP *kéet* in sentence (40b) does not necessarily upset the generalization, given that generic NPs are classified by many semanticists as referential terms, denoting kinds (Carlson & Pelletier 1995).

- c. Yá x'úx' aadóoch sá kgwatóow?
 this book who.erg Q he.will.read.it
Translated as 'This book – who will read it?'

That speakers use English left dislocation to translate these sentences supports their having a special discourse structure that is not possessed by a simple wh-question and that only left dislocation in English is able to simulate.²⁸

There is, then, good reason to conclude that any material preceding the wh-operator of a Tlingit wh-question must be interpreted as a discourse topic. This fact itself would most naturally follow from a syntax in which wh-operators are fronted into the left periphery of Tlingit wh-questions. Under such a syntax, any material occurring to the left of a Tlingit wh-operator would either have to occupy a left-peripheral Topic position (Rizzi 1997), or else would have to simply be a dislocated, hanging topic. Thus, the special discourse-structural properties of sentences with non-initial wh-operators in Tlingit provides further evidence that wh-operators must front in Tlingit wh-questions.

3.2.3 Long Distance Questions in Tlingit Require Long-Distance Movement

Another striking argument that wh-operators in Tlingit undergo obligatory fronting may be found in the language's long-distance questions. In Tlingit long-distance questions, the subordinate clause preferably follows the verb it is complement to (49a), though a pre-verbal order is also possible (49b).²⁹

(49) Long-Distance Wh-Questions in Tlingit

- a. Daa sá uwajée wutoo.oowú?
 what Q they.think we.bought.it
What did they think we bought?
- b. Daa sá wutoo.oowú uwajée?
 what Q we.bought.it they.think

For obvious reasons, the activity of an obligatory wh-fronting rule in Tlingit long-distance questions is easiest to detect when the subordinate clause follows the main verb. In such sentences, the interrogative word *must* appear to the left of the main verb, and cannot appear downstairs in its base position.

²⁸ Of course, the possibility exists that these speakers were simply trying to mirror the syntax of the original Tlingit in their English translations. I find this explanation doubtful, however. One speaker who was quite consistent in using left-dislocation in his translations of these sentences would nevertheless translate other non-English word-orders as standard SVO English sentences.

²⁹ By saying that the post-verbal order is 'preferable', I mean that it is the one most often encountered in texts, and the one most often provided by speakers when asked for translations of English long-distance questions.

(50) **Long-Distance Movement in Tlingit Long-Distance Questions**

- a. [**Daa** **sá**]₁ i tuwáa sigóo [t₁ yéi isaneyí] ?³⁰
what Q your spirit it.is.glad you.do.it
What do you want to do?
- b. * I tuwáa sigóo [**daa** **sá** yéi isaneyí] ?
your spirit it.is.glad what Q you.do.it

(51) **Long-Distance Movement in Tlingit Long-Distance Questions**

- a. [**Daa** **sá**]₁ haa koo at latóowu yawsikaa [t₁ wutootoowú] ?
what Q our teacher he.said we.read.it
What did our teacher tell us to read?
- b. * Haa koo at latóowu yawsikaa [**daa** **sá** wutootoowú] ?
our teacher he.said.it what Q we.read.it

(52) **Long-Distance Movement in Tlingit Long-Distance Questions**

- a. [**Goodéi** **sá**]₁ i shagóonich has uwajée [t₁ wutoo.aadí] ?
where.to Q your parents.erg they.think we.went
Where do your parents think that we went?
- b. * I shagóonich has uwajée [**goodéi** **sá** wutoo.aadí] ?³¹
your parents.erg they.think where.to Q we.went

The impossibility of the (b)-sentences in (50) – (52) indicates that wh-operators in Tlingit must be fronted into the left-periphery of the wh-question.

3.2.4 Superiority Effects in Multiple-Wh Questions

A final piece of evidence for wh-fronting in Tlingit wh-questions comes from the language's multiple wh-questions. As shown in Section 2.3.3, word order in Tlingit is rather free. For

³⁰ Sentence (50a) illustrates the Tlingit idiom for 'to want'. Since we will encounter this expression many times throughout this thesis, a few words should be said about it here. In Tlingit, one expresses the proposition "X wants Y" – where Y can be a CP or a DP – with an idiom literally meaning "Y is glad in X's mind-face (spirit)" (Leer 1991). This idiom can also be interpreted as "X likes Y", which may in fact be the original meaning. This idiom has undergone a certain amount of grammaticalization and phonetic reduction, but its original structure can be seen in sentences like the following.

(i) Has du tuwáx' gu.áwe gé xat sigóo gé.
their spirit.at perhaps.foc-part Q I.am.glad Q
I wonder if they like me. (Naish 1966; p. 63)

³¹ Sentence (52b) can reportedly be interpreted to mean "Your parents wondered where we went." Thus, the asterisk here is intended only to represent that the sentence cannot be interpreted as a matrix wh-question meaning "Where do you parents think we went?"

example, both objects and adverbial phrases are generally permitted to precede subjects in a Tlingit declarative clause; see the examples in (30) and (31), as well as those in (53) below.

(53) Word Order Freedom in Tlingit

- a. Ax éesh hoon daakahídidéi yaa nagút.
 my father store.to he.goes
 My father is going to the store.
- b. Hoon daakahídidéi ax éesh yaa nagút.³²
 store.to my father he.goes
 My father is going to the store.

In multiple wh-questions, however, such relative freedom of order is not available. Interrogative subjects must obligatorily precede interrogative objects and adverbial phrases.

(54) Superiority Effects in Tlingit Multiple Wh-Questions

- a. Aa sá daa sá aawaxáa?
 who Q what Q they.ate.it
 Who ate what?
- b. * Daa sá aa sá aawaxáa?
 what Q who Q they.ate.it

(55) Superiority Effects in Tlingit Multiple Wh-Questions

- a. Aa sá goodéi sá woogoot?
 who Q where.to Q they.went
 Who went where?
- b. * Goodéi sá aa sá woogoot?
 where.to Q who Q they.went

(56) Superiority Effects in Tlingit Multiple Wh-Questions

- a. Aa sá waa sá kuyawsikaa?
 who Q how Q they.said.to.someone
 Who said what?
- b. * Waa sá aa sá kuyawsikaa?
 how Q who Q they.said.to.someone

³² Keri Edwards (p.c.) reports that some speakers find (53b) to be unacceptable, and prefer the order ADV,V,S to the order ADV,S,V. This is in line with the tendency for the post-verbal field to be the locus of word-order freedom.

The speaker judgments indicated above are consistent with the available textual data. Although I have encountered only one clear example of a multiple wh-question in my collected corpus, its word order conforms to the pattern illustrated above: the subject wh-word precedes the adverbial wh-word.

(57) **Textually Attested Example of Tlingit Multiple Wh-Question**

X'oon waa sákwshei aax aawa.aat.
 how.many how Q.dubit. there.from they.went
How many left in what way, I wonder? (D&D 1987; p. 196; line 60)^{33, 34}

It thus appears that in a Tlingit multiple wh-question, a wh-word subject must precede any wh-word objects or adverbs. This otherwise mysterious requirement would, of course, follow naturally from the Superiority Condition (Kuno & Robinson 1972; Chomsky 1973), but *only* under the assumption that Tlingit wh-words undergo obligatory fronting in wh-questions. I conclude, then, that the apparent activity of the Superiority Condition in Tlingit multiple wh-questions provides further evidence that wh-operators in Tlingit obligatorily front to the left periphery of the clause.

4. Q-Particles in Tlingit Wh-Questions: The Formal Status of Sá

I conclude from the grammatical patterns described in Section 3 that the wh-operator of a Tlingit wh-question must occupy a left peripheral position within the clause. In this section, I argue that the Tlingit particle *sá* – which obligatorily co-occurs with the language’s wh-words – is most plausibly categorized as a Q-particle. Thus, wh-questions in Tlingit are of a kind not widely discussed in the literature: they possess overt Q-particles in addition to obligatory overt fronting of the wh-words.³⁵

This argument, however, must be rather indirect, as there is no deep theoretical significance of the term “Q-particle” in the literature, nor are there any stated diagnostics for applying the term. I will therefore argue that *sá* is a Q-particle on the basis of its similarity to the

³³ The translation of this sentence provided by D&D (1987) is “I wonder how many of them and how they got out of there?” I believe the gloss I provide in (57) to be a fair rephrasing of this translation, one that mirrors the syntax of the original Tlingit.

³⁴ Note that unlike sentences (54) – (56), sentence (57) contains only a single Q-particle, though it contains more than one fronted wh-word. This presents a rather direct, *prima facie* challenge to our analysis in (18). Note, however, that an analysis along the lines of Grewendorf (2001) may be possible here. Grewendorf (2001) proposes that multiple wh-fronting in some languages is derived by the movement of a lower wh-word into the projection of a higher wh-word, which then subsequently fronts. Sentence (57), therefore, may reflect a structure where the lower wh-word *waa* ‘how’ has moved into the QP dominating *x’oon* ‘how many’. Subsequent fronting of the QP would then derive the structure in (57), in a manner consistent with the core proposals in (18). Let us finally note that such an analysis would be remarkably similar to that developed by Tanaka (1998) for multiple wh-questions in Japanese, as we will later discuss in Chapter 4.

³⁵ Although not widely discussed, languages possessing such wh-question formation strategies are not unheard of. Some other prominent examples are the Tupí languages of Central and South America (Brandon & Seki 1984), as well as the Nigerian language Edo, which we will examine more closely in Chapter 4.

Note that I am speaking here of languages which require *wh-questions* to have particles (in addition to wh-movement); much more widely attested are languages possessing both wh-movement (without particles) in wh-questions and ‘yes/no’-question particles in polar questions (Bruening 2007).

particle *da* in Sinhala and the particle *ka* in Japanese. Given that *da* and *ka* are uncontroversial instances of Q-particles, the overwhelming parallels between *sá*, *da* and *ka* will demand that *sá* receive the same categorization.

In Section 4.1, I demonstrate that *sá*, *da* and *ka* share the property that they must appear both with wh-operators in wh-questions and wh-indefinites in declarative clauses. In Section 4.2, I show that these particles also all share the property that they must c-command the wh-word they are paired with. In Section 4.3, I show that these particles all have the property that they cannot be separated from the edge of the clause by a syntactic island. Finally, in Section 4.4, I show that *sá* and *da* share the property that they cannot appear at the end of matrix clauses, though they can appear clause-final in subordinate clauses.

4.1 The Obligatory Presence of *Sá*

A wh-question in Tlingit must contain the particle *sá*. If this particle is removed from any of the sentences above, the result is ill-formed.³⁶

(58) The Obligatory Presence of *Sá* in Tlingit Wh-Questions

- a. Daa *(sá) aawaxáa i éesh?
 what Q he.ate.it your father
What did your father eat?
- b. Goodéi *(sá) kkwagóot?
 where.to Q I.will.go
Where will I go?

As in many languages, wh-words in Tlingit may also function as indefinites. When they do, the particle *sá* is *still* obligatory.

(59) The Obligatory Presence of *Sá* with Tlingit Wh-Indefinites

- Tlél goodéi *(sá) xwagoot.
 not where.to Q I.went
I didn't go anywhere.

The data in (59) demonstrate that *sá* is required not only by the interrogative force of the clause, but by the wh-word itself. Although this may seem to undercut the force of the label

³⁶ As noted in Cable (2006c; p. 121), however, there may be one exception to this rule. Although more work must be done to clarify the data, it appears that if the wh-operator *wáa* 'how' is contained inside a relative clause – as in the later examples (69a), (70a), and (71a) – then the particle *sá* can be dropped from the sentence. I currently have no explanation for this exceptional pattern, if it does indeed turn out to be true.

“question particle”,³⁷ this property also holds for such prototypical ‘Q-particles’ as Japanese *ka* and Sinhala *da*.³⁸

(60) **The Obligatory Presence of *Da* in Sinhala Wh-Questions and Wh-Indefinites**

- a. Chitra monawa *(da) gatte?
 Chitra what Q bought
What did Chitra buy? (Kishimoto 2005; p. 3, 4)
- b. Mokak *(da) waetuna.
 what Q fall
Something fell. (Hagstrom 1998; p. 23)

(61) **The Obligatory Presence of *Ka* in Japanese Wh-Questions and Wh-Indefinites**

- a. John-ga nani-o kaimasita *(ka)?³⁹
 John-nom what-acc bought.polite Q
What did John buy?
- b. John-ga nani-*(ka)-o katta.
 John-nom what-Q-acc bought
John bought something.

The data in (60) and (61) lead Hagstrom (1998) to propose a semantic analysis of Q-particles under which they are expected to appear both within wh-questions and with wh-words interpreted as indefinites in declarative clauses. I will later show in Section 7 that this semantic analysis may with minor modification be extended to the Tlingit particle *sá*, and would similarly predict its parallel grammatical behavior. Such a shared semantics would constitute one reason to apply the label “Q-particle” to Tlingit *sá*.⁴⁰

³⁷ Throughout this chapter and later chapters, we will see that the syntactic label ‘Q’ must be understood as an arbitrary name for a unified, natural class of objects, ones that don’t necessarily have any inherent connection to ‘questions’ *per se*.

³⁸ It should be noted, however, that there are a number of particles besides *da* and *ka* which wh-indefinites in Sinhala and Japanese may appear with. This is not so for Tlingit.

³⁹ In highly colloquial Japanese, it is reportedly possible to drop *ka* in matrix wh-questions like (31a) (Lasnik & Saito 1992, Yoshida & Yoshida 1996, Ko 2005). However, there are certain stringent conditions governing this ‘particle drop’, and under at least one current account, such sentences contain an unpronounced *ka* (Ko 2005).

⁴⁰ One salient difference, however, between Tlingit *sá* and the other two particles is that *sá* can *only* appear in sentences containing wh-words. The particle *sá* simply has no use outside of its obligatory co-occurrence with wh-words. This is unlike Japanese *ka* and Sinhala *da*, which can function both as markers of polar questions and as disjunctive operators (Hagstrom 1998).

In this context, however, let us note that polar (yes/no) questions in Tlingit are formed via insertion of the particle *gé*, as illustrated by the following sentence.

- (i) Lingít gé x’eeya.áxch?
 Tlingit y/n you.understand.it
Do you speak Tlingit?

Thus, in Tlingit, wh-questions and yes/no questions are formed via two distinct particles. I suspend judgment here as to whether the particle *gé* should also be regarded as an instance of Q. Nevertheless, given the distinction

4.2 The Structural Position of *Sá*

As can be seen from most of the sentences above, it is common for the particle *sá* to be located directly to the right of a wh-word. Such placement of *sá* is further illustrated below.

(62) Tlingit *Sá* Directly to the Right of a Wh-Word

- a. **Daa** **sá** aawaxáa i éesh?
what Q he.ate.it your father
What did your father eat?
- b. **Daa** **sá** i tuwáa sigóo [____ yéi isaneyí] ?
what Q your spirit it.is.glad you.do.it
What do you want to do?
- c. **Aa** **sá** **daa** **sá** du tuwáa sigóo [____ wutoo.oowú] ? ⁴¹
who Q what Q their spirit it.is.glad we.bought.it
Who wants us to buy what?
- d. **Daa** **sá** gaxyixáa á áyá gaxyi.een.
what Q you.will.eat that foc-part you.will.kill
Whatever you'll eat is what you will kill.
(Dauenhauer & Dauenhauer 1987; p. 120; line 214)
- e. Aaa, hél tsu **aadóo** **sá** shí du tóo yéi wunei.
yes not too who Q song their mind it.did
Yes, no one else thought of songs.
(Dauenhauer & Dauenhauer 1987, p. 284, line 447)
- f. **Daa** **sá**wé yóo dikéena á
what Q.foc-part yonder far.out.across.one
There was something up there.
(Nyman & Leer 1993; p. 14; line 103)

However, this particle can also appear further to the right, detached from the interrogative word. This is evident from sentences such as (43b), (44c), (46b) and (52a). More examples illustrating such rightward positioning of *sá* appear below.

between *gé* and *sá* in Tlingit, I assume that the use of *da/ka* in Sinhala/Japanese polar questions reflects the existence of a separate, homophonous 'yes/no' particle. Thus, the apparent difference noted above might be only apparent, as the actual, underlying correlates of *sá* in Japanese and Sinhala likewise appear only in wh-questions.

⁴¹ Note that sentence (62c) illustrates that possessor-extraction in Tlingit is licensed by pronominal resumption. This construction is given further attention and analysis in Section 6.2.3.

(63) **Tlingit Sá Separated From the Wh-Word**

- a. [**Goodéi**] **sá** **kkwagóot**?
 where.to Q I.will.go
Where will I go to?
- b. [**Goodéi** **woogootx**] **sá** **has uwajée** **i** **shagóonich**?⁴²
 where.to he.went Q they.think your parents.erg
Where do your parents think that he went?
- c. [Ch'a **wáa** **yeikuwáat'dei**] **sáyá** **ax** **yáa** **yéi kgwatée**.
 just how it.is.long.towards Q.foc-part my face it.will.be
It will stain my face forever. (D&D 1987, p. 274, line 272)
- d. [**Aadóo** **yaagu**] **sá** **ysiteen**?
 who boat Q you.saw.it
Whose boat did you see?
- e. [**Daakw** **keitl**] **sá** **ashaa**?
 which dog Q it.barks
Which dog is barking?
- f. Tlél [**daakw** **lingit'aani** **tukwáani**] **sá** **haa yáx** **gugaté**.
 not which world people Q us like there.will.be
No other people in the world will be like us. (D&D 1990, p. 158, line 25)
- g. Tlax [**daat** **yáx**] **sáyá** **haa x'éi** **yak'éi**
 very what like Q.foc-part our mouth it.is.good
How good they tasted to us. (D&D 1987, p. 74, line 40)
- e. [**Daat** **yís**] **sáyá** **has du ádi** **tle** **aax** **kayeeyjeil**?
 what for Q.foc-part their things prtcl from.there you.took.them
Why did you take their things away?
 (Nyman & Leer 1993; p. 88; line 984)
- h. [**Daat** **tlein**] **sáwé** **tsú** **wéix** **yaa nagút**.
 what big Q.foc-part too there.at it.is.walking
There was something large walking along over there. (Leer 1993; p. 17)
- d. Tle **gushé** [**x'oon** **k'óox**] **sáyú** **has aawaják**.
 prtcl prtcl how.many marten Q.foc-part they.killed.them
I don't know how many marten they killed. (Nyman & Leer 1993; p. 56)

⁴² Note that sentences like (63b) also demonstrate that subordinate CPs in Tlingit may be pied-piped.

Upon examination of just the sentences in (62) and (63), one might form the simple hypothesis that the particle *sá* can be freely placed *anywhere* to the right of the interrogative word. Although this would be the simplest conclusion, the ill-formedness of sentences (64b) and (65b) below demonstrates that it cannot be correct. Rather, the correct generalization is that *sá* must appear either directly to the right of the wh-word, or directly to the right of a phrase containing the wh-word. In other words, the particle *sá* has to c-command the wh-word.

(64) **Tlingit *Sá* Must C-Command the Wh-Word**

- a. [**Aadóo** jeet] **sá** wé sakwnéin aawatee?
 who hand.to Q that bread he.brought.it
Who did he give the bread to?
- b. * [**Aadóo** jeet] wé sakwnéin **sá** aawatee?
 who hand.to that bread Q he.brought.it

(65) **Tlingit *Sá* Must C-Command the Wh-Word**

- a. [**Goodéi**] **sá** has uwajée woogootx i shagóonich?
 where.to Q they.think he.went your parents.erg
Where do your parents think he went
- b. * [**Goodéi**] has uwajée woogootx **sá** i shagóonich?
 where.to they.think he.went Q your parents.erg

The condition that the Q-particle c-command the wh-word also holds of Sinhala *da* and Japanese *ka*. This c-command condition is stated explicitly by Kishimoto (2005; p. 13) for Sinhala *da* and by Yatsushiro (2001; p. 182) for Japanese *ka*. The sentences below illustrate structures where these latter two particles appear detached from their associated wh-words.

(66) **Sinhala *Da* Separated from the Wh-Word (Kishimoto 2005; p. 13)**

- a. Chitra [**mona** pota] **da** gatte?
 Chitra what book Q bought
What book did Chitra buy?
- b. Chitra [**kaa**-ge amma] **da** daekke?
 Chitra who-gen mother Q saw
Whose mother did Chitra see?
- c. Chitra [**kauru** ekka] **da** kataa kalee?
 Chitra who with Q talk did
Who did Chitra talk with?

(67) **Japanese *ka* Separated from the Wh-Word (Yatsushiro 2001; p. 182)**

[[**Dare**-no hahaoya]-**ka**-no kaban-wa] koko-ni aru.
who-GEN mother-Q-GEN bag-TOP here-LOC is
The bag of the mother of someone or other is here.

Such identity of distribution further emphasizes the formal similarity between *sá*, *da* and *ka*. Moreover, it will be shown in Section 7 that this apparently syntactic condition on the placement of these particles follows from a particular semantic theory of Q-particles and wh-words.

4.3 Q-Particles and Extraction Islands

One of the most intriguing similarities between Tlingit *sá* and Sinhala *da* concerns their behavior with respect to islands. As described in Hagstrom (1998) and Kishimoto (2005), the wh-operator of a Sinhala wh-question may be contained inside an island if and only if the Q-particle *da* is merged outside the island. In the case of relative clause islands, the Q-particle must be merged to the right of the head of the relative clause. The following data illustrate.⁴³

(68) **Interaction Between Q-Particle and Relative Clause Islands in Sinhala**

a. Oyaa [[Chitra **kaa**-ta dunna_{CP}] pota_{NP}] **da** kieuwe?
you Chitra who-dat give book Q read
Who did you read the book that Chitra gave?

b. * Oyaa [[Chitra **kaa**-ta **da** dunna_{CP}] pota_{NP}] kieuwe?
you Chitra who-dat Q give book read

(Kishimoto 2005; p. 29)

The same condition can be observed in Tlingit. The wh-operator of a Tlingit wh-question may be contained inside an island if and only if the particle *sá* is merged outside the island. When this occurs, the entire island is pied-piped into the left periphery of the interrogative clause. In the case of relative clause islands, the particle *sá* must be merged to the right of the head of the relative clause.

⁴³ Because Japanese *ka* obligatorily appears at the end of the interrogative clause, it cannot be easily determined whether this property also holds of the Japanese Q-particle. However, Hagstrom (1998; p. 40) argues that the behavior of the emphasis marker *ittai* in Japanese provides indirect evidence that it does. Thus, accepting the evidence put forth by Hagstrom (1998), we find that the pattern below again unites Japanese *ka* with Sinhala *da* and Tlingit *sá*.

(69) **Interaction Between Q-Particle and Relative Clause Islands in Tlingit**

- a. [[**Wáa** kligéiyi_{CP}] xáat_{NP}] **sá** i tuwáa sigóo? ⁴⁴
how it.is.big.REL fish Q your spirit it.is.happy
How big a fish do you want?
(*A fish that is how big do you want?*)
- b. * [[**Waa** **sá** kligéiyi_{CP}] xáat_{NP}] i tuwáa sigóo?
how Q it.is.big.REL fish your spirit it.is.happy
- c. * [[**Wáa** kligéiyi_{CP}] **sá** xáat_{NP}] i tuwáa sigóo?
how it.is.big.REL Q fish your spirit it.is.happy

(70) **Interaction Between Q-Particle and Relative Clause Islands in Tlingit**

- a. [[**Wáa** yateeyí_{CP}] sháx'sáani_{NP}] **sá** ash kudlénxa?
how they.are.REL girls Q they.are.tempting.him
What kind of girls are tempting him?
(*Girls that are how are tempting him?*)
- b. * [[**Waa** **sá** yateeyí_{CP}] sháx'sáani_{NP}] ash kudlénxa?
how Q they.are.REL girls they.are.tempting.him
- c. * [[**Wáa** yateeyí_{CP}] **sá** sháx'sáani_{NP}] ash kudlénxa?
how they.are.REL Q girls they.are.tempting.him

(71) **Interaction Between Q-Particle and Relative Clause Islands in Tlingit**

- a. [[**Wáa** yateeyí_{CP}] sháx'sáani_{NP}] **sá** sh tuwáa gaa yatee?
how they.are.REL girls Q refl.spirit for they.are
What kind of girls are pleasing to his eye?
(*Girls that are how are pleasing to his eye?*)
- b. * [[**Waa** **sá** yateeyí_{CP}] sháx'sáani_{NP}] sh tuwáa gaa yatee?
how Q they.are.REL girls refl.spirit for they.are
- c. * [[**Wáa** yateeyí_{CP}] **sá** sháx'sáani_{NP}] sh tuwáa gaa yatee?
how they.are.REL Q girls refl.spirit for they.are

The speaker judgments indicated above are consistent with the available textual data as well. The chart below demonstrates that the selected corpus of texts supports this generalization.

⁴⁴ Like many languages, Tlingit possesses only a small, closed class of adjectives, and so most nominal modification is accomplished with relative clauses. Thus, questions regarding the degree to which some NP possesses a given property (e.g. “How ADJ a NP”) must in Tlingit be asked using a structure in which the wh-word is buried within a relative clause. This fact greatly aids the elicitation in Tlingit of wh-questions where wh-words are buried within relative clause islands.

(72) **Textual Examination of the Interaction Between Q-Particle and Relative Clause**

| Text | Wh-Questions Where the Wh-Operator of the Question is Contained within a Relative Clause Island | Of Those in First Column, Those in Which <i>Sá</i> Appears to the Right of Both the Relative Clause and the NP it Modifies | Of Those in First Column, Those in Which <i>Sá</i> Appears Either to the Left of the Modified NP or Internal to the Relative Clause |
|-------------------|---|--|---|
| D&D 1987 | 4 | 4 | 0 |
| D&D 1990 | 6 | 6 | 0 |
| D&D 2000 | 4 | 4 | 0 |
| D&D 2002 | 1 | 1 | 0 |
| Nyman & Leer 1993 | 5 | 5 | 0 |
| TOTAL | 20 | 20 | 0 |

As the totals here clearly indicate, whenever a wh-operator in the selected corpus is contained inside a relative clause, the particle *sá* appears to the right of both the relative clause and the noun it modifies. Thus, the selected corpus supports the generalization that in Tlingit wh-questions, the wh-operator can be located inside of an island *if and only if* the Q-particle *sá* is outside the island.

Both the speaker judgments and the textual data above further emphasize the syntactic parallels between Tlingit *sá* and Sinhala *da*. In Section 5, we will see that a uniform syntactic account can be provided for these facts, just so long as both these particles share a syntactic categorization as Q-particles.

4.4 Q-Particles at the Right Edge of the Matrix Clause

One final parallel between Sinhala *da* and Tlingit *sá* is that neither particle may freely appear at the right edge of the matrix clause, following the matrix predicate.^{45, 46} This generalization is illustrated for Sinhala *da* below.

⁴⁵ This property clearly does not hold of the Japanese particle *ka*.

⁴⁶ Hagstrom (1998) and Kishimoto (2005) describe some limited cases where Sinhala *da* may appear at the right edge of the matrix clause, though they disagree about what characterizes these cases. Although we will see in a moment that there are similarly some limited cases where Tlingit *sá* can appear at the right edge of a matrix clause, they are not obviously parallel to the cases discussed for Sinhala *da*.

We should also note here that Sinhala *da* can appear matrix-finally in yes/no questions.

(i) Chitra ee pota kieuwa **da**?
 Chitra that book read yes/no
Did Chitra read that book? (Hagstrom 1998; p. 21)

Recall from Footnote 40, however, that I assume that the particles required in yes/no questions are distinct (though possibly homophonous to) the Q-particles appearing in wh-questions and wh-indefinites. Thus, the behavior of *da* in Sinhala yes/no questions does not bear on the identity between Tlingit *sá* and the particle *da* in Sinhala wh-questions.

(73) **Sinhala *Da* Cannot Appear at the Right Edge of a Matrix Clause (Kishimoto 2005)**

a. Chitra **monawa da** gatte?
Chitra what Q buy
What did Chitra buy?

b. * Chitra **monawa** gatta **da**?
Chitra what buy Q (Kishimoto 2005; p. 3, 4)

The speaker-judgment data below demonstrate that this property also holds of Tlingit *sá*.

(74) **Tlingit *Sá* Cannot Appear at the Right Edge of a Matrix Clause**

a. **Daa** **sá** iyatéen?
what Q you.can.see.it
What can you see?

b. * **Daa** iyatéen **sá**?
what you.can.see.it Q

(75) **Tlingit *Sá* Cannot Appear at the Right Edge of a Matrix Clause**

a. **Aadóo** **sá** xáat aawaxáa?
who Q fish he.ate.it
Who ate fish?

b. * **Aadóo** xáat aawaxáa **sá**?
who fish he.ate.it Q

(76) **Tlingit *Sá* Cannot Appear at the Right Edge of a Matrix Clause**

a. **Waa** **sá** ituwatee?
how Q you.feel
How do you feel?

b. * **Wáa** ituwatee **sá**?
how you.feel Q

Despite the inability for *da* and *sá* to appear at the right edge of matrix clauses, both particles may freely appear at the right edge of *subordinate* clauses, following a subordinated predicate. This is illustrated for Sinhala *da* below.

(77) **Sinhala *Da* Can Appear at the Right Edge of a Subordinate Clause**

Ranjit [**kauru** aawa kiyala] **da** danne?

Ranjit who came that Q know

Who does Ranjit know came?

(Kishimoto 2005; p. 13)

Furthermore, sentences like (78) below illustrate that this property also holds of Tlingit *sá*.

(78) **Tlingit *Sá* Can Appear at the Right Edge of a Subordinate Clause**

[**Goodéi** woogootx] **sá** has uwajée i shagóonich?

where.to he.went Q they.think your parents.erg

Where do your parents think that he went?

Thus, we find that both Sinhala *da* and Tlingit *sá* share the property that, although they can appear at the right edge of subordinate clauses, they cannot appear at the right edge of a matrix clause. Again, it will be shown later in Section 6 that a uniform account can be provided for these facts, but only if Tlingit *sá* and Sinhala *da* are assumed to be the same formal entity, a Q-particle.

Before we leave this section, a few words should be said about a small number of textually attested sentences where it appears that this generalization regarding *sá* is violated. In the selected corpus of five, book-length textual collections, the overwhelming majority of matrix questions do not end with the particle *sá*. There are, however, five sentences in this corpus where it seems that the particle *sá* does appear to the right of a matrix predicate. Those sentences are listed below.

(79) **Sentences Where *Sá* Appears to be Positioned to the Right of a Matrix Predicate**

a. **Wáa** wdaxwedlí **sáyá** kik'i aa du kéilk'.

how he.is.tired.SUB Q.foc-part younger of.them his nephews

How tired was his younger nephew!

(Dauenhauer & Dauenhauer 1987; p. 88 – 89; line 146 – 147)

b. **X'oon** kuxéi **sáwé** yá éil káx'.

how.much they.boat Q.foc-part this salt surface.at

How many days they had been going on the ocean!

(Dauenhauer & Dauenhauer 1987; p. 98; line 312 – 313)

c. **Wáa** gunalchéesh **sá** wooch xáni yei haa wdateeyi.

how there.is.thanks Q recip. side thus we.are

How much gratitude there is that we are together!

(Dauenhauer & Dauenhauer 1990; p. 186; line 2-3)

- d. Ch'u **wáa** yóo tukdatángi **sá** kwshíwé wé shaatk' kwá?
 just how she.thought.SUB Q dubit. that girl though
What was she thinking, anyway, that young girl?
 (Dauenhauer & Dauenhauer 1987; p. 244; line 22)
- e. Á áwé ch'a **wáa** yoo at koodayáa **sá** kwshíwé?
 it foc-part just how it.is.happening Q dubit
But, just what was happening?
 (Dauenhauer & Dauenhauer 1987; p. 246, line 40)

In each of these sentences, the particle *sá* appears to occur to the right of the main predicate of the clause, in violation of our earlier generalization.

If we look closely at these sentences, however, we observe something interesting. As discussed at length in Cable (2006c), although the verbs of each of these sentences are translated into English as matrix verbs, they all clearly bear the morphological markings of *subordinate* verbs. In brief, a verb heading a subordinate clause in Tlingit bears morphology which serves to distinguish it from verbs heading matrix clauses (specifically, the absence of the so-called '[+I]' element in the Position 1 verbal classifiers, and an optional suffix '-i'). In each of the sentences above, the verb that is followed by the particle *sá* bears the characteristic morphology of a verb heading a *subordinate* clause, even though there appears to be no overt subordinator in the sentence.

We find, then, that the verbal forms preceding *sá* in (79) are actually *subordinate verbs*. Thus, we might well take up the view that, although there are no overt subordinating verbs in these sentences, each of these clauses is actually a subordinate clause. If this is indeed the case, then these sentences are not actually in conflict with generalization stated above, given that in each sentence the particle *sá* appears immediately to the right of a subordinate clause.⁴⁷

Of course, this analysis of the sentences in (79) immediately raises the following question: how is it possible for a Tlingit subordinate clause to appear in the absence of any overt verbal subordinators, and with a meaning translatable into English as a matrix clause? Although I do not at present have a fully developed account, it is worth noting the following facts. First, note that each of these sentences appears to be a kind of exclamative. Sentences (79a,b,c) are directly translated into English as exclamatives in the texts themselves. Moreover, sentences (79d,e) in their original textual contexts may be understood as exclamatives, in as much as they are not actual information-seeking questions, but are rather used to convey the amazement or strong emotion of the speaker. Secondly, exclamatives in some languages evince properties otherwise indicative of *subordinate* clauses. For example, in English exclamatives, there is no Subject-Aux inversion, a property that otherwise only holds of subordinate questions, as illustrated below.

⁴⁷ Furthermore, we will later in Section 6.3 and in Chapter 3 provide an analysis of the fact that Tlingit *sá* and Sinhala *da* cannot appear to the right of matrix predicates, though they can appear to the right of subordinate predicates. As the reader is invited to confirm, under that analysis, the Tlingit data in (79) could be explained via appeal to a covert matrix predicate taking the entire exclamative as argument. Such an account would predict the characteristic morphology of the verbs in (79). Moreover, note that such an account could also derive the English pattern introduced in (80) below.

(80) **Exclamatives and Subordinate Questions in English**

- a. How tall you are!
- b. * How tall are you!

- c. How tall are you?
- d. * How tall you are?

- e. He found out how tall you are.
- f. * He found out how tall are you.

We find, then, that there appears to be a connection between ‘exclamativity’ and properties otherwise associated with subordinate clauses.⁴⁸ Given this connection, the appearance of clause-final *sá* in the exclamatives under (79) can be seen as part of a more general cross-linguistic tendency for exclamatives to have something of the appearance of subordinate clauses, despite the absence of an overt subordinator.

Whatever the ultimate explanation of the pattern in (79) is, it is nevertheless clear that the verbs of these sentences are subordinate verbs, and so the sentences themselves do not pose a direct challenge to the generalization that Tlingit *sá* cannot appear following a matrix predicate.

4.5 Summary: The Formal Unity of Tlingit *Sá*, Sinhala *Da*, and Japanese *Ka*

To summarize, we have seen in the preceding sections that the Tlingit particle *sá*, the Sinhala particle *da*, and the Japanese particle *ka* all share the following properties.

(81) **Properties Shared Between *Sá*, *Da* and *Ka***

- i) Obligatory in content questions; more generally, required in every clause containing a wh-word.
- ii) Must c-command the wh-word.
- iii) In matrix wh-questions, cannot appear inside islands.
- iv) If merged outside any islands, can ‘save’ matrix wh-questions where the wh-word is located inside an island.
- v) Cannot appear at the right of the matrix clause (*does not hold of Japanese ka*)
- vi) May appear at the right of subordinate clauses

I conclude that Tlingit *sá* should most likely receive the same analysis as Sinhala *da* and Japanese *ka*. As these latter two particles are classically glossed as ‘Q-particles’ (Hagstrom 1998, Kishimoto 2005), I conclude that Tlingit *sá* should therefore also be glossed as a Q-particle.

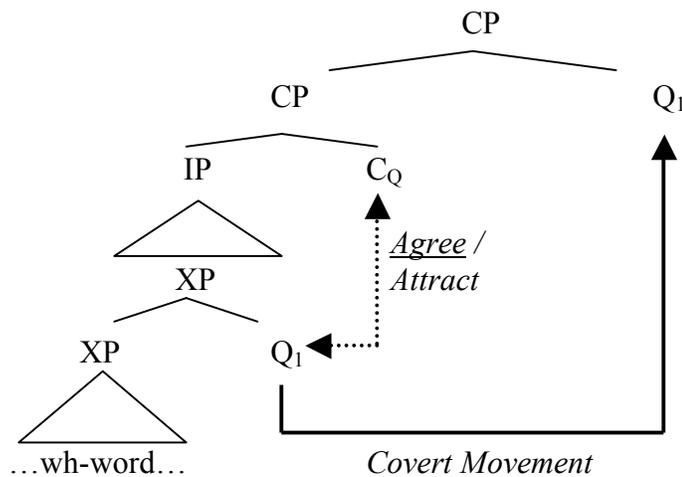
⁴⁸ As discussed by Zanuttini & Portner (2003), some view this connection as due to the peculiar illocutionary force of interrogatives, while others view it as due to exclamatives possessing the property of ‘factivity’.

5. Wh-Fronting in Tlingit as a Consequence of Q-Movement

In the preceding sections, we have seen that (i) wh-operators obligatorily occupy a left-peripheral position in Tlingit wh-questions, and that (ii) wh-words in Tlingit are obligatorily c-commanded by a Q-particle. In this section, I will argue that the left-peripheral position of wh-operators in Tlingit wh-questions is due to attraction of their c-commanding Q-particle into the left-periphery of the clause. That is, I will argue that there is *no* special relationship between the attracting C head and the wh-operator itself in Tlingit wh-questions. The generalization that the wh-operator is in the projection of C is merely an epiphenomenal consequence of a real grammatical relation between the C head and the Q-particle associated with the wh-operator.

I will begin by noting that, as was mentioned in Chapter 1, various lines of evidence lead Hagstrom (1998) and Kishimoto (2005) to propose the following analysis of wh-questions in Sinhala.

(82) Hagstrom (1998) and Kishimoto (2005)'s Analysis of Sinhala Wh-Questions

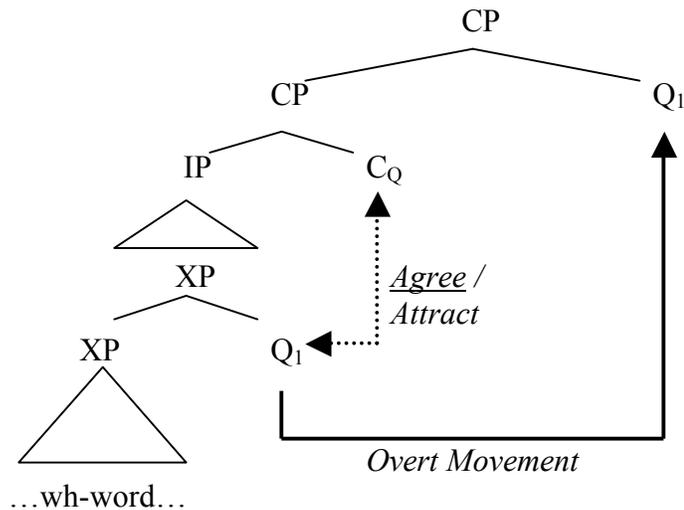


Under this analysis, the Sinhala Q-particle *da* is adjoined to a phrase containing the wh-operator of the question. The interrogative C head of the wh-question then probes for the Q-feature of this Q-particle. Upon reaching the adjoined Q-particle, the interrogative C Agrees with Q. This Agreement triggers movement of the Goal, the Q-particle, into the projection of C.⁴⁹ Because the Q-particle is adjoined to its sister, it may freely detach from its base position. Therefore, its movement into the CP, which is typically covert in Sinhala, leaves the wh-word and the phrases containing it in their base positions at LF.

Other lines of evidence lead Hagstrom (1998) to extend the ideas underlying this analysis of Sinhala to wh-questions in Japanese. Hagstrom (1998) proposes the following as the derivation of wh-questions in Japanese.

⁴⁹ Under the analysis of Hagstrom (1998), the Q-particle undergoes HMC-violating head-movement into the interrogative C head itself. However, I follow Kishimoto (2005) in the assumption that movement of Q targets the specifier of the matrix CP.

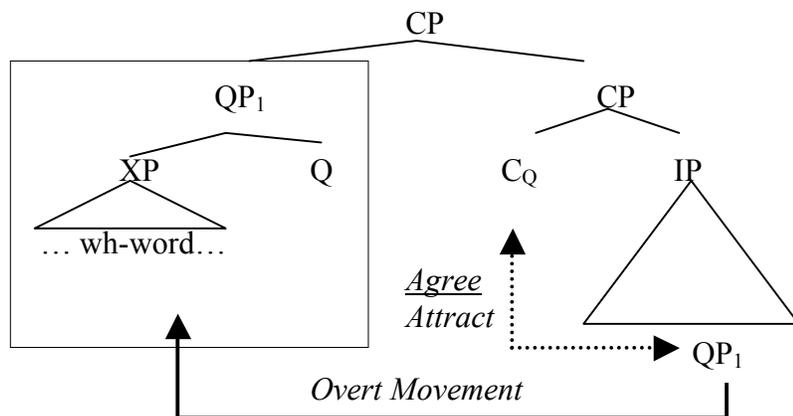
(83) Hagstrom (1998)'s Analysis of Japanese Wh-Questions



Under this analysis, wh-questions in Japanese are essentially identical to those in Sinhala. The sole difference is that the Q-particle *ka* in Japanese always moves *overtly* into the projection of the C, leaving the wh-word and phrases containing it behind. In both languages, however, interrogative C bears a syntactic relationship *only* with the Q-particle adjoined to (a phrase containing) the wh-operator; no syntactic relationship exists between the C and the wh-operator itself.

Given the formal identity between the Tlingit particle *sá*, the Sinhala particle *da* and the Japanese particle *ka*, the structure in (18) (repeated below) immediately suggests itself as an analysis of wh-questions in Tlingit.

(18) Fronting of Wh-Word in Tlingit Wh-Question as Secondary Effect of Q-Movement



Under the analysis in (18), wh-questions in Tlingit receive a derivation nearly identical to wh-questions in Japanese. The principal difference is that, in Tlingit, the Q-particle *sá* is not *adjoined* to the phrase containing the wh-operator. Rather, it takes that phrase as complement, thus projecting the category of the phrase minimally containing the Q-particle and its sister. As a

projection of Q, it would be natural to assume that this QP also bears the Q-feature probed for by the interrogative C. Furthermore, because this QP properly contains the Q-particle, it is the *first* node bearing the Q-feature to be probed by the interrogative C. The standard algorithm for probing therefore entails that interrogative C in Tlingit must Agree with this QP projection. As before, this Agreement requires the Goal – in this case, the QP – to move into the projection of the interrogative C. Thus, the entire QP is Attracted into the left-periphery of the wh-question. Since this constituent necessarily contains the wh-operator of the wh-question, it follows that such wh-words must occupy left-peripheral positions in wh-questions.

We see, then, that the analysis in (18) links together the syntax of wh-questions in Tlingit, Sinhala and Japanese in a typology of wh-question formation. Besides this, there are a number of empirical considerations that support the analysis in (18) for Tlingit wh-questions.

First, it should be noted that wh-questions in Tlingit are ill-formed if only the wh-word or only the Q-particle is fronted into the left periphery. For example, sentence (84a) becomes ill-formed if *sá* is left downstairs in its base position, as in (84b). One might wonder, however, whether the ill-formedness of (84b) is not due simply to a condition requiring that *sá* not be stranded. Such a condition, however, would be too weak, and would not serve to rule out the ill-formed (84c). In sentence (84c), the Q-particle *sá* is not ‘stranded’ since its complement is the unmoved subordinate CP, a possibility that is independently witnessed in sentences like (84d).

(84) **No Fronting of Wh-Word Alone**⁵⁰

- a. [[**Goodéi** **sá**]₁ [has uwajée [t₁ woogoot_x] i shagóonich]]?
 where.to Q they.think he.went your parents.erg
Where do your parents think he went?
- b. * [**Goodéi**₁ [has uwajée [t₁ **sá** woogoot_x] i shagóonich]]?
 where.to they.think Q he.went your parents.erg
- c. * [**Goodéi**₁ [has uwajée [t₁ woogoot_x **sá**] i shagóonich]]?
 where.to they.think he.went Q your parents.erg
- d. [[**Goodéi** woogoot_x **sá**]₁ [has uwajée t₁ i shagóonich]]?
 where.to he.went Q they.think your parents.erg
Where do your parents think he went?

Moreover, we can see below that the well-formed sentence (85a) becomes ill-formed if the particle *sá* is fronted into the left-periphery without the wh-word, as in (85b). The ill-formedness of (85b) is not simply due to a condition that *sá* follow some phrasal material in the sentence, as sentence (85c) illustrates.

⁵⁰ An anonymous reviewer of Cable (to appear) raises the interesting question of whether there is any difference in meaning between (84a) and (84d). To my knowledge, whether a long-distance question in Tlingit is formed via long-distance movement of the QP or via pied-piping of the subordinate clause has no effect on the sentence’s meaning. This fact is discussed at more length in Chapter 4, where it is claimed that predicting this synonymy is an achievement of our semantic system.

(85) **No Fronting of Q-Particle Alone**

- a. **Daa** **sá** i éesh aawaxáa?
what Q your father he.ate.it
What did your father eat?
- b. * **Sá** i éesh **daa** aawaxáa?
Q your father what he.ate.it
- c. * I éesh **sá** **daa** aawaxáa?
your father Q what he.ate.it

Similar facts are shown under (86) below.

(86) **No Fronting of Q-Particle Alone**

- a. [**Goodéi**] **sá** yeegoot?
where.to Q you.went
Where did you go?
- b. * **Sá** [**goodéi**] yeegoot?
Q where.to you.went

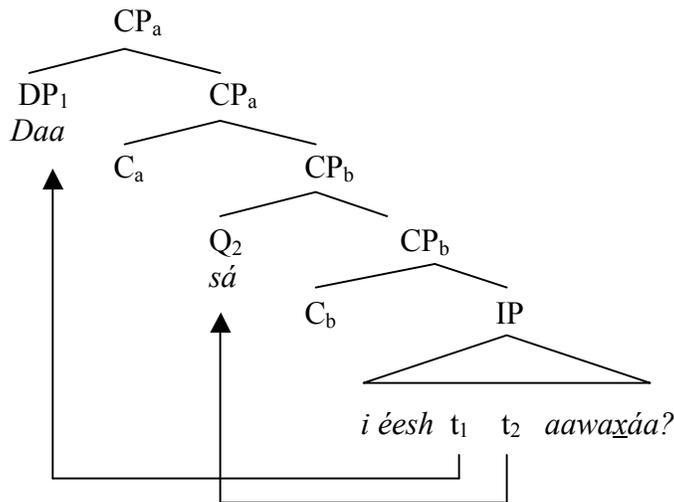
On the other hand, all the data in (84) – (86) would follow naturally from the analysis in (18). Under this analysis, a well-formed wh-question in Tlingit *must* have the Q-particle *sá* within its left periphery, thus ruling out sentences (84b, c). Furthermore, under the analysis in (18), the fronting of the QP necessarily brings with it the wh-word associated with *sá*, as that wh-word is contained within the QP. Thus, sentences (85b, c) and (86b) are ruled out under the analysis.

Now, one might still attempt to resist the notion that it is the Q-particle that is attracted into the left-periphery of a Tlingit wh-question by supposing that the ill-formedness of sentences like (84b, c) simply reflects the requirement that wh-words in Tlingit be c-commanded by Q-particles. We will argue in Section 7, however, that this c-command condition follows purely from the semantics of wh-words and Q-particles. It follows, then, that LF-reconstruction of the wh-word to its base position should be sufficient to render sentences (84b, c) semantically interpretable. I conclude, then, that the impossibility of (84b, c) is due to something other than the semantic factors which require wh-words to be c-commanded by Q-particles.⁵¹

Of course, one might conclude from the facts in (84) – (86) that *both* the wh-operator and the Q-particle are directly attracted into the left periphery of a Tlingit wh-question, perhaps by separate heads, as diagrammed in (87).

⁵¹ One might also propose that (84c) is impossible because the Q-particle occupies a Spec position in the lower CP, blocking extraction of the wh-word. However, sentences such as those in (88) below demonstrate that Tlingit CPs may have multiple specifiers, and so extraction of the wh-word should not be blocked simply by the presence of Q in Spec CP (Richards 1997).

(87) **Wh-Operator and Q-Particle Both Attracted, but by Separate Heads**



An immediate problem for the structure in (87), however, arises in the context of multiple wh-questions. Sentences such as those in (88) demonstrate that all the wh-words of a Tlingit multiple wh-question may front together into the left periphery of the clause.

(88) **Multiple Wh-Fronting in Tlingit Multiple Wh-Questions**⁵²

- a. [CP [Aadóo sá]₁ [daa sá]₂ [IP t₁ yéi uwajée [t₂ du jee yéi teeyí]]] ?
 who Q what Q they.think their hand.at it.is.there
Who thinks they have what?
- b. [CP [Aa sá]₁ [daa sá]₂ [IP du₁ tuwáa sigóo [t₂ wutoo.oowú]]] ?
 who Q what Q their spirit it.is.glad we.bought.it
Who wants us to buy what?

We can also see from the sentences above and those in Section 3.2.4 that the order of wh-words and Q-particles in Tlingit multiple wh-questions is such that each Q-particle immediately follows the wh-word it is associated with. Therefore, if there were separate C heads attracting wh-words and Q-particles in Tlingit, then the left-periphery of a Tlingit multiple wh-question must appear as in (89), where the C_{wh} heads are those attracting wh-words and the C_Q heads those attracting Q-particles.

⁵² Such multiple fronting, however, does not appear to be obligatory.

- (i) [CP [Aadóo sá]₁ [IP t₁ yéi uwajée [[daa sá] du jee yéi teeyí]]] ?
 who Q they.think what Q their hand.at it.is.there
Who thinks they have what?

It is not yet known, however, whether the wh-word in the subordinate clause above lies in its base position, or in the SpecCP of the subordinate clause.

(89) **Structure Required For Multiple Wh-Fronting, Under the Analysis in (87)**

[_{CP} C_{wh1} [_{CP} C_{Q1} [_{CP} C_{wh2} [_{CP} C_{Q2} ...]]]]]

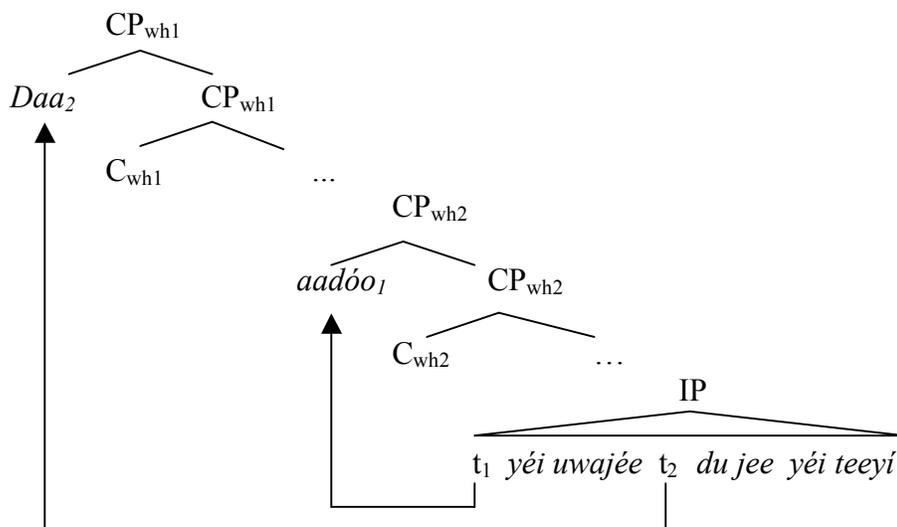
Now, we have already seen that the order of wh-words in a Tlingit multiple wh-question is constrained by Superiority; as shown in (90), wh-subjects *must* precede wh-objects.

(90) **Multiple Wh-Fronting Constrained by Superiority**

- a. * [_{CP} [Daa sá]₂ [aadóo sá]₁ [_{IP} t₁ yéi uwajée [t₂ du jee yéi teeyí]]]?
 what Q who Q they.think their hand.at it.is.there
- b. * [_{CP} [Daa sá]₂ [aa sá]₁ [_{IP} du₁ tuwáa sigóo [t₂ wutoo.oowú]]]?
 what Q who Q their spirit it.is.glad we.bought.it

However, if the left periphery of a multiple wh-question had the structure in (89), then the simplest algorithm for probing would incorrectly derive the ill-formed, Superiority-violating orders in (90). The lowest C_{wh} head would probe first, attracting the highest wh-word in the IP. Only later will the higher C_{wh} head probe for a wh-word, and by this time, the only ‘visible’ wh-word left in the clause will be the lower wh-word not probed by the first C_{wh} head. The structure in (91) illustrates.

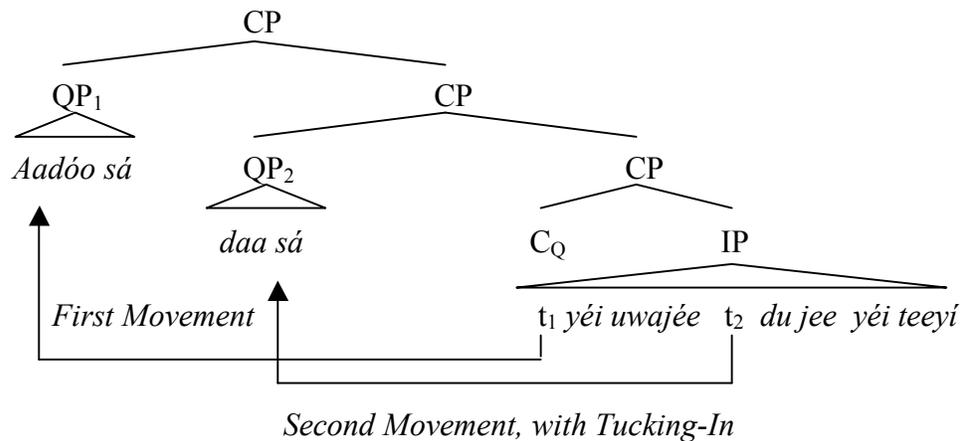
(91) **Derivation of the Incorrect Orders in (90), via the Analysis in (87)**



On the other hand, the analysis proposed in (18) can derive the targeted word-order, assuming a theory of ‘Tucking-In’, as in Richards (1997). Under this analysis, a single C_Q head probes for *both* QPs in the multiple wh-question. Following the standard algorithm for probing, this C_Q first probes and attracts the highest QP in the clause. Following this attraction, the C_Q then continues to probe for additional QPs. It subsequently probes and attracts the lower QP, requiring that the QP front into the C_Q projection. However, because of a constraint of ‘Shortest

Move’, that QP has to be merged to as close a position to the C_Q as possible. Consequently, the QP ‘Tucks-In’, and moves to a Spec position *lower* than that occupied by the higher wh-word. This derivation is sketched in (92), below.

(92) **Derivation of the Correct Orders in (88), via the Analysis in (18) [with ‘Tucking in’]**



Thus, the view that there is a *single* head attracting the entire wh-word+Q complex as a whole is necessitated by the word-order facts in (88) and (90).

Finally, one might yet resist the analysis in (18) by suggesting that the single C head attracting the wh-word+Q complex *also* probes for features of the wh-word. That is, we have not yet ruled out that a single, attracting “C_{wh/Q}” head bears a syntactic relation with the Q-particle *and* the wh-operator. In response, however, one might equally well point out that there is yet no evidence that the C head *does* have such a syntactic relation with the wh-operator. After all, the left-peripheral position of the wh-operator could very well be the result of the already demonstrated relationship between the C head and the Q-particle, as proposed in (18). In the absence of evidence that a relation holds between C and the wh-word, it is simplest to assume that it doesn’t.

We can, however, press the issue even further, and argue positively that a syntactic relation *doesn’t* hold between the C and the wh-operator. First, let us entertain a comparatively strong view of syntactic islands, under which they are domains that *no* syntactic relations may cross, not even probing and Agree. Assuming this view of islands, the acceptability of sentence (93) – where the wh-word is contained within an island – indicates that there is no relation holding between it and the matrix C.

(93) **Wh-Operators in Wh-Questions Can Be Internal to Islands**

[[**Wáa** kligéiyi] xáat] **sá** i tuwáa sigóo?
 how it.is.big.REL fish Q your spirit it.is.glad
How big a fish do you want?
 (A fish that is how big do you want?)

Now, one might attempt to avoid this conclusion by proposing that the wh-word in (93) is accessible to the matrix C head by some means. Perhaps the wh-word is actually adjoined to

xáat ‘fish’, the head of the relative clause? Perhaps phrases inside islands *are* accessible to probing and Agree? However, any such proposal is immediately subject to the following problem: recall the contrast between (93) and (94).

(94) **The Q-Particle *Sá* Cannot Be Internal to Islands in Wh-Questions**

* [[**Waa** *sá* kligéiyi] *xáat*] i tuwáa sigóo?
 how Q it.is.big.REL fish your spirit it.is.glad

Sentence (94) differs from (93) only in that the Q-particle *sá* is directly adjacent to the wh-word. Therefore, any analysis which holds that the wh-word is syntactically accessible to the matrix C in (93) and (94), must equally well hold that the Q-particle is accessible to the matrix C in these sentences. Therefore, the impossibility of (94) must follow from something other than the fact that the Q-particle in this sentence is located inside a syntactic island. What this could be, however, remains unclear.⁵³

The analysis in (18), however, predicts the contrast between (93) and (94), under the assumption that no syntactic relationship may cross into an island.⁵⁴ The impossibility of (94) is a straightforward result of the fact that the Q-particle is inside a relative-clause island, and so is inaccessible to the matrix C. When the Q-particle is located outside the island, as in (93), it is accessible to the matrix C, and the sentence is well-formed. The fact that the wh-word in (93) remains inside the island has no bearing on the well-formedness of the sentence, given that the matrix C bears no syntactic relationship to the wh-operator itself.⁵⁵ We find, then, that the contrast between (93) and (94) supports what is, perhaps, the most unusual feature of the analysis in (18): the existence of a relationship between the interrogative C and the Q-particle, but not between the C and the wh-word.⁵⁶

⁵³ Note that the contrast between (93) and (94) also effectively refutes the analysis in (87). If the wh-word in (93) is visible to the hypothetical C_{wh} head, then the Q-particle in (94) should also be visible to the hypothetical C_Q head. Thus, the ill-formedness of (94) again goes unexplained.

⁵⁴ One might object to the notion that no syntactic relationship can cross into an island on the following grounds. Given that wh-words in Tlingit obligatorily co-occur with Q-particles, there is presumably some syntactic relation between them; therefore, the well-formedness of sentence (93) indicates that at least *this* relation may cross into an island. We will see, however, that under the semantic proposals later put forth in Section 7, there is not necessarily any *syntactic* relation between the wh-word and the Q-particle in Tlingit, Sinhala or Japanese, since their obligatory co-occurrence independently follows from the semantics of wh-words and Q-particles.

⁵⁵ David Pesetsky (p.c.) suggests an alternate analysis of the facts in (93) and (94), which retains the notion that there is a single $C_{Q/wh}$ head bearing a relation with *both* the Q-particle *and* the wh-word. Assuming a ‘Principle of Minimal Compliance’ (Richards 1997), one predicts that satisfaction of a syntactic principle at one stage of the derivation will license violation of that principle at later stages. Thus, the facts in (93) and (94) can be seen in the following way. Sentence (93) is acceptable because the Agreement relation between $C_{Q/wh}$ and Q respects syntactic islands, and thus licenses the island-violating Agreement between $C_{Q/wh}$ and the wh-word. However, sentence (94) is ill-formed because there is *no* island-respecting Agreement relation. In (94), both the C-wh and the C-Q Agreement is island-violating, and so not even the Principle of Minimal Compliance will permit the structure.

I currently know of no evidence that rules out this alternative account, nor can I imagine a test that would decide between this account and the analysis in (18).

⁵⁶ Similarly, it is the contrast between sentences (68a) and (68b) which most strongly motivates the Hagstrom/Kishimoto analysis of Sinhala wh-questions in (82). In both cases, the fact that *only* the position of the Q-particle affects the well-formedness of the wh-question indicates that *only* the Q-particle bears a relation to the matrix interrogative C.

The preceding arguments demonstrate that the analysis of Tlingit wh-questions in (18), which is independently motivated by their similarity to the wh-questions of Sinhala and Japanese, receives much empirical support. I conclude that it is, in essence, the correct analysis of wh-fronting in Tlingit wh-questions.

6. The QP-Intervention Condition

In the preceding section, we were presented with a number of arguments supporting the analysis in (18) as the structure of Tlingit wh-questions. None of those arguments, however, provided direct evidence for one crucial aspect of the analysis in (18): the fact that the Q-particle *sá* takes its sister as complement, rather than being adjoined to its sister as in (16). Of course, this assumption is far simpler than the alternative, in as much as it treats the fronting of the wh-word with the Q-particle as just an instance of normal phrasal movement of the QP. Nevertheless, it would certainly be nice if there were some independent evidence that the wh-word is dominated by a QP-projection. We will see in this section that the behavior of *sá* in certain environments provides this missing evidence.

This section deals primarily with some further constraints on the placement of *sá* within the clause. Specifically, we will see in Section 6.1 that the particle *sá* cannot appear (i) between a postposition and its complement, (ii) between a wh-possessor and the possessed NP, or (iii) between a wh-determiner and its NP complement. We will then first consider the rather obvious possibility that these constraints follow from the fact that QPs must undergo movement in Tlingit, given the assumption that these three environments are islands for movement. Although an attractive possibility, Section 6.2 outlines several arguments against such a movement-based analysis. They are as follows:

- The Argument from Wh-Indefinites
The generalizations in (i)-(iii) also hold of QPs interpreted as indefinites. Therefore, a movement-based analysis of (i)-(iii) must assume that such indefinite QPs also undergo obligatory movement, presumably obligatory QR. However, there is evidence that indefinite QPs *don't* undergo obligatory QR: indefinite QPs can scope out of islands. Therefore, QR is not necessary to fix their scope, and so the putative obligatory movement remains mysterious.
- The Argument from Pronominal Resumption Structures
It can be shown that a movement relation holds between a left-peripheral wh-operator and a resumptive pronoun in either CompPP or SpecDP. Therefore, contrary to the core assumption of a movement-based analysis of (i)-(iii), those two positions are not islands for movement in Tlingit.

In place of a movement-based analysis, I propose in Section 6.3 a condition governing the distribution of QPs within the clause, which I dub the 'QP-Intervention Condition.' I show that this condition can account the patterns observed in Section 6.1, as well as avoid the problems inherent in a movement-based account.

It will be seen that the account proposed in terms of the QP-Intervention Condition requires that a QP-projection dominate the wh-word in Tlingit. Thus, the success of this analysis in explaining the distributional constraints on *sá* provides some additional evidence that Q in

Tlingit takes its sister as complement. More importantly, however, we will see that, given the analysis in (18), the QP-Intervention Condition alone accounts for various constraints on the form of Tlingit wh-questions, constraints which in other languages are typically analyzed in terms of conditions on the operation of *movement*. Therefore, the discussion here foreshadows my arguments in later chapters that the analysis in (18) applies not simply to Tlingit, but to all wh-fronting languages.

6.1 Further Constraints on the Placement of *Sá*

Beyond the conditions introduced in Section 4, there are a number of further, yet unstated constraints governing the placement of *sá* in a Tlingit wh-question.

First, as the following sentences illustrate, the particle *sá* cannot in a Tlingit wh-question intervene between a post-position and its complement.

(95) No Q Between a Post-Position and Its Complement in Tlingit Wh-Question

- a. **Aadóo** teen **sá** yigoot?
 who with Q you.went
Who did you go with?
- b. * **Aadóo** **sá** teen yigoot?
 who Q with you.went

(96) No Q Between a Post-Position and Its Complement in Tlingit Wh-Question

- a. **Goodéi** **sá** yigoot?
 where.to Q you.went
Where did you go?
- b. * **Goo** **sádéi** yigoot?
 where Q.to you.went

The speaker judgments above correspond with the patterns found in the corpus of Tlingit texts, as illustrated by the chart below.

(97) The Placement of *Sá* with Respect to Post-Positions in Wh-Questions

| Text | Post-Position Marks a Phrase Containing a Wh-Operator | Of Those in First Column, Those in Which <i>Sá</i> Appears to the Right of the Post-Position | Of Those in First Column, Those in Which <i>Sá</i> Appears to the Immediate Left of the Post-Position |
|-------------------|---|--|---|
| D&D 1987 | 22 | 22 | 0 |
| D&D 1990 | 7 | 7 | 0 |
| D&D 2000 | 44 | 44 | 0 |
| D&D 2002 | 18 | 18 | 0 |
| Nyman & Leer 1993 | 19 | 19 | 0 |
| TOTAL | 110 | 110 | 0 |

As the numbers here clearly indicate, whenever a wh-operator in the selected corpus appears (in a phrase) marked by a post-position, the particle *sá* appears to the right of that post-position. Thus, we find that the order ‘[wh ... Q ... P]’ is simply textually unattested. Only the order ‘[wh ... P] Q’ is found in naturally occurring speech.

A second constraint on the position of *sá* is that it cannot in a Tlingit wh-question intervene between a possessor and the possessed NP. This is illustrated by speaker-judgments like the following.

(98) **No Q Between a Possessor and the Possessed NP in a Tlingit Wh-Question**

- a. **Aadóo** yaagú **sá** ysiteen?
 who boat Q you.saw.it
Whose boat did you see?
- b. * **Aadóo** **sá** yaagú ysiteen?
 who Q boat you.saw.it

(99) **No Q Between a Possessor and the Possessed NP in a Tlingit Wh-Question**

- a. **Aadóo** x'asheeyí **sá** iya.aax?
 who song Q you.heard.it
Whose song did you hear?
- b. * **Aadóo** **sá** x'asheeyí iya.aax?
 who Q song you.heard.it

(100) **No Q Between a Possessor and the Possessed NP in a Tlingit Wh-Question**

- a. **Aadóo** jeet **sá** iyatee?
 who hand.to Q you.brought.it
Who did you give it to?
 (= *Whose hand did you bring it to?*)
- b. * **Aadóo** **sá** jeet iyatee?
 who Q hand.to you.brought.it

(101) **No Q Between a Possessor and the Possessed NP in a Tlingit Wh-Question**

- a. **Aadóo** xanx' **sáyá** yéi iyatee?
 who area.at Q.foc-part you.are.there
Who are you living with?
 (= *Whose area are you staying at?*)
- b. * **Aadóo** **sá** xanx' yéi iyatee?
 who Q area.at you.are.there

As before, the speaker judgments here correspond with the patterns found in the corpus of Tlingit texts, as illustrated by the chart below.

(102) **Placement of *Sá* with Respect to Possessed Noun Phrases in Wh-Questions**

| Text | Wh-Operator is a Possessor Modifying a Possessed Noun Phrase | Of Those in First Column, Those in Which <i>Sá</i> Appears to the Right of the Possessed Noun Phrase | Of Those in First Column, Those in Which <i>Sá</i> Appears to the Immediate Left of the Possessed Noun Phrase |
|-------------------|--|--|---|
| D&D 1987 | 1 | 1 | 0 |
| D&D 1990 | 2 | 2 | 0 |
| D&D 2000 | 3 | 3 | 0 |
| D&D 2002 | 3 | 3 | 0 |
| Nyman & Leer 1993 | 1 | 1 | 0 |
| TOTAL | 10 | 10 | 0 |

As the numbers here clearly indicate, whenever a wh-operator in the selected corpus functions as a possessor modifying a possessed noun phrase, the particle *sá* appears to the right of that possessed noun phrase.

Finally, a third constraint on the position of *sá* is that it cannot in a Tlingit wh-question intervene between a determiner and its NP complement. This is illustrated by speaker-judgments like the following.

(103) **No Q Between a D and its NP Complement in a Tlingit Wh-Question**

- a. **Daakw** keitl **sá** ashaa?
which dog Q it.barks
Which dog is barking?
- b. * **Daakw** **sá** keitl ashaa?
which Q dog it.barks

(104) **No Q Between a D and its NP Complement in a Tlingit Wh-Question**

- a. **X'oon** keitl **sá** ysiteen?
how.many dog Q you.saw.them
How many dogs did you see?
- b. * **X'oon** **sá** keitl ysiteen?
how.many Q dog you.saw.them

(105) **No Q Between a D and its NP Complement in a Tlingit Wh-Question**

- a. **X'oon** gaaw **sáwé**?
how.many hour Q.foc-part
What time is it? (=How many hours is it?)

- b. * **X'oon** **sáwé** gaaw?
 how.many Q.foc-part hour

(106) **No Q Between a D and its NP Complement in a Tlingit Wh-Question**

- a. **Daat** gaaw **sá** ikgwahaa?
 what hour Q you.will.arrive
 What time will you get there?
- b. * **Daa** **sá** gaaw ikgwahaa?
 what Q hour you.will.arrive

Once again, the speaker judgments here correspond with the patterns found in the corpus of Tlingit texts, as illustrated by the chart below.

(107) **Placement of *Sá* with Respect to NP Complements of DP in Tlingit Wh-Questions**

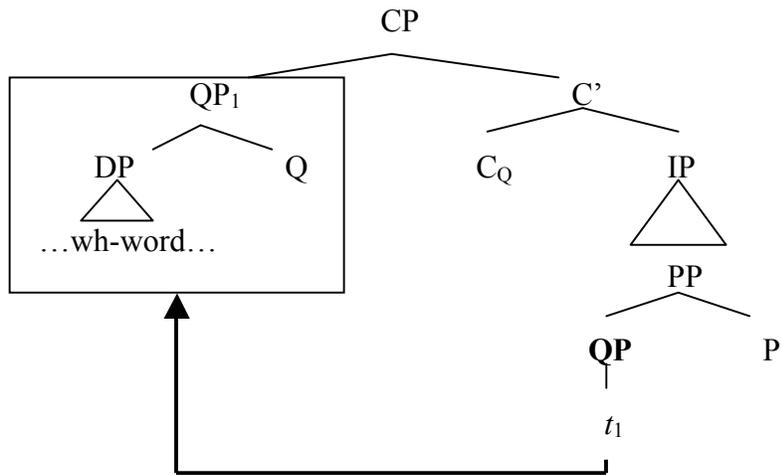
| Text | Wh-Operator is a Determiner Taking a Following NP as Complement | Of Those in First Column, Those in Which <i>Sá</i> Appears to the Right of the NP | Of Those in First Column, Those in Which <i>Sá</i> Appears to the Immediate Left of the NP |
|-------------------|---|---|--|
| D&D 1987 | 6 | 6 | 0 |
| D&D1990 | 0 | 0 | 0 |
| D&D 2000 | 16 | 16 | 0 |
| D&D 2002 | 3 | 3 | 0 |
| Nyman & Leer 1993 | 5 | 5 | 0 |
| TOTAL | 30 | 30 | 0 |

As the numbers here clearly indicate, whenever a *wh*-operator in the selected corpus functions as a determiner, the particle *sá* appears to the right of its NP complement. Thus, we find that the generalization stated above is respected throughout the selected corpus.

In summary, then, we can see from the array of data above that in a Tlingit *wh*-question, the particle *sá* cannot intervene (i) between a post-position and its complement, (ii) between a possessor and a possessed NP, and (iii) between a determiner and its NP complement.

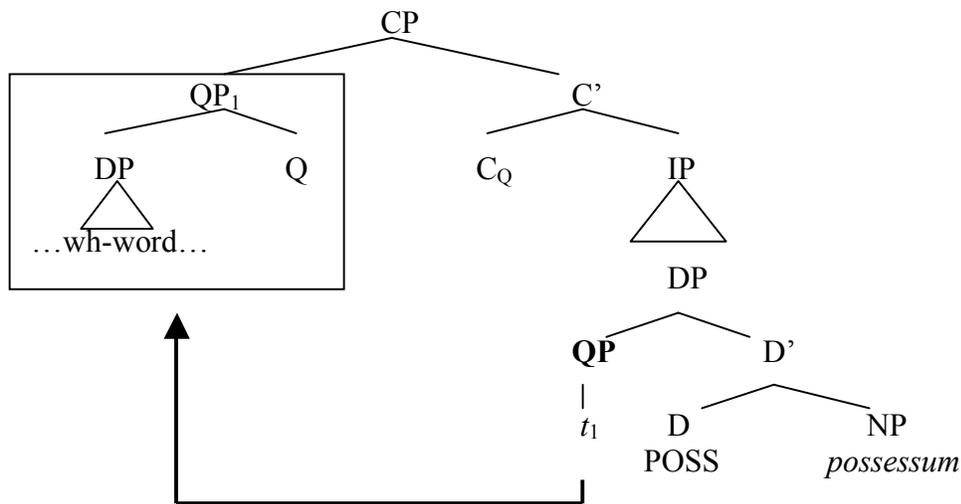
Of course, when these restrictions are observed in the context of *wh*-questions, as they are here, they might not seem very surprising, particularly given our analysis in (18). Under that analysis, a Tlingit *wh*-question requires that the *QP* be fronted into the left-periphery. Therefore, under this analysis, placement of the Q-particle between, e.g., a post-position and its complement in a *wh*-question would result in *extraction of the complement of P*, as illustrated below.

(108) **The Order [WH ... Q ... P] in Wh-Question Entails P-Stranding**



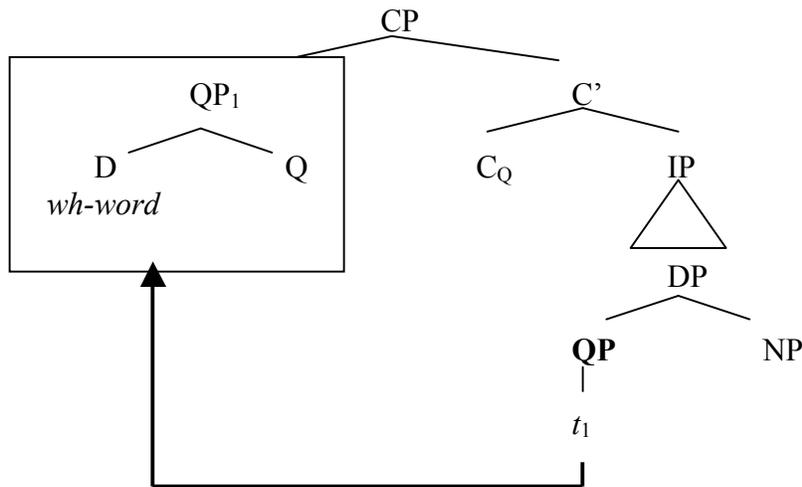
Extractions of this form, however, are ill-formed in many languages of the world, a pattern which leads many to view such movements as cross-linguistically marked (Ross 1967, Abels 2003, Heck 2004). Similarly, placement of the Q-particle between a WH-possessor and the possessed NP in a wh-question would entail *extraction of the specifier of DP*, as shown below.

(109) **The Order [WH-POSS ... Q ... NP] in Wh-Question Entails Possessor Extraction**



Again, however, extractions of Spec DP as in (109) are often ill-formed in languages, leading to a consensus that they violate certain general constraints on movement (Ross 1967, Corver 1990, Bošković 2005b, Corver 2007). Finally, placement of the Q-particle between a WH-determiner and its NP complement would, in a wh-question, entail *extraction of the determiner from the DP*.

(110) **The Order [WH-DET ... Q ... NP] in Wh-Question Entails D-Extraction**



Once, more, though, such extractions of D from DP as in (110) are in many languages impossible, which has lead linguists to conclude that they are also in violation of certain general movement-constraints (Ross 1967, Corver 1990, Bošković 2005b, Corver 2007).

It is apparent, then, that each of the ill-formed structures in (95) – (106) necessarily contains an extraction that independently appears to be ill-formed across languages. Therefore, the ill-formedness of those sentences above could simply follow from whatever constraints on movement disallow such extraction. Given that this is a rather natural and compelling line of explanation, I am going to dignify it with a name, and summarize it as follows.

(111) **The ‘Movement-Based Analysis’ of the Further Constraints on Sá**

The impossibility for Q to appear in the environments outlined above is due to more basic conditions on the operation of movement. Given the analysis in (18), placement of the Q at those positions would entail movements of the QP that would violate certain independent movement-constraints.

Although the movement-based account in (111) might strike one as near ‘commonsensical’, if one probes further into the grammar of Tlingit, it becomes clear that it *can’t* be the correct account of the facts in (95) – (106), that this otherwise natural and compelling line of explanation proves to be too weak. That is, we will see that the movement-based account in (111) will not be sufficient to capture the *full* paradigm of facts. This is chiefly because, as we will see, the generalizations governing the placement of Q in (95) – (106) hold *even when the QP never moves*, and so movement of the QP *cannot* be what is responsible for these generalizations.

To begin our case against the movement-based analysis, let us first note that the generalizations in (95) – (106) still hold when the *wh-word/QP* in question functions as an *indefinite* in a *declarative* clause. Thus, as illustrated below, even in non-interrogative clauses, the Tlingit particle *sá* cannot intervene between a post-position and its complement.

(112) **No Q Between a Post-Position and Its Complement with Tlingit Wh-Indefinites**

- a. Tléil **aadóo** teen **sá** xwagoot.
not who with Q I.went
I didn't go with anyone.
- b. * Tléil **aadóo** **sá** teen xwagoot.
not who Q with I.went

(113) **No Q Between a Post-Position and Its Complement with Tlingit Wh-Indefinites**

- a. Tléil **goodéi** **sá** xwagoot.
not where.to Q I.went
I didn't go anywhere
- b. * Tléil **goo** **sádéi** xwagoot.
not where Q.to I.went

(114) **No Q Between a Post-Position and Its Complement with Tlingit Wh-Indefinites**

- a. Hél **aadóo** een **sá** axwal'eix⁵⁷
not who with Q I.danced
I didn't dance with anyone.
- b. * Hél **aadóo** **sá** een axwal'eix
not who Q with I.danced

(115) **No Q Between a Post-Position and Its Complement with Tlingit Wh-Indefinites**

- a. Hél **goodéi** **sá** wu.aat.
not where.to Q they.went
They didn't go anywhere.
- b. * Hél **goo** **sádéi** wu.aat.
not where Q.to they.went

As before, the speaker judgments above are supported by textual analysis. The following chart illustrates how this generalization emerges across the five, selected Tlingit textual collections.

⁵⁷ Sentences (114) – (115) reflect the well-formedness judgments provided by Mary Anderson of Atlin to Roby Littlefield (Littlefield, p.c.). Mary Anderson speaks the Interior Tlingit sub-dialect of Northern Tlingit.

(116) **The Placement of *Sá* with Respect to Post-Positions in Wh-Indefinites**

| Text | Post-Position Marks a Phrase Containing a Wh-Indefinite | Of Those in First Column, Those in Which <i>Sá</i> Appears to the Right of the Post-Position | Of Those in First Column, Those in Which <i>Sá</i> Appears to the Immediate Left of the Post-Position |
|-------------------|---|--|---|
| D&D 1987 | 10 | 10 | 0 |
| D&D 1990 | 9 | 9 | 0 |
| D&D 2000 | 0 | 0 | 0 |
| D&D 2002 | 0 | 0 | 0 |
| Nyman & Leer 1993 | 45 | 45 | 0 |
| TOTAL | 65 | 65 | 0 |

The chart in (116) identical to that under (97), except for the fact that it tracks the position of *sá* in *declarative clauses* containing *wh-indefinites*. As we saw before, the totals here demonstrate that whenever a *wh-indefinite* in the selected corpus appears (in a phrase) marked by a post-position, the particle *sá* appears to the right of that post-position. Thus, we find that with *wh-indefinites* as well, only the order ‘[wh ... P] Q’ is found in naturally occurring speech.

Similarly, the constraint against placement of *sá* between a possessor and a possessed NP holds even for *wh-indefinites*. This is illustrated by speaker-judgments like the following.

(117) **No Q Between a Possessor and the Possessed NP with Tlingit Wh-Indefinites**

- a. Tléil **aadóo** yaagú **sá** xwsateen.
 not who boat Q I.saw.it
I didn't see anyone's boat.
- b. * Tléil **aadóo** **sá** yaagú xwsateen.
 not who Q boat I.saw.it

(118) **No Q Between a Possessor and the Possessed NP with Tlingit Wh-Indefinites**

- a. Tléil **aadóo** x'asheeyí **sá** xwa.aax.
 not who song Q I.heard.it
I didn't hear anyone's song.
- b. * Tléil **aadóo** **sá** x'asheeyí xwa.aax.
 not who Q song I.heard.it

(119) **No Q Between a Possessor and the Possessed NP with Tlingit Wh-Indefinites**

- a. Tléil **aadóo** jeet **sá** xwatí.
 not who hand.to Q I.brought.it
I didn't give it to anyone.
(I did not bring it to anyone's hand.)

- b. * Tléil **aadóo sá** jeet xwatí.
not who Q hand.to I.brought.it

(120) **No Q Between a Possessor and the Possessed NP with Tlingit Wh-Indefinites**

- a. Tléil **aadóo x**anx' **sá** yéi xat utí.
not who area.at Q I.am.there
I am not living with anyone.
(I am not staying at anyone's area.)

- b. * Tléil **aadóo sá** xanx' yéi xat utí.
not who Q area.at I.am.there

(121) **No Q Between a Possessor and the Possessed NP with Tlingit Wh-Indefinites**

- a. Hél **aadóo** yaagu **sá** xwsateen.⁵⁸
not who boat Q I.saw.it
I didn't see anyone's boat.

- b. * Hél **aadóo sá** yaagu xwsateen.
not who Q boat I.saw.it

Again, textual analysis independently supports the generalizations gained from the speaker data above. The following chart demonstrates.

(122) **Placement of *Sá* with Respect to Possessed Noun Phrases in Wh-Indefinites**

| Text | Wh-Indefinite is a Possessor Modifying a Possessed Noun Phrase | Of Those in First Column, Those in Which <i>Sá</i> Appears to the Right of the Possessed Noun Phrase | Of Those in First Column, Those in Which <i>Sá</i> Appears to the Immediate Left of the Possessed Noun Phrase |
|-------------------|--|--|---|
| D&D 1987 | 1 | 1 | 0 |
| D&D 1990 | 3 | 3 | 0 |
| D&D 2000 | 0 | 0 | 0 |
| D&D 2002 | 0 | 0 | 0 |
| Nyman & Leer 1993 | 10 | 10 | 0 |
| TOTAL | 14 | 14 | 0 |

The chart above is again nearly identical to that in (102), the only difference being that this chart tracks the position of *sá* in declarative clauses containing wh-indefinites. As the totals here clearly indicate, whenever a wh-indefinite in the selected corpus functions as a possessor

⁵⁸ Sentence (121) reflects the well-formedness judgments provided by Mary Anderson of Atlin to Roby Littlefield (Littlefield, p.c.).

modifying a possessed noun phrase, the particle *sá* appears to the right of that possessed noun phrase, just as in wh-questions.

Finally, further investigation reveals that the inability for *sá* to appear between a wh-D and its NP complement also holds for wh-D's functioning as indefinites in declarative clauses. The following speaker judgments support this generalization.

(123) **No Q Between a D and its NP Complement with Tlingit Wh-Indefinites**

- a. Tléil **daakw** keitl **sá** ushá.
not which dog Q it.barks
None of the dogs are barking..
- b. * Tléil **daakw** **sá** keitl ushá.
not which Q dog it.barks

(124) **No Q Between a D and its NP Complement with Tlingit Wh-Indefinites**

- a. Yéi uwatee **x'oon** táakw **sá**.
he.lived.there how.many winter Q
He lived there for a number of years
- b. * Yéi uwatee **x'oon** **sá** táakw.
he.lived.there how.many Q winter

Additional support for this generalization can again be found in the selected corpus of Tlingit texts. The chart below demonstrates.

(125) **Placement of *Sá* with Respect to NP Complements of DP in Wh-Indefinites**

| Text | Wh-Indefinite is a Determiner Taking a Following NP as Complement | Of Those in First Column, Those in Which <i>Sá</i> Appears to the Right of the NP | Of Those in First Column, Those in Which <i>Sá</i> Appears to the Immediate Left of the NP |
|-------------------|---|---|--|
| D&D 1987 | 2 | 2 | 0 |
| D&D1990 | 4 | 4 | 0 |
| D&D 2000 | 0 | 0 | 0 |
| D&D 2002 | 0 | 0 | 0 |
| Nyman & Leer 1993 | 12 | 12 | 0 |
| TOTAL | 18 | 18 | 0 |

We see again that this chart is basically that in (107), but with the difference that it tracks the position of *sá* in declarative clauses containing wh-indefinites. As the numbers here again demonstrate, whenever a wh-indefinite in the selected corpus functions as a determiner, the particle *sá* appears to the right of its NP complement. Thus, we find that also for wh-determiners functioning as indefinites, the Q-particle cannot come between them and their NP complement.

In summary, we see from the data above that – just as for the wh-operators in Tlingit wh-questions – the particle *sá* cannot in a declarative clause with a wh-indefinite intervene (i) between a post-position and its complement, (ii) between a possessor and a possessed NP, and (iii) between a determiner and its NP complement.

Let us now consider what the movement-based analysis in (111) would have to say regarding the facts introduced in (112) – (125). Recall that according to that analysis, the constraints on *sá*-placement observed in (95) – (106) are due to the impossibility of extraction from the position occupied by the QP. It follows that, in order to account for the similar facts in (112) – (125), the movement-based analysis must hold that the QPs in these declarative sentences must be extracted from their base position at some stage in their derivation. Now, the fact that wh-indefinites in Tlingit can remain post-verbal, as in (124a), indicates that this hypothesized extraction does not occur overtly. Therefore, the movement-based analysis would require that such wh-word/QPs undergo *covert* movement of some kind. We must now ask, then, what kind of covert movement could be responsible for the facts in (112) – (125). The positions in question (SpecDP, CompPP) imply that such movement has nothing to do with Case assignment or checking. Moreover, the declarative force of the sentences in (112) – (125) entails that such movement is not motivated by the need to check a Q-feature in the matrix C. The only remaining alternative is that it is some kind of QR, a plausible prospect given that these wh-word/QPs might appear to contribute existential force.

I conclude, then, that the movement-based analysis in (111) requires the following perspective on the behavior of *sá* with Tlingit wh-indefinites. First, such an analysis must hold that the wh-indefinites of Tlingit obligatorily undergo QR. Secondly, the analysis must hold that there is an inability in Tlingit to extract from (a) CompPP, (b) SpecDP, and (c) determiner heads. Given these assumptions, the data in (112) – (125) would, as before, follow from the fact that such placement of Q would necessitate extractions that are ruled out by movement-constraints.

In the following sections, however, we will see that such a movement-based account of the wh-indefinite data in (112) – (125) is untenable. Resultingly, the movement-based account of the wh-question data in (95) – (106) must be abandoned as well.

6.2 Evidence Against the Movement-Based Analysis

In this section, I will put forth evidence against a movement-based analysis of the wh-indefinite data in (112) – (125). I begin in Section 6.2.1 by briefly showing that, aside from the environments discussed in Section 6.1, it *is* generally possible in Tlingit declarative clauses for QPs to appear inside extraction islands. In Section 6.2.2, I challenge the claim, crucial for the movement-based analysis, that wh-indefinites in Tlingit undergo obligatory QR. Finally, in Section 6.2.3, I provide evidence against the claim, also crucial for the movement-based account, that it is not possible in Tlingit to extract from CompPP or SpecDP.

6.2.1 The Possibility of Island-Internal *Sá* with Wh-Indefinites

According to the movement-based account of the data in (112) – (125), the inability for QPs to occupy either CompPP or SpecDP follows partly from the fact that these positions are islands for extraction. Under the logic of this account, then, it would follow that, *ceteris paribus*, QPs containing wh-indefinites should *generally* not be able to appear inside extraction islands.

This prediction, however, is not true. There is no general constraint in Tlingit against *sá* appearing within an island. Recall from Section 4.3 that relative clauses in Tlingit are islands for extraction, and that in a wh-question the Q-particle cannot appear inside of a relative clause.

(126) **Tlingit Relative Clauses are Extraction Islands**

- a. [[**Wáa** kligéiyi CP] xáat NP] **sá** i tuwáa sigóo?
 how it.is.big.REL fish Q your spirit it.is.happy
How big a fish do you want?
(A fish that is how big do you want?)
- b. * [[**Waa** **sá** kligéiyi CP] xáat NP] i tuwáa sigóo?
 how Q it.is.big.REL fish your spirit it.is.happy

Nevertheless, when paired with a wh-indefinite, there is nothing preventing a QP from appearing inside of a relative clause, as the following sentences demonstrate.

(127) **QPs Containing Wh-Indefinites Can Appear Inside Relative Clause Islands**

- a. Waa **sá** yatee [**wé** [1 **goodéi** **sá** woogoodi] **káa**]?
 how Q he.is that not where.to Q he.went.REL man
How is the man who didn't go anywhere?
- b. [**Daa** **sákwshéiwé** sadaat'aay wududliyéix] du shadaat kawduwayík.⁵⁹
 what Q.part.foc-part scarf they.made around.her.head they.pulled.it
A scarf made out of something or other was pulled over her head.
 (Nyman & Leer 1993; p. 248; line 628)

The well-formedness of the sentences in (127) suggests that the ill-formedness of the illicit structures in (112) – (125) is not due simply to their QPs appearing within an extraction island.

On the other hand, a proponent of the movement-based account might claim that the structures here are not entirely comparable, in that the sentences in (127) involve *relative clause* islands, while the structures in (112) – (125) involve a distinct set of islands. This may indeed be a distinction with a difference, as it could certainly be that covert QR of a QP can target positions *internal* to the extraction islands in (127), but cannot for the extraction islands in (112) – (125). This is somewhat plausible given that the extraction islands in (127) are full clauses, while those in (112) – (125) are not. Thus, if QR were able to target positions internal to the extraction islands in (127), the movement-based account would not necessarily predict those sentences to be ill-formed.

Let us turn, therefore, to a more fundamental prediction of the movement-based analysis, that wh-indefinites undergo obligatory QR.

⁵⁹ Note that sentence (127b) appears to illustrate a head-internal relative clause. This is the only textual example of such a relative clause I have encountered, and they are not reported for Tlingit in either Naish (1966) or Leer (1991). Tlingit is standardly described as having only head-external, pronominal relatives (Naish 1966, Leer 1991).

6.2.2 The Ability for Wh-Indefinites to Scope Outside of Islands

A core tenet of the movement-based account of the data in (112) – (125) is that QPs containing wh-indefinites in Tlingit undergo obligatory QR. Let us now ask, however, why QR of Tlingit wh-indefinites should be *obligatory*. Such obligatory QR would seem to imply that wh-indefinites in Tlingit cannot obtain their scope *in-situ*. After all, if wh-indefinites in Tlingit could obtain their scope *in-situ*, there would be no reason for QR to obligatorily target all such indefinites (Reinhart 1997).

Therefore, the movement-based analysis predicts that wh-indefinites in Tlingit always move to their scope positions via QR. Given the assumption that QR is sensitive to (adjunct) islands (Chomsky 1975, Reinhart 1997), we therefore predict that Tlingit wh-indefinites should – like strong quantifiers – be unable to scope out of (adjunct) islands (Reinhart 1997).

Let us, then, seek to test this prediction of the movement-based account. As shown in the work of Ruys (1992, 1995) and Matthewson (1999), an effective test can be gained by looking to the interpretation of Tlingit conditionals containing wh-indefinites. For example, the well-known fact that English indefinites *can* scope out of adjunct islands is demonstrated by the consistency and coherency of the following discourse.

(128) An English Indefinite Scoping Out of the Antecedent of a Conditional

- a. Dave is my friend.
- b. Many of Dave’s in-laws don’t like him.
- c. His brother in law, though, loves him.
- d. He said to Dave, “If I ever win the lottery, I’ll buy you a house.”
- e. *Therefore, if one of Dave’s in-laws wins the lottery, he’ll get a house.*

As noted by Ruys (1992, 1995), in order for the discourse under (128) to be coherent, sentence (128e) must be interpreted so that the existential force of the indefinite “one of Dave’s in-laws” has scope *outside* the conditional antecedent. If the existential force were interpreted internal to the conditional antecedent, the final sentence would be interpreted as equivalent to “if any of Dave’s in-laws wins the lottery, he’ll get a house”, which is inconsistent with the prior discourse. Therefore, the coherence of discourses like (128) demonstrates that indefinites in English can scope out of the antecedent of a conditional, a structure that otherwise constitutes an adjunct island. This fact, in turn, has led to the abandonment of the notion that English indefinites undergo obligatory QR to fix their scope (Reinhart 1997).⁶⁰

In order to determine whether tests like that in (128) could be run for Tlingit wh-indefinites, we should first confirm that Tlingit wh-indefinites admit the ‘specific readings’ that are required for indefinites to obtain the ‘exceptional scope’ seen in (128e) (Fodor & Sag 1982, Kratzer 1997, Matthewson 1999). First, although in many of the examples we have seen thus far, the Tlingit wh-indefinite is apparently interpreted as an NPI or free-choice indefinite ((44a), (44b), (112) – (123)), it *is* possible for wh-indefinites to appear on their own, interpreted as plain

⁶⁰ Note, however, that Schwarzschild (2002) challenges the validity of this argument. That is, Schwarzschild (2002) puts forth an analysis of indefinites where the location of existential force *internal* to the antecedent of the conditional in (128e) needn’t result in a reading inconsistent with the prior discourse in (128b). Thus, the argument that follows regarding Tlingit wh-indefinites necessarily assumes a different semantics for indefinites than that put forth by Schwarzschild (2002).

existentials outside the scope of any other logical operators.⁶¹ The sentences below provide some textually attested examples.

(129) **Tlingit Wh-Indefinites as Plain Existentials**

- a. A_x x'agáax'i yéi yatee ch'a **aadóoch** sá yawudlaagi.
 my prayer thus it.is just who.erg Q they.get.it
*My prayer is that **someone** learn it.*
 (Dauenhauer & Dauenhauer 1990; p. 206; line 186)
- b. Ch'a **daat** yís sáwé yáat aas áa wsi.aa yáat.
 just what for Q.foc-part here tree some they.grow here
*For **some reason**, there are trees growing here.*
 (Nyman & Leer 1993; p. 4; line 47)
- c. Wé éexnax.á áwé, **daa** sáyá aya.áxch.
 that south.to.one foc-part what Q.foc-part he.heard.it
*The [old man] to the south heard **something**.*
 (Nyman & Leer 1993; p. 10; line 34)
- d. **Daa** sáwé yóo dikéenax.á
 what Q.foc-part yonder far.out.across.one
*There was **something** up there.*
 (Nyman & Leer 1993; p. 14; line 103)
- e. ...áwé **daa** sáwé xwasiteen.
 foc-part what Q.foc-part I.saw.it
*...and I saw **something**.*
 (Nyman & Leer 1993; p. 66; line 497)
- f. Ch'a **daa** sá aagáa kukkwatées'...
 just what Q it.for I.will.search
*I'll look for **something** there.*
 (Nyman & Leer; p. 180; line 266)

Secondly, there are cases where a specific reading of a Tlingit wh-indefinite appears to be clearly intended. For example, on one occasion, a speaker indicated to me that a particular wh-phrase I was employing could be interpreted as a specific indefinite.

⁶¹ I believe, however, that some speakers on certain occasions greatly prefer the NPI reading of the wh-indefinite, to the point that the NPI reading is essentially obligatory in the environments that license it.

(130) **Tlingit Wh-Indefinite Given a Specific Reading**

Tlingit phrase: *Daakw aa aant sa*
 which of.them village.to Q

Comment by Speaker: *This can mean "To a certain town."*

Furthermore, there is at least one passage within the examined corpus of Tlingit texts where a specific reading of a wh-indefinite appears to be required. This passage also appears to show that wh-indefinites *can* scope outside of adjunct islands in Tlingit. The following sentence is taken from Nyman & Leer (1993).

(131) **Tlingit Wh-Indefinite Given a Specific Reading**

[*Waa* kunaaliyéi wugoodi sáwé] wé t'akwanéiyi du dix'kaadé sh k'awdligáy.
how it.is.far she.went Q.foc-part this baby her back.on it.fussed
After she had gone a certain distance, the baby began to fuss on her back.
(Nyman & Leer 1993; p. 226; line 184)

The context from which sentence (131) was taken makes clear that the wh-indefinite here is to be given a specific reading. In this context, it is clear that the speaker does not mean to state that the baby began to fuss *as soon as the mother made any movement at all*, which would be the interpretation if the wh-indefinite were assigned narrow scope inside the temporal adjunct. Rather, the speaker is stating that the baby's fussing began only after a particular distance had been crossed, an interpretation that requires the wh-indefinite to have wide scope outside the temporal adjunct.

From the data above, it is apparent that Tlingit wh-indefinites can receive a specific interpretation, and so we should be able to obtain speaker judgments regarding whether such indefinites can scope out of adjunct islands. Indeed, the following discourse effectively shows that it is possible for wh-indefinites in Tlingit to obtain the exceptional scope witnessed for English indefinites in (128).

(132) **A Tlingit Wh-Indefinite Scoping Out of The Antecedent of a Conditional**

- a. *Ax xooní áwé* Dave.
 my friend foc-part Dave
 Dave is my friend.

- b. *Shayadihéini* du káani tlél du tuwáa ushgú.
 they.are.many.REL his in-laws not their spirit it.is.glad
 Many of his in-laws don't like him.

- c. *Du káanich* *ku.aa* wusixán.
 his brother-in-law.erg though he.loves.him
 His brother-in-law, though, loves him.

- d. Yéi ayawsikaa, “Dáanaa káa dulxéis’ át yaxwadlaagi, hít i jeeyís
 he.told.him money on one.gambles thing I.win.it house your hand.for
 kukwa.oo.
 I.will.buy.it
He said to him (Dave), “If I ever win the lottery, I will buy you a house.”
- e. [[Daakw aa du káanich sá] yawudlaagi], hít ayakgwadlaak.
 which of.them his in-laws.erg Q they.win.it house he.will.get.it
So, if a certain in-law of Dave’s wins the lottery, he’ll get a house.

The Tlingit discourse in (132) was constructed with the help of a native speaker, who recognized the discourse as a sensible story, and an accurate translation of the English original.⁶² Note that if the wh-indefinite in (132e) could only have narrow scope inside the antecedent of the conditional, then the discourse in (132) neither would be internally consistent nor would be an accurate translation of the original English story. Rather, the consistency and faithfulness of (132) require that the existential force of the wh-indefinite be located *outside* the antecedent of the conditional.

Sentences like (132e) therefore demonstrate that, contrary to the predictions of the movement-based account, it *is* possible for Tlingit wh-indefinites to scope out of (adjunct) islands. More acutely, these sentences show that there *is* some mechanism in Tlingit that allows a wh-indefinite to be interpreted in a position distinct from the position of its associated existential force. The existence of such mechanisms, however, entails that the scope of a wh-indefinite in Tlingit needn’t be fixed by movement of that indefinite, contrary to the assumptions of the movement-based account. Thus, because wh-indefinites in Tlingit *can* obtain their scope *in-situ*, there is no reason for QR to obligatorily target all such indefinites.

Of course, one could always maintain the movement-based account of (112) – (125) by simply giving up the notion that *QR* is the movement operation that obligatorily targets Tlingit wh-indefinites. Perhaps Tlingit wh-indefinites obligatorily move for some other reason? However, since we have already eliminated all other plausible candidates for the movement hypothesized by the movement-based analysis, we find that the analysis must appeal to a yet-unknown form of covert movement. It is therefore most reasonable to conclude that the movement-based account is simply incorrect.

This conclusion is further supported by a more detailed examination of CompPP and SpecDP in Tlingit, as discussed in the following section.

⁶² Keri Edwards (p.c.) reports that the speaker she consulted finds the translation of (132e) incorrect, and can only interpret the sentence to mean “if *any* of Dave’s in-laws win the lottery...”. Thus, for this speaker, it may indeed be that wh-indefinites cannot take scope outside of adjunct islands. However, it may also be that this speaker shares the tendency, noted in Footnote 61, to interpret wh-indefinites as NPIs in those environments that would allow such an interpretation, such as the antecedent of a conditional. Although the strong preference to interpret wh-indefinites as NPIs or free choice items should not be taken lightly, and does cry out for its own grammatical account, the data in (129) – (132) effectively shows that such interpretations are (at least for some speakers) not obligatory.

6.2.3 The Non-Islandhood of CompPP and SpecDP

In the previous section, we found evidence that challenged a core premise of the movement-based account, namely that wh-indefinites in Tlingit obligatorily undergo QR. In this section, we will see evidence that challenges the second core premise of this account, that there is a constraint in Tlingit that prevents extraction from CompPP and SpecDP. That is, we will see in this section that such extraction *is* generally possible in Tlingit.

Our discussion begins with the observation of a variety of interesting ‘resumption’ structures in Tlingit. First, although we saw in Section 6.1 that Tlingit does not permit adposition stranding, it *is* possible for a left-peripheral wh-operator to be interpreted as the argument of an IP-internal post-position, *just so long as that post-position is marked with a resumptive pronoun*. The following sentences illustrate this construction.

(133) Resumptive P-Stranding in Tlingit

- a. **Daakw** **hít** **sá** **aadáx** yeegoot
 which house Q it.from you.left
Which house did you leave from?
- b. **Goot’á** **sá** kwshé **anax** yeik wutuwa.át?
 where Q dubit. it.through to.shore we.went
I wonder where we came out? (D&D 1987; p. 68; line 129)
- c. **Goo** **sá** kwshí yá **át** **kuwliháš**?
 where Q dubit. it.to they.drifted
Where was it they had drifted? (D&D 1987; p. 92; line 188)
- d. **Daa** **sáyú** **aan** has at een?
 what Q.foc-part it.with they.hunt
What did they hunt with? (D&D 1987; p. 218; line 8)
- e. **Kushtuyáx** gíyú tsu **wáa** **yateeyi** **yé** **sá** **áa** **xateixi**.
 it.doesn’t.matter dubit. again how it.is.REL place Q it.at I.sleep
It seems it didn’t matter what kind of place I slept in.
 (Nyman & Leer 1993; p. 172; line 88)
- f. **Goo** **sáwé** **aax** **héenx** **latéedi** **yéeyi**.
 where Q.foc-part it.from water.to he.floated.SUB used.to
Where he used to get washed into the sea. (D&D 1990; p. 170; 45)

In each of the sentences above, a left-peripheral bare wh-operator is paired with a pronominally marked post-position, and, as the translations indicate, the wh-operator is interpreted as the argument of the pronominally marked post-position. For purposes of discussion, I will refer to this construction as ‘resumptive P-stranding’.

There is another construction in Tlingit that is intuitively related to its resumptive P-stranding, but which involves possessors. Although we saw in Section 6.1 that Tlingit does not

permit pure possessor extraction, it *is* possible for a left-peripheral wh-operator to be interpreted as the possessor of an IP-internal NP, but *only if that possessed NP is marked with a resumptive pronominal possessor*. The following sentences illustrate.

(134) **Resumptive Possessor-Extraction in Tlingit**

- a. **Aa** **sá** **a** **yahaayí** tlél yi.oo.
 who Q his picture not you.bought.it
Who didn't you buy any pictures of?
- b. **Aa** **sá** daa **sá** **du** **tuwáa** sigóo [_____ wutoo.oowú] ?
 who Q what Q their spirit it.is.glad _____ we.bought.it
Who wants us to buy what?
- c. Tlél xwasakú **daa** **sáwé** **a** **káx** xat x'aywóos'.
 not I.know what Q.foc-part its surface.about you.ask.me
I don't know what you are asking me about.
 (Nyman & Leer 1993; p. 200; line 706)
- d. **Aadóo** **sá** **du** **éet** shukawdudlixúxu áwé.^{63, 64}
 who Q his Ø.to song's.words.are.for.SUB foc-part
Whoever the words of a song are for. (D&D 1990; p. 310; line 43)

In each of these sentences, we see that a left-peripheral bare wh-operator is paired with an NP bearing a pronominal possessor. Moreover, as the translations again indicate, the wh-operator is interpreted as the possessor of the possessed NP. For purposes of discussion, I will refer to this construction as 'resumptive possessor-extraction'.

Finally, there is a third construction that seems thematically akin to both resumptive P-stranding and resumptive possessor-extraction. Again, although we saw in Section 6.1 that Tlingit does not permit pure extraction of wh-determiner heads, it *is* possible for a left-peripheral wh-determiner to be interpreted as taking as argument an IP-internal NP, *just so long as that wh-determiner is followed by the partitive pronoun 'aa'*. The following sentences illustrate.

(135) **Partitive D-Extraction in Tlingit**

- a. **Daakw** **aa** **sá** **xáat** i tuwáa sigóo?
 which of.them Q fish your spirit it.is.glad
Which fish do you want?

⁶³ The inalienably possessed noun *ée* is a semantically empty noun. It is employed in circumstances where a third person animate pronoun cannot appear alone (such as in CompPP). In such environments, the complex possessed NP *du ée* 'his Ø' is interpreted as if it were simply the bare third person animate pronoun alone.

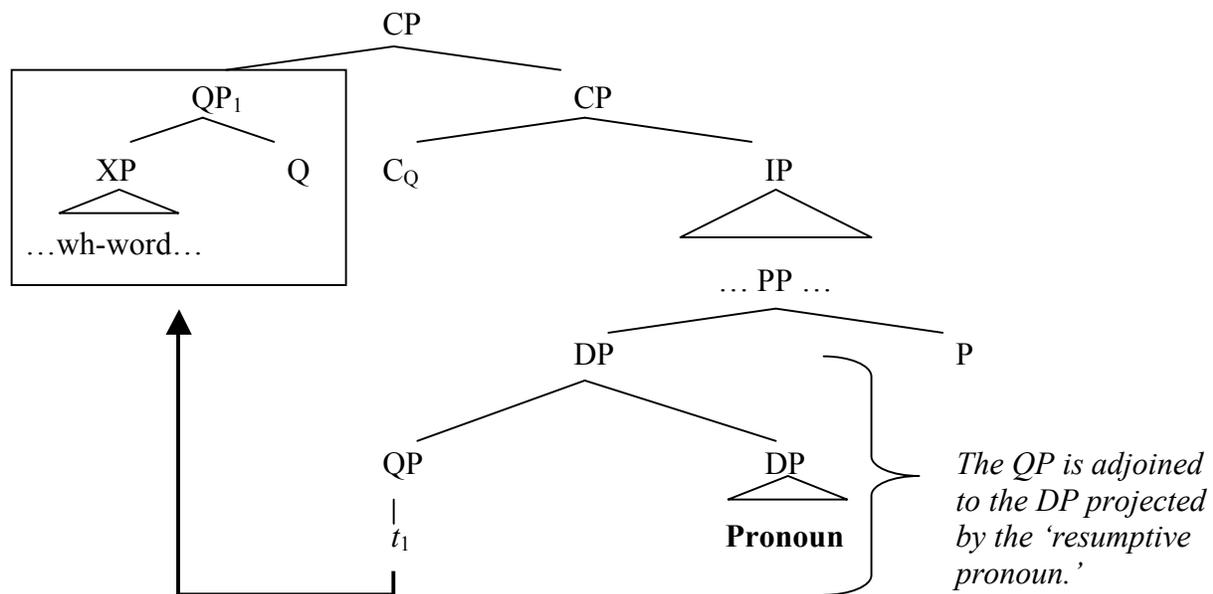
⁶⁴ The structure in (134d) illustrates a Tlingit free relative. Although not semantically a question, the wh-operator of a Tlingit free relative is, like the wh-operator of a wh-question, fronted into the left-periphery of the subordinate clause (see Cable 2005c).

- b. **Daakw aa** **sá aan** a daa ituwateeyí yéidei kkwagóot.
 which of.them Q town it.about your.spirit.is thus.to I.will.go
I will go to whatever town you want to go to.
- c. Tlél du tóo ushgú ch'a **daakw aa** **sá du aat há**s du een
 not his spirit it.is.glad just which of.them Q his aunts them.with
 tóot wutoo.aadí du jiyís.⁶⁵
 inside.to we.go.SUB his hands.for
He doesn't want any of his aunts to be taken in by us for him to live with.
 (Nyman & Leer 1993; p. 248; line 616).

In each of the above sentences, a left-peripheral wh-determiner, functioning as a wh-operator, is paired with an IP-internal NP. Moreover, the translations of these sentences indicate that the wh-determiner is interpreted as taking this NP as its argument. For purposes of discussion, I will refer to this construction as ‘partitive D-extraction’.

In each of the constructions above, we find that various otherwise ill-formed extractions in Tlingit are made licit via the presence of a pronoun. This immediately raises the question of what role the ‘resumptive pronoun’ plays in the structure of these sentences. I will defend here the following analyses of these structures, similar to the analysis of resumptive pronouns in Lebanese Arabic put forth by Aoun, Choueiri & Hornstein (2001). First, I propose that the resumptive P-stranding structures in (133) receive the analysis in (136).

(136) **The Structure of Resumptive P-Stranding in Tlingit**

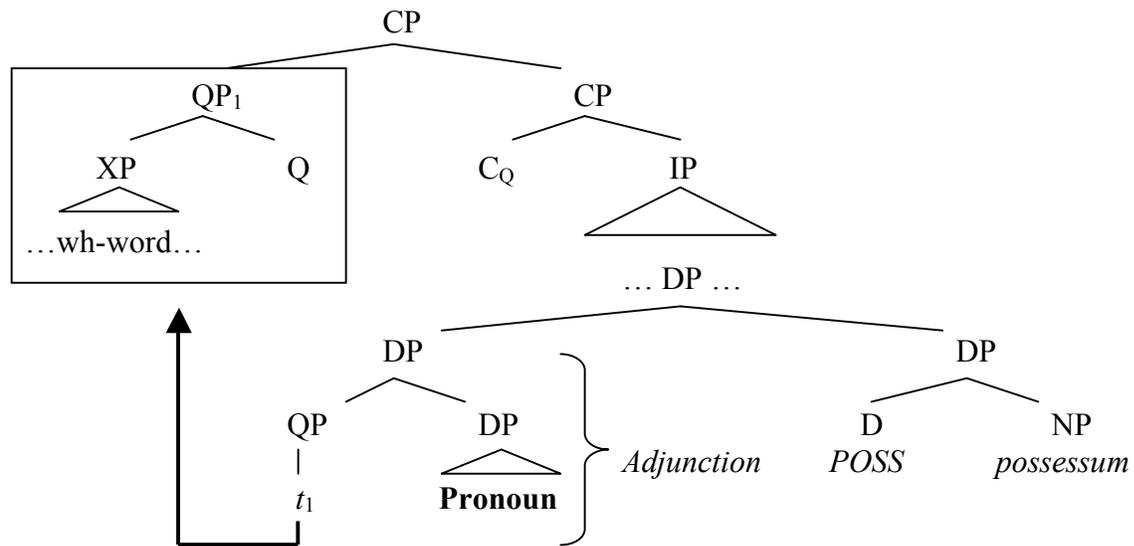


⁶⁵ The sentence in (135c) actually contains a wh-indefinite, rather than a wh-operator. However, I include it here as an example of Tlingit D-extraction with wh-determiners.

According to this analysis, the left-peripheral QP in a resumptive P-stranding structure begins life adjoined to the resumptive pronominal in CompPP. Agreement between the C_Q head and the QP subsequently requires the QP to front into the left-periphery of the clause, leaving the resumptive pronoun in its base position at CompPP. Thus, according to this analysis, in a resumptive P-stranding structure the resumptive pronoun is the *true* complement of P, while the fronted QP is merely an adjunct to this pronominal.

Secondly, I propose for the ‘resumptive possessor-extraction’ in (134) the analysis in (137) below.

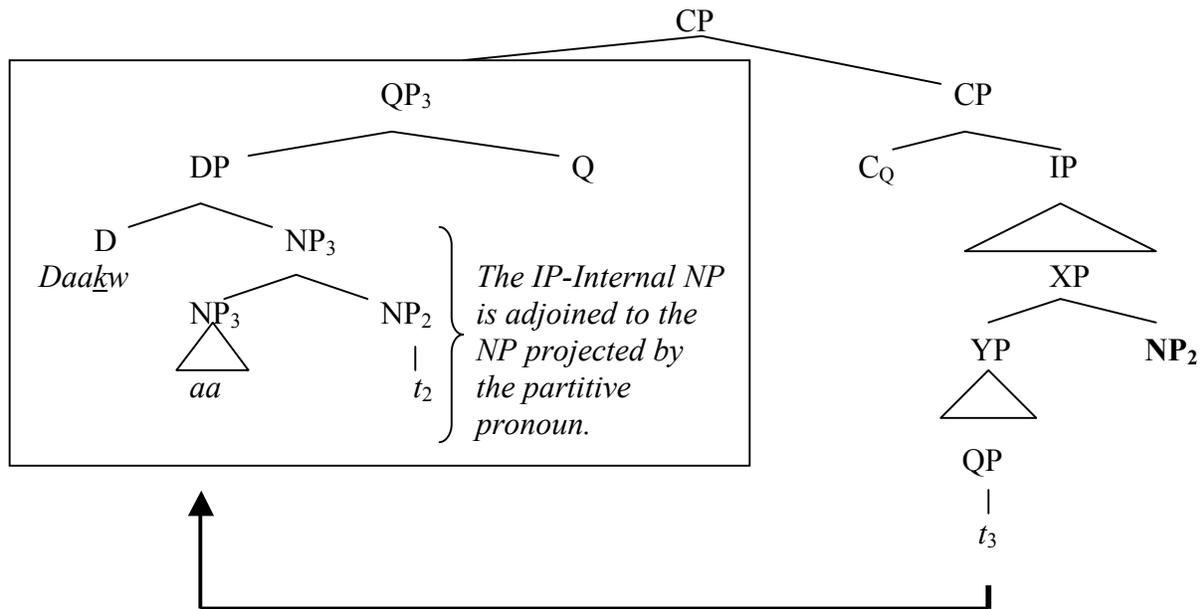
(137) **The Structure of Resumptive Possessor-Extraction in Tlingit**



According to this analysis, the QP of a resumptive possessor-extraction structure also begins life as an adjunct, in this case an adjunct to the ‘resumptive’ possessive pronominal. As in (136), this adjoined QP then undergoes fronting to SpecCP, leaving in place the resumptive pronoun in SpecDP. Therefore, as in (136), the analysis in (137) holds that the *true* specifier of the possessive DP is the *resumptive pronominal*, while the fronted QP is simply an adjunct to SpecDP.

Finally, I propose the analysis in (138) for the partitive D-extraction examples in (135).

(138) **The Structure of Partitive D-Extraction in Tlingit**



According to this analysis, the partitive D-extraction structures in Tlingit are cases of remnant movement. The IP-internal NP construed as the complement of the wh-determiner actually begins life as an adjunct to the partitive pronoun *aa* ‘of.them’. Subsequently, this adjoined NP is scrambled out of the DP to some clause internal position. Following this scrambling, agreement between C_Q and the remnant QP causes the remnant QP to be fronted into the left-periphery. Thus, according to this analysis, the *true* complement of the wh-determiner in a Tlingit ‘partitive D-extraction’ structure is the partitive pronoun following the D; the clause-internal NP is simply an adjunct to this pronoun.

There are two sets of facts that argue for the analyses in (136) – (138) above. The first is that in all three constructions – resumptive P-stranding, resumptive possessor-extraction, and partitive D-extraction – the relationship between the left-peripheral QP and the clause internal (pro)nominal is island-sensitive. This is most easily seen via examination of wh-islands in Tlingit. Although we saw earlier in Section 3.2.3 that wh-fronting in Tlingit can take place out of subordinate declarative clauses, it cannot take place out of subordinate *questions*, as the following data illustrate.

(139) **Wh-Islands in Tlingit**

- a. Yóo xat x’eiwawóos’ [aadóo sá hít aawa.oo].
 he.asked.me who Q house he.bought.it
He asked me who bought a house.
- b. * [Daa sá]₁ yóo ix’eiwawóos’ [aadóo sá *t*₁ aawa.oo]?
 what Q he.asked.you who Q he.bought.it
 * *What did he ask you who bought?*

Thus, it can be said that wh-questions are islands to movement in Tlingit, as they are in many other languages. The ill-formedness of the following sentences thus demonstrates that the left-peripheral QP *moves* to its surface position from within the subordinate clause, in resumptive P-stranding, partitive D-extraction, and resumptive possessor-extraction structures.

(140) **Island-Sensitivity of Resumptive P-Stranding (cf. (133a))**

- * **Daakw** **hít** **sá** yóo ix'eiwawóos' [aadóo **sá** **aadáx** woogoot]
 which house Q he.asked.you who Q it.from he.left
 * *Which house did he ask you who left from?*

(141) **Island-Sensitivity of Partitive D-Extraction (cf. (135a))**

- * **Daakw** **aa** **sá** yóo ix'eiwawóos' [aadóo **sá** **yáat** du tuwáa sigóo] ?
 which of.them Q he.asked.you who Q fish his spirit it.is.glad
 * *Which fish did he ask you who wanted?*

(142) **Island-Sensitivity of Resumptive Possessor Extraction (cf. (134a))**

- * **Aa** **sá** yóo ix'eiwawóos' [aadóo **sá** **a** **yahaayí** woo.oo] ?
 who Q he.asked.you who Q his picture he.bought.it
 * *Whose picture did he ask you who bought?*

Therefore, the analyses in (136) – (138) correctly predict the island-sensitivity of the relationship between the left-peripheral QP and the IP-internal (pro)nominal.

However, as pointed out in works such as Iatridou (1995), arguments like the one just presented show only that the left-peripheral QP has its base position *somewhere* within the subordinate clause. We have not yet effectively shown that the QP begins life adjoined to the resumptive pronoun itself, rather than, say, in the specifier of the subordinate CP.

Some evidence in support of our proposal, however, can be found in the fact that the putative base-structures in (136) – (138), where a nominal is adjoined to the resumptive pronoun, are actually well-formed *surface structures* in Tlingit. Let us first consider sentence structures like the following.

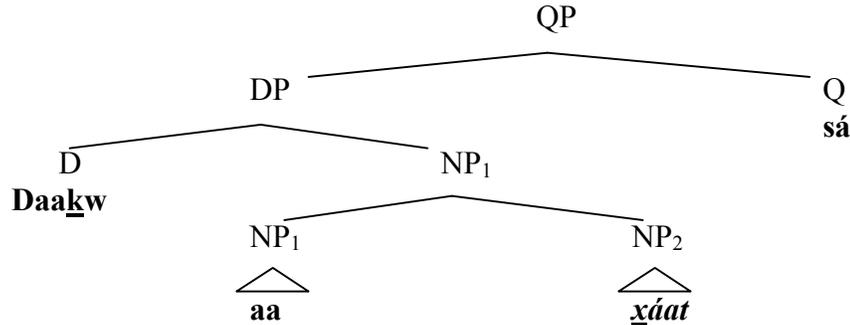
(143) **DP Adjoined to Pronoun in the Complement of P**

- [**Daakw** **aa** yóo x'atánk **koo** dultóowu] **yéide** **sá** kgeegóot?
 which of.them language one.teaches.people.REL thus.to Q you.will.go
Which language workshop are you going to?
 (SHI; Tlingit Phrase of the Week; May 30th, 2006)

In this structure, like those in (133), a left-peripheral wh-phrase is paired with a PP whose complement position is occupied by a pronoun, and the translation of the sentence indicates that that wh-phrase is interpreted as the internal argument of that PP. In (143), however, the Q-particle *sá* occurs to the immediate right of the *PP*, rather than the wh-phrase itself. Given the fact that that Tlingit *sá* must always c-command a wh-word, it follows that the wh-phrase and the

NP, rather than the partitive pronoun. Given that *sá* must c-command the wh-determiner, it follows that the DP headed by the wh-determiner and the full NP form a single constituent in (145). Therefore, a reasonable structure for the sentences under (145) is that diagrammed under (146), where the full NP is adjoined to the partitive pronoun in the Comp of DP.

(146) **NP Adjoined to Partitive Pronoun**



Finally, let us consider sentence structures like the following.

(147) **DP Adjoined to Possessive Pronoun**⁶⁷

Wéi wulil'éex'i **ax** éesh *du kéidli* xwsiteen.
 that it.has.broken.tail.REL my father his dog I.saw.it.
I saw that dog of my father's with the broken tail.

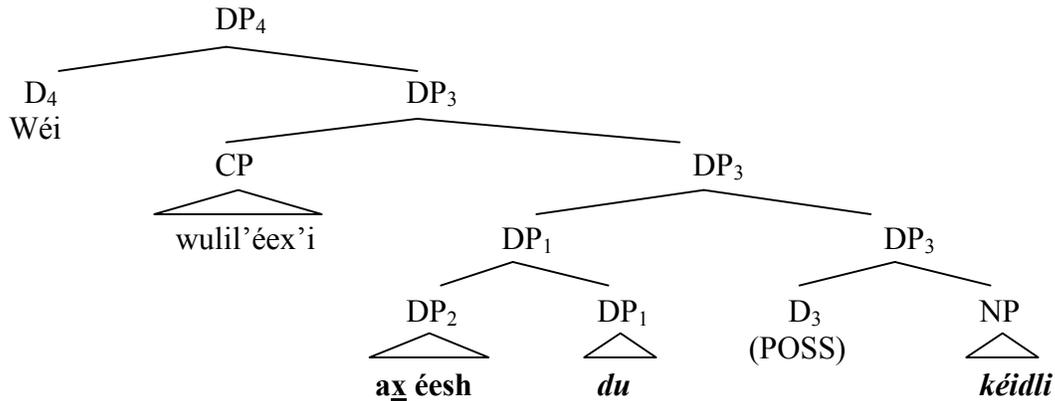
The interpretation of sentence (147) indicates that the determiner *wéi* 'that' and the relative clause *wulil'éex'i* 'which has a broken tail' form a constituent with the NP *kéidli* 'dog'. Moreover, given the geometry of constituency, it follows that the interposed phrase *ax éesh* 'my father' must also form a constituent with the NP *kéidli* 'dog'. Therefore, a reasonable structure for the sentence under (147) is that shown under (148), where the full NP *ax éesh* 'my father' is adjoined to the possessive pronominal *du* 'his' preceding the NP *kéidli* 'dog'.

⁶⁷ I attempted to elicit structures similar to those in (143) and (145), where the particle *sá* follows a possessed NP containing a resumptive possessive pronominal, but I was unsuccessful. All the structures I offered, such as the one below, were rejected.

(i) ***Daakw** aa **káa** *du yaagú* **sá** ysiteen?
 which of.them man his boat Q you.saw.it
 Which man's boat did you see?

Moreover, I was unable to find such structures in any of my available Tlingit texts. This suggests that such structures are generally ill-formed in Tlingit. If this is indeed the case, I have no account of what distinguishes these structures from the well-formed ones in (143) and (145).

(148) **DP Adjoined to Possessive Pronoun**



In summary, we see from the sentences and structures in (143) – (148) that the following are all independently visible surface structures in Tlingit: (a) adjunction of a DP to a possessive pronominal, (b) adjunction of a DP to a pronoun in CompPP, (c) adjunction of an NP to a partitive pronominal. This fact increases the plausibility of the analyses in (136) – (138), and supports the assumption that a left-peripheral QP can begin life adjoined to a resumptive pronominal. After all, the only difference between (e.g.) the structure in (144) and that in (136) is the placement of the Q-particle; placement of the Q-particle directly to the right of the DP adjunct results in structure (136), while placement directly right of the PP results in (144). Thus, in a real sense, the well-formedness of (144) *predicts* the well-formedness of (136), and thus lends it extra credence as an analysis of the structures in (133). I therefore conclude that the analyses in (136) – (138) are correct for their respective constructions.

The correctness of the analyses in (136) and (137), however, poses a direct challenge to the movement-based account in (111). A central tenet of the movement-base account is that there is an inability in Tlingit to extract from CompPP and SpecDP. The analyses in (136) and (137), however, require that such extraction be possible. It follows, of course, that the movement-based analysis is incompatible with the analyses in (136) and (137). Therefore, the evidence that we have seen in this section supporting the structures in (136) and (137) is evidence *against* the movement-based account. Given the weight of this evidence, I conclude that extraction from CompPP and SpecDP *is* possible in Tlingit, and so the movement-based account in (111) must be incorrect.⁶⁸

⁶⁸ Abels (2003) also demonstrates that extraction from CompPP is possible in various other languages that disallow P-stranding. He similarly concludes that the impossibility of P-stranding across languages cannot be due to a condition against *all* extractions from PP, but instead reflects the impossibility of stranding the P-head specifically. I agree with this general conclusion, and will argue below that this condition against P-stranding is due to independent constraints on the placement of Q-particles.

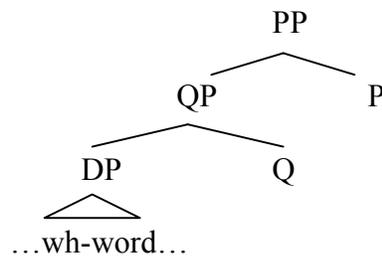
Abels (2003), however, derives this constraint against P-stranding from the assumption that adpositions are phase heads, given a surrounding theory wherein one predicts that phase heads cannot be stranded. It is unclear, however, whether there is a general constraint against phase heads being stranded. Although Abels (2003) notes that an inability to strand C would predict the inability for IP to be extracted, he also notes that IPs are generally ‘immovable’ in ways not necessarily predicted by the ‘unstrandability’ of C alone. Furthermore, a certain kind of ‘dummy *do*’ in English may be a stranded ‘little-*v*’ (Cable 2004b).

6.3 The Proposed Analysis: The QP-Intervention Condition

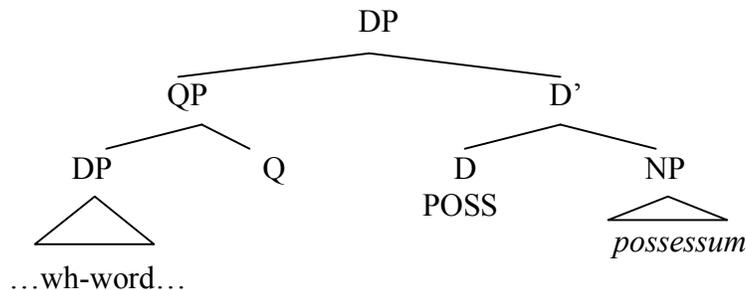
In the preceding sections, we have seen an array of evidence challenging the two central assumptions of the movement-based account in (111): (i) *wh*-indefinites in Tlingit undergo obligatory QR, (ii) Tlingit does not permit extraction from SpecDP and CompPP. On the basis of this evidence, we have concluded that the movement-based account is not the correct analysis of the contrasts seen in (95) – (107) and (112) – (125). Therefore, despite their obvious similarity to independently proposed constraints on movement, some other principles of grammar must be behind the constraints observed to govern the placement of Tlingit *sá*. In this section, we will put forth one view of what those principles are.⁶⁹

Let us begin by turning our attention back to the *wh*-indefinites in (112) – (125), specifically the ill-formed structures where the Q-particle intervenes between (a) a post-position and its complement, (b) a possessed NP and its possessor, and (c) a determiner and its NP complement. Now, recall that according to our central analysis in (18), the Tlingit Q-particle *sá* takes its sister as complement and projects a QP. It therefore follows that the ill-formed sentences in (112) – (125) contain structures like the following.

(149) Structures Where Q Intervenes Between P and its Complement



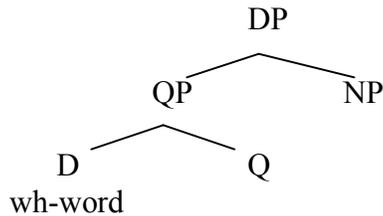
(150) Structures Where Q Intervenes Between Possessor and Possessed NP



⁶⁹ Sandra Chung (p.c.) has suggested that the constraints governing the placement of Tlingit *sá* may be prosodic in nature. This particle is a clitic in Tlingit, and in other well-known languages, prosodic constraints on clitics have a similar effect on their distribution. Most famously, in the South Slavic languages, it has been proposed that prosodic constraints account for the inability for ‘second-position clitics’ to intervene between (a) possessors and possessed NPs, (b) determiners and their complements, and (c) prepositions and their complements.

Although this could potentially be a very fruitful hypothesis, and should be independently pursued, I put this possibility aside here. The principle reason for doing so is that the syntactic account proposed here will have a variety of further consequences, and will be able to capture facts about Tlingit that such a prosodic account would be unable to (e.g., the facts regarding clause-final positioning in Section 4.4).

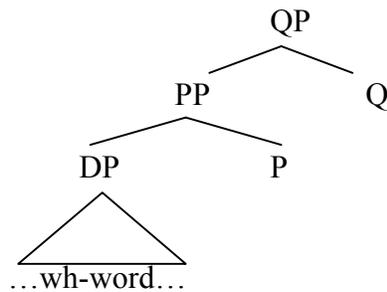
(151) Structures Where Q Intervenes Between D and NP Complement



Importantly, all the structures in (149) – (151) share the following property: *in each, a QP intervenes between a functional head and a phrase selected by that functional head.* In structure (149), the QP intervenes between the post-position and the DP selected by the post-position. In (150), the QP intervenes between the possessive D head and the possessor DP selected by the possessive D. In (151), the QP intervenes between the D and the NP it selects.

Furthermore, let us note that *none* of the well-formed sentences in (112) – (125) has this special property. In the well-formed sentences of (112) – (115), the Q-particle occurs to the right of the post-position, and so the QP it projects does not intervene between the P and its DP complement.

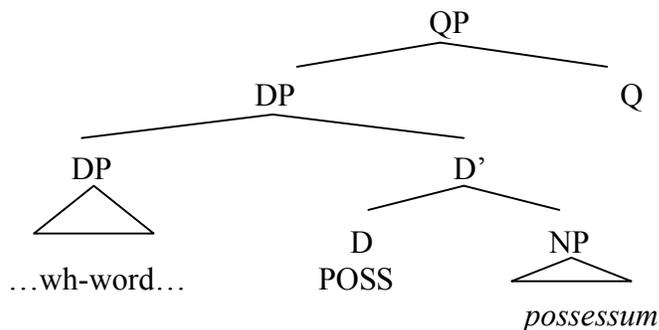
(152) Structures Where Q Appears to the Right of the Post-Position



Moreover, the PP complement of Q in these sentences is an adjunct, and so is not selected by any higher functional heads.

In the well-formed sentences of (117) – (121), the Q-particle occurs the right of the possessed NP, and so its projection does not intervene between the D and its specifier.

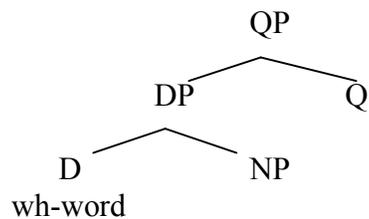
(153) Structures Where Q Appears to the Right of the Possessed NP



Moreover, the complement of Q in these sentences is either an adjunct (120), or is selected by a *lexical* head. Thus, the QPs in these sentences do not interrupt the selectional relationships of any functional heads.

Finally, in the well-formed sentences of (123) – (124), the Q-particle occurs to the right of the NP complement of D, and so its projection likewise does not intervene between D and NP.

(154) Structures Where Q Appears to the Right of NP Complement of D



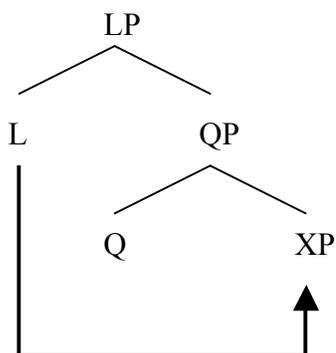
Here again, in these sentences the complement of Q is either an adjunct (124) or is selected by a lexical head. Thus, the QPs in these sentences do not interrupt the selectional relationships of any functional heads.

On the basis of these observations, let us propose the following as a universal grammatical constraint.

(155) **The QP-Intervention Condition**

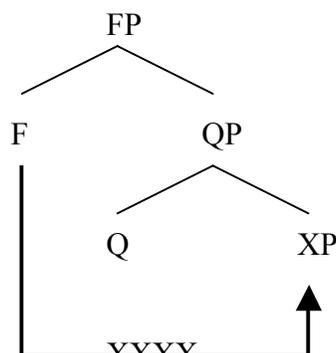
A QP cannot intervene between a functional head and a phrase selected by that functional head.⁷⁰ (Such an intervening QP blocks the selectional relation between the functional head and the lower phrase.)⁷¹

Lexical Head



Selection: OK

Functional Head



QP-Intervention Condition VIOLATED

As we have already seen, this ‘QP-Intervention Condition’ would be sufficient to predict the data in (112) – (125). Furthermore, this condition successfully avoids the problems inherent in the movement-based account, in as much as it does not erroneously assume that Tlingit wh-indefinites undergo obligatory QR, or that Tlingit disallows extraction from SpecDP and CompPP. However, to truly make the case for the QP-Intervention Condition over the movement-based analysis, we must demonstrate that it makes accurate predictions beyond just the facts given in (112) – (125). The remainder of this section is given to showing that it does.

First, let us observe that our QP-Intervention Condition derives the fact, noted in Section 4.4, that Tlingit *sá* cannot appear to the right of a matrix predicate.

⁷⁰ In this context, I use the term ‘intervene’ in the following sense: a QP *intervenes* between F and XP if either (i) QP dominates XP but doesn’t dominate F, or (ii) if QP dominates F but doesn’t dominate XP.

⁷¹ Although introduced here as a special stipulation, we should note that the condition in (155) would be a consequence of the following, more general hypothesis concerning selection.

Assuming the distinction between ‘*s-selection*’ and ‘*c-selection*’ (Grimshaw 1981, Pesetsky 1982), let us suppose that it is only *functional* heads that *c-select* for their arguments; thus, *lexical* heads only *s-select* their arguments. Given the nature of *c-selection* and *s-selection*, it would follow that it is only functional heads which require their arguments to be of a particular syntactic category, while the selectional requirements of a lexical head would always be satisfied as long as their arguments were of the correct semantic type.

In Section 7, we will put forth a semantic theory of QPs wherein a QP will always have the exact same semantic type as the sister of Q. Therefore, under this semantic theory, our assumption concerning selection would make the following prediction. The selectional requirements of a lexical head selecting for a semantic type T will be satisfied by a QP where Q takes as sister a phrase of semantic type T. Thus, a QP will be able to intervene between a *lexical* head and a phrase (of the type) selected by the lexical head. On the other hand, because functional heads also *c-select* for their arguments, a QP will be unable to satisfy all the selectional requirements of a functional head. Although a QP could satisfy the *s-selectional* requirements of a given functional head, unless that functional head also *c-selects* for a QP, it will be unable to take such a QP as argument. Thus, a QP will be unable to intervene between a functional head and a phrase (of the type) selected by the functional head.

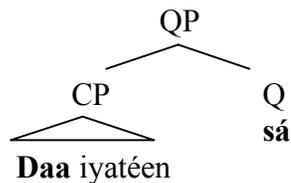
In this way, the effects of the stipulation in (155) could be derived from a broader theory of selection.

(156) **Tlingit *sá* Cannot Occur to the Right of Matrix Predicate**

- a. **Daa** **sá** iyatéen?
what Q you.can.see.it
What can you see?
- b. * **Daa** iyatéen **sá**?
what you.can.see.it Q

If *sá* were to occur to the right of the matrix predicate, then there are two logical possibilities concerning its exact position in the clause, neither of which is consistent with the stated properties of Q in Tlingit. First, it could be the case that *sá* takes the entire matrix CP as complement, as illustrated below.

(157) **Tlingit *sá* Taking Matrix CP as Complement**



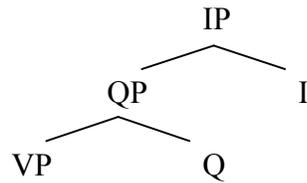
However, we will see in the next section that our semantics for Tlingit wh-questions predicts that such a structure would be uninterpretable. Briefly, Q-particles are analyzed as variables that must be bound by higher operators. In structures like (157), however, there is no position for a higher, binding operator to appear. Thus, the Q-particle goes unbound, and the sentence cannot be interpreted.

The second possibility regarding the position of a clause-final *sá* is that it takes as complement either the VP or one of the higher projections along the ‘functional spine’ of the clause. In either case, however, the QP-Intervention Condition would be violated. If *sá* were to take VP as complement, then the QP it projects would intervene between VP and the higher Infl head, as illustrated below.⁷²

⁷² The exact identity of the first projection dominating VP – whether it is IP or TP – is irrelevant for the purposes of this argument, so long as that projection is a thoroughly functional one. In this context, it should be noted that the analysis proposed here cannot adopt the hypothesis that subjects are introduced by a separate head distinct from V. If such heads were lexical categories, then nothing would prevent Tlingit *sá* from appearing to the right of a matrix verb. On the other hand, if such heads were functional categories, then our theory would predict that subjects could not be dominated by Q in Tlingit and other wh-fronting languages, contrary to fact.

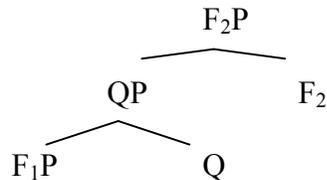
The reader may also observe that, by this logic, our account might also be incompatible with a ‘Larsonian Shell’ analysis of ditransitive verbs.

(158) **Tlingit Sá Taking Matrix VP as Complement**



However, Infl is a functional head, and selects for the VP complement of Q. Therefore, the configuration in (158) violates the QP-Intervention Condition. Similarly, if Q were to take as complement any higher projection F_1 along the ‘functional spine’ of the clause, the QP it projects would intervene between F_1P and the higher functional projection F_2P above it.

(159) **Tlingit Sá Taking as Complement Projections in the Matrix ‘Functional Spine’**



Again, though, F_2 is a functional head, and selects for the F_1P complement of Q. Therefore, the configuration in (159) violates the QP-Intervention Condition.

We have thus ruled out the ability for Tlingit *sá* to appear anywhere to the right of the matrix predicate.⁷³ Nevertheless, our theory does correctly predict that *sá* can appear to the right of a subordinate clause, as in (160).

(160) **Tlingit Sá Can Appear at the Right Edge of a Subordinate Clause**

[**Goodéi** woogootx] **sá** has uwajée i shagóonich?
 where.to he.went Q they.think your parents.erg
Where do your parents think that he went?

As long as the subordinate CP is either an adjunct or is selected by a lexical head, the QP-Intervention Condition will not be violated if a QP takes a subordinate CP as complement. Moreover, since such Qs occupy a position internal to the matrix CP, our semantics predicts that higher operators will be able to bind them, and so the resulting structures will be interpretable.

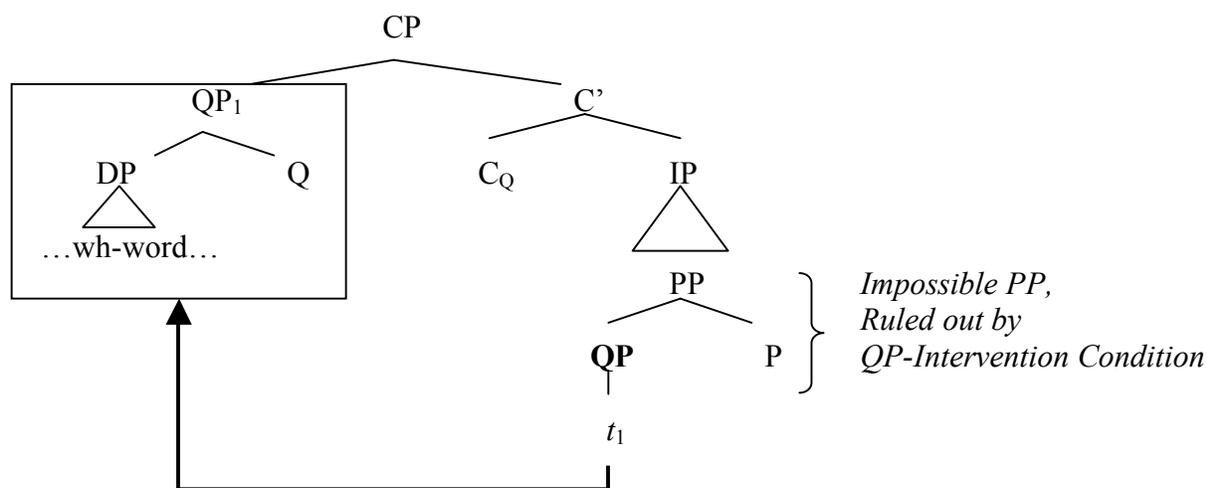
Thus far, we have shown how the QP-Intervention Condition can account for the behavior of *sá* with wh-indefinites in (112) – (125). Recall, however, that a benefit of the movement-based analysis was that it provided a unified account that captured both those facts *and* the parallel behavior of *sá* with wh-questions in (95) – (107). Clearly, the similarity between the facts in (95) – (107) and (112) – (125) demands that a uniform account be adopted, rather than one attributing the facts in (95) – (107) to constraints on movement and the facts in (112) – (125) to the QP-Intervention Condition. Let us now reconsider, then, whether the ill-formed wh-

⁷³ The reader will recall, of course, that this constraint also governs the Q-particle *da* in Sinhala, a wh-*in-situ* language. In the next chapter, we will see how our QP-based theory of wh-questions can treat this fact.

questions in (95) – (107) *must* be understood in terms of constraints on movement. Despite their clear similarity to patterns which in other languages are analyzed in terms of movement, we find that the facts in (95) – (107) are predicted by the QP-Intervention Condition alone.

Let us begin with the ill-formed P-stranding sentences in (95) – (96). According to our analysis in (18), the left-peripheral constituent of a wh-question is a QP that has been extracted from its base position. Thus, the ill-formed sentences in (95) – (96), where extraction of the QP strands a post-position, would at earlier stages of their derivation have a QP intervening between a P and the DP selected by P.

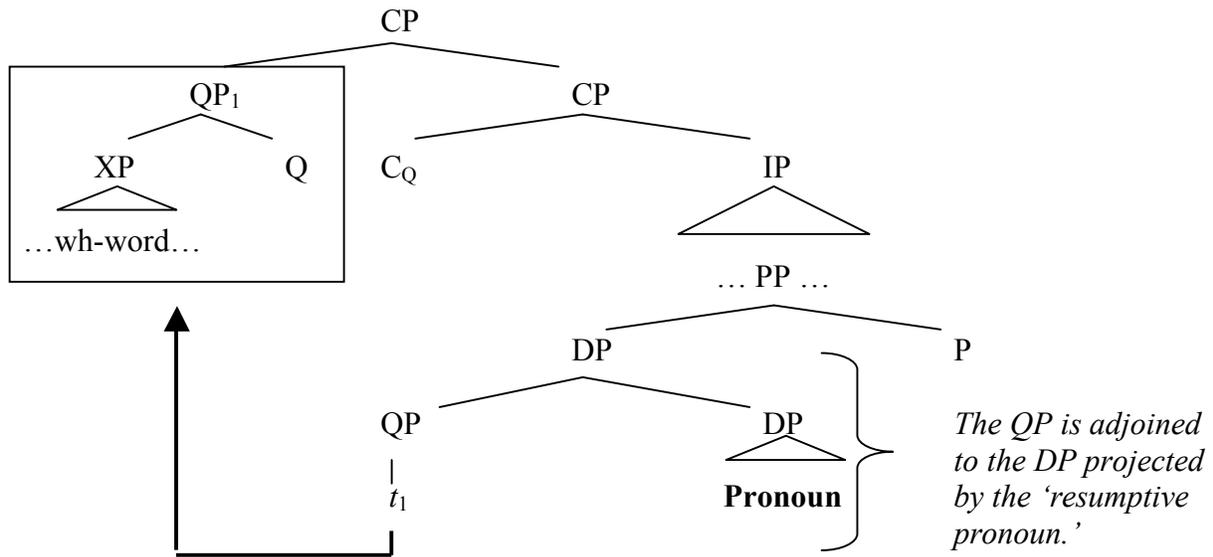
(161) **QP-Intervention Condition Rules Out Tlingit P-Stranding**



We have already seen, however, that such base-structures are impossible in Tlingit, and are ruled out by the QP-Intervention Condition. Since the QP-Intervention Condition rules out the base-structure that necessarily underlies P-stranding, it thereby rules out P-stranding in Tlingit, and so no special condition against such extractions need be appealed to in the grammar of Tlingit.

In this context, let us quickly observe here that the QP-Intervention Condition does nevertheless permit the resumptive P-stranding structures under (136), repeated below.

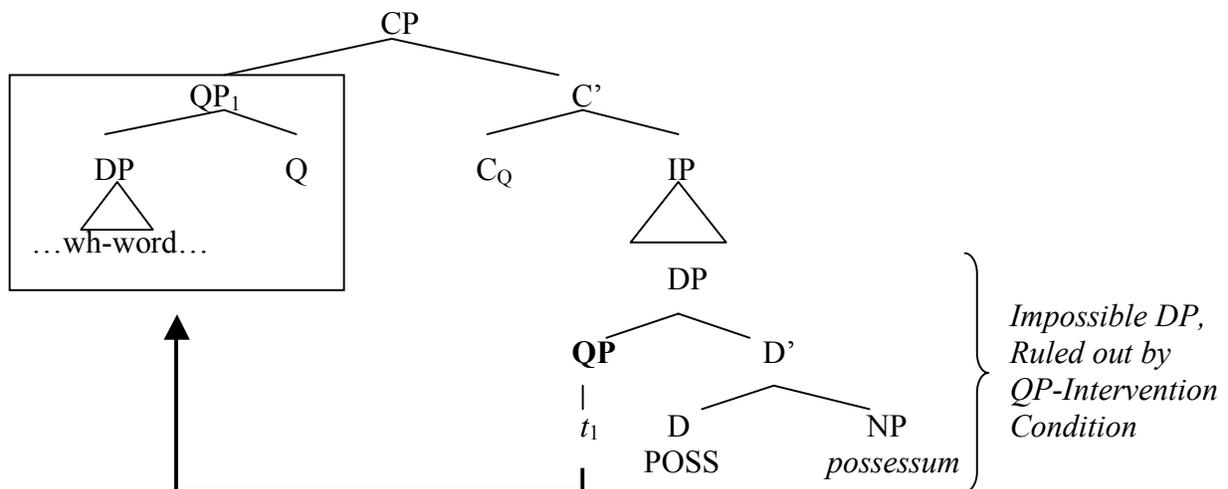
(162) **The Structure of Resumptive P-Stranding in Tlingit**



Recall that according to this analysis, the resumptive pronoun – and *not* the QP itself – is the true complement of P in a resumptive P-stranding structure. Therefore, there is no stage of the derivation of these sentences at which a QP intervenes between the P and its complement. Thus, unlike the P-stranding structures in (95) – (96), none of the resumptive P-stranding structures in (133) violate the QP-Intervention Condition, and so they are predicted to be well-formed. We find, then, that the QP-Intervention Condition can adequately explain *why* the addition of the resumptive pronoun in sentences (133) is sufficient to render P-stranding acceptable in Tlingit.

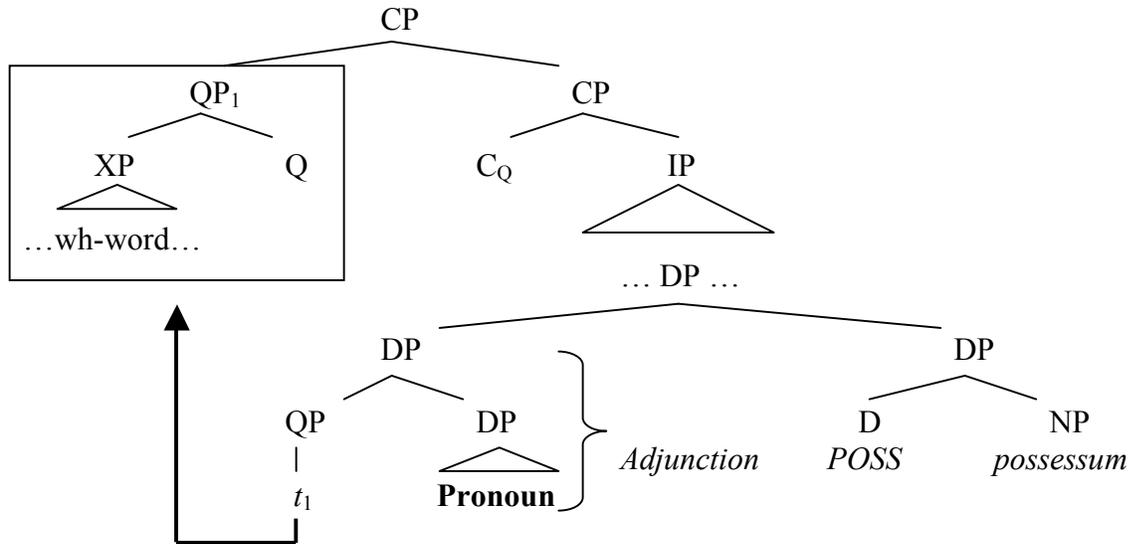
Next, let us turn to the ill-formed possessor-extraction sentences in (98) – (101). Note that, according to our core analysis in (18), each of these structures would at earlier stages of their derivation have a QP intervening between a possessor and the possessive D that selects the possessor. Again, however, such configurations are independently ruled out by the QP-Intervention Condition, as illustrated below.

(163) **QP-Intervention Condition Rules Out Tlingit Possessor-Extraction**



Let us note in this context, however, that the QP-Intervention Condition would not rule out the resumptive possessor-extraction structure under (137), repeated below.

(164) **The Structure of Resumptive Possessor-Extraction in Tlingit**

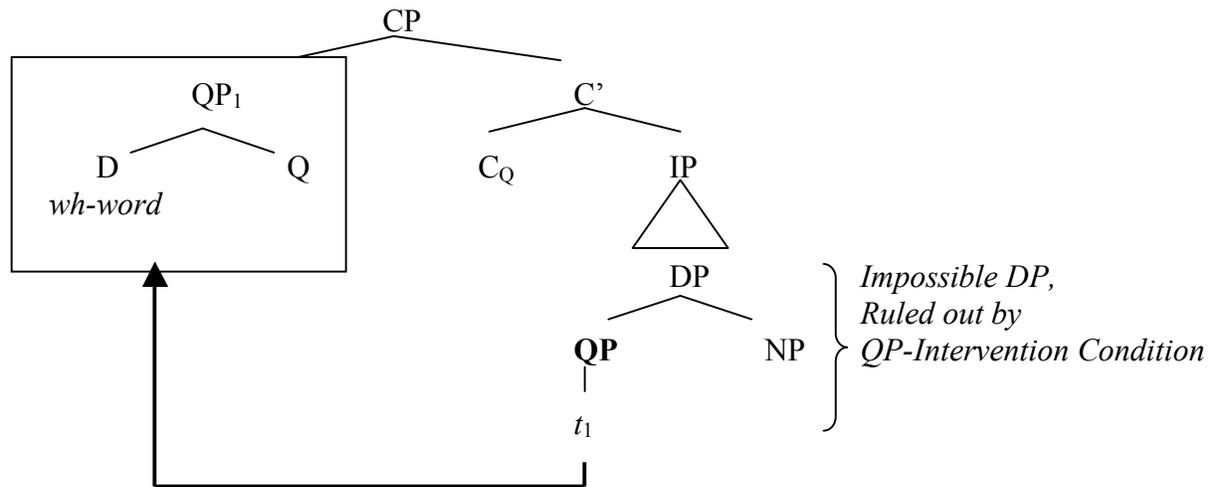


According to the analysis in (164), the resumptive pronoun, and not the QP, is the true possessive specifier of DP in the possessor-extraction structures under (134). Thus, there is no derivational stage at which a QP intervenes between the possessive determiner and the possessive specifier. Consequently, unlike the true possessor-extraction structures in (98) – (101), none of the resumptive possessor-extraction structures violate the QP-Intervention Condition. We therefore find, once again, that the QP-Intervention Condition can adequately explain *why* the addition of the resumptive pronoun in sentences (134) is sufficient to render possessor-extraction acceptable in Tlingit.

Finally, let us consider the ill-formed D-extraction sentences in (103) – (106). Given our theory of *wh*-fronting in (18), such surface structures could only be derived from base structures where a QP intervenes between the D head and the NP complement of that D, a configuration again ruled out by the QP-Intervention Condition, as illustrated below.⁷⁴

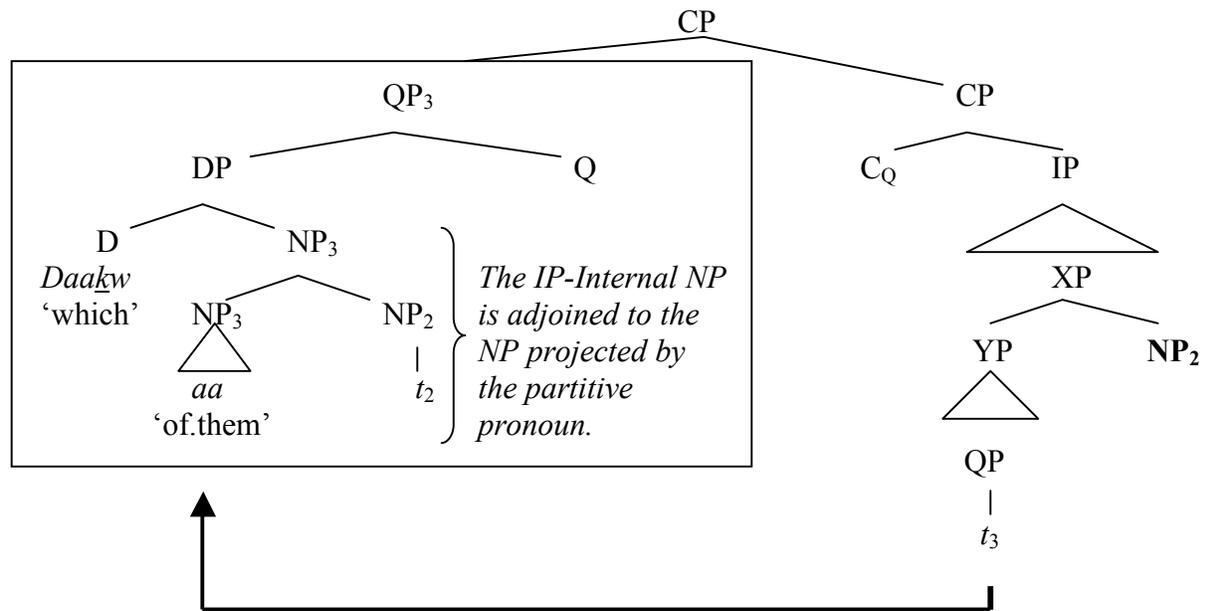
⁷⁴ Note that there is a further problem with the structure in (165) below: the DP projection appears to be exocentric, in as much as it does not immediately dominate a D head.

(165) **QP-Intervention Condition Rules Out Tlingit Determiner-Extraction**



Again, though, let us note here that the QP-Intervention Condition would not suffice to rule out the partitive D-extraction structures under (138), repeated below.

(166) **The Structure of Partitive D-Extraction in Tlingit**



According to the analysis in (166), the partitive pronoun following the wh-determiner – and not the IP-internal full NP – is the true complement of D in the sentences under (135). Therefore, since the Q-particle *sá* always occurs to the right of this partitive pronoun, there is no derivational stage at which a QP intervenes between the D and its NP complement. Consequently, unlike the true D-extraction sentences in (103) – (106), none of the partitive D-

extraction sentences violate the QP-Intervention Condition. We can thus again see why the presence of the partitive pronoun in (135) is sufficient to render D-extraction possible in Tlingit.

In summary, we find that all the ill-formed sentences in (95) – (106) could only be derived from structures that violate the QP-Intervention Condition. Thus, the QP-Intervention Condition in (155) is alone sufficient to rule out the ill-formed sentences in (95) – (106), and therefore *does* provide a uniform account for all the data in (95) – (125). Furthermore, this analysis in terms of the QP-Intervention Condition has the following advantageous qualities: (a) it predicts the fact, observed in Section 4.4, that Tlingit *sá* can appear to the right of subordinate predicates, but not to the right of matrix predicates, (b) it predicts the well-formedness of the various ‘resumption’ structures in Section 6.2.3, (c) it avoids the problems inherent in the movement-based account; i.e., it does not assume that wh-indefinites undergo obligatory covert movement, and it does not assume that extraction from SpecDP and CompPP is illicit in Tlingit. Given all this, I conclude that the QP-Intervention Condition analysis is the correct analysis of these data, and that the movement-based account must be entirely rejected.

Before we turn to the next and final section of this chapter, let us note two further consequences of our analysis in terms of the QP-Intervention Condition. First, it should be observed that, given the success of this analysis in treating the facts under (95) – (125), we have further confirmation that the Q-particles of Tlingit take their sisters as complements and project a QP. If we were to assume that Q-particles in Tlingit, like those in Japanese, simply adjoined to their sisters, and projected no higher phrasal category, then the statement of the QP-Intervention Condition becomes much more difficult. It would have to be rephrased to something like “no Q-particle can be immediately dominated by a node occurring between a functional head F and a phrase F selects for,” a condition which must appeal to more complex tree-geometric relations. Thus, the assumption that Q in Tlingit takes its sister as complement not only simplifies the theory of Tlingit wh-fronting, it is also crucial for understanding the wider distributional properties of Tlingit *sá*.

Finally, let us note a potential consequence of this analysis for the general theory of movement; our comments here will be brief, as we will more fully treat this subject in Chapter 4. Under our proposed analysis, the impossibility of the extractions in (108), (109) and (110) is ultimately due – not to any constraint on extraction *per-se* – but to *independently visible constraints on the placement of Q*. Such constraints serve to limit wh-extraction by limiting the structural pre-conditions for wh-extraction, ruling out the base-structures from which the ill-formed extractions must be derived. Thus, rather than explain the impossibility of these extractions in terms of the ‘islandhood’ of the base positions, we explain the *apparent* islandhood of those positions in terms of independently visible constraints on the placement of the Q-particle.

Recall, however, that the impossible extractions of the kind seen in (108) – (110) are found to be ill-formed in many languages of the world, that patterns of obligatory pied-piping suggest that these extractions are cross-linguistically ‘marked’. Just as we should seek a uniform Tlingit-internal explanation of the facts in (95) – (125), we should likewise seek a uniform account of these facts across languages, rather than one in which they are due to the QP-Intervention Condition in Tlingit, but to conditions specifically governing extraction in other languages. Given the evidence supporting the QP-Intervention Condition in Tlingit, it therefore is most reasonable to conclude that this condition must also be responsible for the impossibility of the aforementioned extractions in *all other wh-fronting languages*.

Of course, such an analysis is only possible under the view that wh-fronting in *all* languages proceeds as represented in (18). The remaining chapters of this dissertation are devoted to exploring this possibility, and realizing the full potential of its explanatory force.

7. A Semantics for Tlingit Wh-Words and Q-Particles

In this final section, I will provide a semantics for the wh-words and Q-particles of Tlingit that can successfully assign the correct interpretations to the rather exotic looking syntactic structures employed by our theory of wh-questions and wh-indefinites. Furthermore, we will see that this semantic system can account for various aspects of the behavior of Q-particles noted above; in particular, it will be shown that this semantics derives several of the core grammatical features of Q-particles observed in Section 4. In Chapter 3, we will see that this semantics can also be applied to the wh-words and Q-particles of Japanese and Sinhala, further emphasizing the formal identity between Tlingit *sá*, Japanese *ka* and Sinhala *da*.

For reasons of space, the discussion here will be rather compact, and will be most comprehensible to those with some familiarity with current work on the semantics of wh-words and Q-particles, particularly Hagstrom (1998), Shimoyama (2001), Kratzer & Shimoyama (2002), and especially Beck (2006). For critical background and a lengthier exposition of the major leading ideas, I refer the reader to the aforementioned works.

7.1 Semantic Preliminaries

In this section, I briefly introduce the two broader semantic systems that provide the core foundation of our proposed semantics: the theory of focus semantics and the assumed intensional semantics.

7.1.1 Focus Semantics

Following much recent work on the semantics of wh-questions, I will propose that Q-particles are focus-sensitive operators. Such a proposal, of course, requires some assumptions regarding the semantics of focus and focus-sensitive operators. For our purposes here, I will adopt a somewhat simplified version of the well-known theory of Rooth (1985).

To briefly review, one of the primary phenomena a theory of focus-semantics must account for is the ability for focus-intonation, in conjunction with ‘focus-sensitive operators’, to affect the truth conditions of a sentence. This is illustrated by minimal pairs like the following.

(167) Focus Intonation, With Focus-Sensitive Operators, Affecting Truth-Conditions

- a. Dave only [gave a BOOK to Sue].
Dave gave a book to Sue, and nothing else.
- b. Dave only [gave a book to SUE].
Dave gave a book to Sue, and to no one else.

As the glosses above indicate, the sentence in (167a) differs in its truth conditions from sentence (167b), though the sentences formally differ only in their prosody. In order to understand these

effects, then, we require some theory of *what* the semantic contribution of focus is, and *how* that contribution interacts with focus-sensitive operators like ‘only’.

One of the best-known and most-successful approaches to these effects is found in the work of Rooth (1985). There are two fundamental insights comprising the theory of Rooth (1985). The first concerns the semantic contribution of focus. Informally speaking, Rooth (1985) proposes that the focusing of a constituent in a sentence ‘evokes’ a set of *alternative propositions*, the propositions you’d get by replacing the focused element with some other element of the same semantic type. This idea is illustrated below.

(168) The Semantic Contribution of Focus

| <u>Sentence</u> | <u>Alternative Propositions ‘Evoked’ by Focus</u> |
|----------------------------|--|
| a. Dave gave a BOOK to Sue | { Dave gave a <u>table</u> to Sue, Dave gave a <u>cat</u> to Sue, ... } |
| b. Dave gave a book to SUE | { Dave gave a book to <u>Joan</u> , Dave gave a book to <u>Liz</u> , ... } |

As we see above, under this perspective, the placement of focus on ‘book’ in (168a) serves to evoke the alternative propositions ‘Dave gave a *table* to Sue’, ‘Dave gave a *cat* to Sue’, etc., while the placement of focus on ‘Sue’ in (168b) serves to evoke the alternative propositions ‘Dave gave a book to *Joan*’, ‘Dave gave a book to *Liz*’, etc. Thus, we find that a differing placement of focus results in each sentence ‘evoking’ a distinct set of alternative propositions.

The second core insight of Rooth (1985) concerns the interactions between focus and focus-sensitive operators. Simply put, Rooth (1985) proposes that focus-sensitive operators like ‘only’ are operators that take as one of their arguments the set of alternative propositions ‘evoked’ by the focus-intonation of the sentence. For example, the focus-sensitive operator ‘only’ might have as its meaning something like the following.

(169) Informal Statement of the Meaning of ‘Only’

[[Only S]] = S is true, and none of the alternative propositions evoked by its focus is true.

Let us now see how these informal proposals can combine to derive the facts in (167). First, note that according to our informal semantics in (168) and (169), sentence (167a) receives the meaning indicated below.⁷⁵

⁷⁵ Note that the informal derivation below assumes a prior syntactic transformation whereby the operator ‘only’ obtains scope above the entire sentence. This prior structural step will be left implicit throughout our discussion.

(170) **Informal Computation of the Meaning of (167a)**

[[Only [Dave gave a BOOK to Sue]]] = (by definition (169))

[Dave gave a BOOK to Sue] is true, and none of the alternative propositions evoked by its focus is true. = (by (168))

[Dave gave a BOOK to Sue] is true, and none of the following are true:
{ Dave gave a table to Sue, Dave gave a cat to Sue, ... } =

Dave gave a book to Sue, and *nothing* else.

Thus, given the specific alternative propositions evoked by its focus-intonation, sentence (167a) is correctly assigned truth-conditions equivalent to ‘Dave gave a book to Sue, and nothing else’. Now, note below, the truth conditions that our informal theory assigns to sentence (167b).

(171) **Informal Computation of the Meaning of (167b)**

[[Only [Dave gave a book to SUE]]] = (by definition (169))

[Dave gave a book to SUE] is true, and none of the alternative propositions evoked by its focus is true. = (by (168))

[Dave gave a book to SUE] is true, and none of the following are true:
{ Dave gave a book to Joan, Dave gave a book to Liz, ... } =

Dave gave a book to Sue, and to *no one* else.

As we see here, given the distinct alternative propositions evoked by its focus-intonation, sentence (167b) is correctly assigned truth-conditions equivalent to ‘Dave gave a book to Sue, and to *nobody* else’. We find, therefore, that our informal semantic theory in (168) and (169) can correctly account for the way in which the focus-intonation of a sentence interacts with the meaning of focus-sensitive operators to affect the truth-conditions of a sentence.

The discussion thus far has provided an informal review of the theory of focus-semantics put forth by Rooth (1985). Of course, in order to make a more precise range of predictions, these informal ideas must be formalized and made fully compositional. For our purposes here, we adopt a somewhat simplified version of the formalization they receive from Rooth (1985).

Following Rooth, we assume that besides the regular, classic semantic assignment function “[[.]]”, there exists a special, focus-semantic assignment function, “[[.]]^F”. The purpose of this later, focus-specific assignment function is that it will ultimately produce the alternative propositions ‘evoked’ by focus; thus, this function formalizes the informal notion that focus evokes a set of alternatives. The value of the ‘focus-semantic’ assignment function is defined in terms of the value of the ‘normal-semantic’ assignment function, as follows.

(172) **The Nature of the Focus-Semantic Assignment Function $[[\cdot]]^F$**

- a. The focus-semantic value of an un-focused lexical element is simply the set containing its normal-semantic value.

$$[[X]]^F = \{ [[X]] \}$$

- b. The focus-semantic value of a focused element, is the set of its ‘alternatives’. If the normal semantic value of the focused element is of type T , then its focus-semantic value is all the elements of type T .

$$[[XP_F]]^F = \{ x \in D_T : [[XP]] \in D_T \}$$

The rules outlined above indicate that the value of $[[XP]]^F$ depends upon whether or not the constituent XP bears intonational focus. If XP is *not* focused, then its focus-semantic value is simply the singleton set of its normal-semantic value. If XP *is* focused, however, then its focus-semantic value is its set of alternatives, the set of *all* the entities of its semantic type.

The ultimate effect of the definitions in (172) will be that the focus-semantic value of a given sentence $[[S]]^F$ will be the set of propositions informally identified as the set ‘evoked’ by its focus. In order to obtain this result, however, we must also introduce a special rule of semantic composition, known as ‘point-wise semantic composition’. It is defined as follows.

(173) **Point-Wise Semantic Composition**

$$\begin{aligned} [[X]]^F &= \{ f_{\langle a,b \rangle} \}, \text{ and } [[Y]]^F = A_{\langle a,t \rangle} = \{ g, h, j, \dots \}, \text{ then} \\ [[X Y]]^F &= B_{\langle b,t \rangle} = f[A] = \{ f(g), f(h), f(i), \dots \} \end{aligned}$$

In essence, the definition in (173) states the following: if the meaning of constituent X is the singleton set consisting of a function f of type $\langle a,b \rangle$, and the meaning of a constituent Y is a set of entities of type a , then the result of *point-wise composition* between X and Y is the set one obtains by applying the function f to all the entities in A . Given this compositional rule, we can effectively compute the ‘focus-alternatives’ of a given sentence, as illustrated below.

(174) **Formal Theory of Focus-Semantics Assigns Focus-Alternatives to a Sentence**

$$\begin{aligned} [[DAVE_F \text{ is coming }]]^F &= \\ [[DAVE_F]]^F [[\text{ is coming }]]^F &= \text{(by 172a)} \\ [[DAVE_F]]^F \{ \lambda x. \lambda w. x \text{ is coming in } w \} &= \text{(by 172b)} \\ \{ \text{Dave, John, Frank, Bill...} \} \{ \lambda x. \lambda w. x \text{ is coming in } w \} &= \text{(by 173)} \\ \{ \lambda w. \text{Dave is coming in } w, \lambda w. \text{John is coming in } w, \lambda w. \text{Frank is coming in } w, \dots \} & \\ \\ [[DAVE_F \text{ is coming }]]^F &= \\ \{ \lambda w. \text{Dave is coming in } w, \lambda w. \text{John is coming in } w, \lambda w. \text{Frank is coming in } w, \dots \} & \end{aligned}$$

Thus, we find that, as promised, under this set of formal definitions, the focus-semantic value of a sentence $[[S]]^F$ amounts to the set of alternative propositions ‘evoked’ by its focus.

The final component of our formal theory of focus-semantics concerns the meaning of the so-called ‘focus-sensitive’ operators, like ‘only’. As one might expect, the core idea of our formal theory will be that the focus-sensitive operators are those operators which take *focus-semantic* values as arguments. For example, the meaning of the operator ‘only’ might be represented as follows.

(175) **Formal, Focus-Semantic Definition of ‘Only’**⁷⁶

$$\begin{aligned} [[\text{Only XP}]] &= \\ [[\text{XP}]]^U = 1, \text{ and for all } p \in [[\text{XP}]]^F . p \neq [[\text{XP}]] &\rightarrow p^U = 0 \end{aligned}$$

According to this semantics, the operator only effectively states the following: (a) the normal-semantic value of its sister is true, and (b) for all the propositions in the focus-semantic value of its sister, if they are not equal to the normal semantic value of its sister, then they are false. Given this semantics, we can mechanically compute the truth-conditions of a sentence like ‘Only DAVE is coming’.

(176) **Formal Semantic Computation of a Sentence Containing Focus-Sensitive Operator**

$$[[\text{Only} [\text{DAVE is coming}]]] = \quad \text{(by 175)}$$

$$\begin{aligned} [[\text{DAVE is coming}]]^U = 1, \text{ and for all } p \in [[\text{DAVE is coming}]]^F . \\ p \neq [[\text{DAVE is coming}]] \rightarrow p^U = 0 &= \quad \text{(by 174)} \end{aligned}$$

$$\begin{aligned} [\lambda w. \text{Dave is coming in } w]^U = 1, \text{ and for all } p \in \\ \{ \lambda w. \text{Dave is coming in } w, \lambda w. \text{John is coming in } w, \lambda w. \text{Frank is coming in } w, \dots \}, \\ p \neq \text{Dave is coming} \rightarrow p^U = 0 &= \quad \text{(by meta-logic)} \end{aligned}$$

Dave is coming, and no one else is...

We can thus see how the formal semantic theory outlined above can capture one of the core desiderata of a semantic theory of focus and focus-sensitive operators. The definitions introduced in (172), (173) and (175) will therefore constitute the formal theory of focus-semantics employed throughout this thesis. For a more complete background into systems of this sort, I refer the reader to Rooth (1985), Kratzer (1991) and Hagstrom (1998).

7.1.2 Intensional Semantics

For reasons that will be made clear in a moment, throughout this thesis I will employ a system of intensional semantics akin to that proposed in Lewis (1970), Rooth (1985) and Kratzer (1991). Within such a system, the words and phrases of natural language are assigned only *intensional* types. Thus, for natural language, the most basic types are not the extensional types *e* and *t*, but

⁷⁶ The meaning stated in (175) is only offered as an approximation of the semantics of ‘only’. Although satisfactory for our purposes, the meaning in (175) is actually too strong, as it would incorrectly predict that the truth of “only XP” rules out all the logical entailments of XP.

rather the intensional types $\langle s, e \rangle$ and $\langle s, t \rangle$. For example, a proper name such as ‘Dave’ would have as its semantic value, not the entity Dave itself, but rather the individual concept $[\lambda w. Dave(w)]$. Similarly, the predicate ‘runs’ would have as its semantic value, not the extensional set of entities that run in the ‘world of evaluation’, but rather the intensional property $[\lambda x_{\langle s, e \rangle}. \lambda w. x(w) \text{ runs in } w]$. Consequently, a sentence like ‘Dave runs’ would have as its semantic value, not an extensional truth value, but rather the proposition $[\lambda w. Dave(w) \text{ runs in } w]$.

The consequences of adopting ‘individual concepts’ and ‘propositions’ as the basic types of natural language can already be found in the formal definitions and computations under (174), (175) and (176). They will also, of course, be found throughout the remainder of this thesis. Although these consequences may in some places be substantial, aside from this section, no extensive mention of the effects of adopting this system will be made.

The adoption of this system of intensional semantics is necessitated by the central role played by focus-semantics in our account. Ultimately, the issue is that the focus-alternatives to a given constituent must be computed from the *intension* of that constituent. This is most easily seen via our semantics for ‘only’ given in (175). Note that this semantics assumes that the focus-alternatives for a given sentence is a set of *propositions*, rather than a set of truth values. Indeed, it would be impossible to build a semantics for ‘only’ under the view that the focus-alternatives for a sentence is a set of truth values.⁷⁷ Given that the focus-alternatives for a sentence must be a set of propositions, the simplest procedure for computing a sentence’s focus-alternatives must assume that a sentence has a *proposition* as its semantic value. Thus, this purely intensional semantics is necessitated by the simple fact that our semantics for Q-particles proposes them to be focus-sensitive operators.⁷⁸

7.2 The Semantics of Wh-Words

With the semantic background provided by the preceding sections, we can now begin to put forth our main proposals concerning the semantics of wh-questions and wh-indefinites. I begin in this section with the core ideas surrounding the semantics of wh-words themselves.

Many investigators have noted a special link between wh-words and focus in many of the world’s languages. A particular view of this link is put forth in recent work by Beck (2006), which I adopt here. Following Beck (2006), I will assume that wh-words are *semantically deficient* in a characteristic way: wh-words in all languages have *only a focus-semantic value*, their normal-semantic value being undefined. To elaborate, it is assumed that wh-words are assigned a specific logical type and value for animacy, though they are not assigned an actual normal-semantic value. Therefore, following the semantic theory of Section 7.1.1, the focus-semantic value of a focused wh-word is a set of focus-alternatives, each of the same logical type and animacy as the wh-word. For example, the wh-words *what* (English), *daat* (Tlingit), *nani* (Japanese) and *mokak* (Sinhala) all have the following characteristic semantics.

⁷⁷ For example, if we make such a minimal alternation to the semantics in (175), we predict that a sentence like ‘Only Dave runs’ means that ‘Dave runs’ is true, and everything that is not true, is false. It is thus quite unclear how to amend the semantics of ‘only’ so that it looks only to alternative *truth values* rather than alternative *propositions*.

⁷⁸ As we will see later, the notion that referring expressions of natural languages are of the intensional type $\langle s, e \rangle$ is required for our system to assign the correct interpretation to ‘pied-piping structures’.

(177) Semantics of WHAT

normal-semantics: $[[\textit{what} / \textit{daat} / \textit{nani} / \textit{mokak}]]$ = undefined

focus-semantics: $[[\textit{what}_F / \textit{daat}_F / \textit{nani}_F / \textit{mokak}_F]]$ ^F = $\{ x_{\langle \textit{se} \rangle} : x \notin \textit{human} \}$

Similarly, the wh-words *who* (English), *aadóo* (Tlingit), *dare* (Japanese) and *kauru* (Sinhala) all have the following characteristic semantics.

(178) Semantics of WHO

normal-semantics: $[[\textit{who} / \textit{aadóo} / \textit{dare} / \textit{kauru}]]$ = undefined

focus-semantics: $[[\textit{who}_F / \textit{aadóo}_F / \textit{dare}_F / \textit{kauru}_F]]$ ^F = $\{ x_{\langle \textit{se} \rangle} : x \in \textit{human} \}$

There are several benefits to this particular treatment of wh-words. First, as originally shown in Beck (2006) (and as we will see later in Chapters 3 and 4), this semantics provides an interesting account of so-called ‘LF-’ or ‘Focus-Intervention Effects’ across languages. Furthermore, it provides a reason why wh-words *must* be focused in so many of the world’s languages; if wh-words were not focused, then a semantic crash would necessarily result.⁷⁹ It should also be noted that this system, unlike those in Hagstrom (1998) and Shimoyama (2001), identifies the ‘alternatives’ denoted by wh-words as focus-semantic values. This eliminates the need for special rules of point-wise semantic composition specifically for the values of wh-words, and instead employs the point-wise composition rules which are independently needed for the computation of focus-semantic values. Finally, it will be shown later that, given plausible ancillary hypotheses, this treatment predicts several of the core grammatical properties of Q-particles noted in Section 4.

7.3 The Semantics of Q-Particles

In the preceding section, we took up the view that the only semantic value ever contributed by a wh-word is a set. Given the close relationship between Q-particles and wh-words observed in Section 4, we will adopt here the view that Q-particles function semantically as operators over sets, a view taken up in such recent works as Hagstrom (1998), Yatsushiro (2001), Kratzer & Shimoyama (2002) and Beck (2006). More specifically, we will take up the view of Hagstrom (1998) and Yatsushiro (2001), which holds that Q-particles are variables over *choice functions*.⁸⁰ Since they are variables, Q-particles are consequently assumed to carry indices.⁸¹ Thus, the Q-particles *sá*, *ka* and *da* all have the following characteristic semantics.

⁷⁹ Of course, this accounts renders problematic those languages where it seems that wh-operators needn’t be obligatorily focused, as in English. As the reader will later see, difficult questions will arise concerning the tendency for wh-indefinites to be *un*-focused in many languages, such as German.

⁸⁰ Properly speaking, although Hagstrom (1998) considers this proposal, he ultimately rejects it, opting for a theory in which the Q-particles are operators while the *traces* of the Q-particles denote variables over choice functions.

⁸¹ Indexation of Q-particles is also a feature of the analysis in Beck (2006), but for very different reasons. In Beck (2006), the indices on the particles allow the particles to bind focus-semantic variables. Under my proposal, these

(179) **Semantics of Q**⁸²

$$[[s\acute{a}_i / ka_i / da_i]]^g = g(i) \in D_{cf}$$

The semantics above states that the meaning of a given Q-particle Q_i relative to a given variable assignment g is the value that g assigns to the index i of the Q-particle, which is stipulated to be some element from the domain of *choice functions*. To briefly review, a ‘choice function’ is any function which takes a set as its argument and returns a *member of that set* as its value. Thus, all the functions illustrated under (180) could qualify as choice functions.

(180) **Illustrative Examples of Choice Functions**

A choice function takes a set and returns a member of that set.

| | | |
|---|---|-----------|
| f({Dave, John, Larry, Phil}) | = | Larry |
| g({the Bible, the phonebook, <i>LSLT</i> }) | = | the Bible |
| h({Amherst, Boston, Natick, Worcester}) | = | Worcester |

For a far more extensive introduction to choice functions and their applications in semantics, the reader is referred to Winter (1997).

Given that they are variables, higher operators can – and in fact must – bind the Q-particles. For example, we will later see that the interrogative C head of a wh-question is semantically an interrogative operator binding the choice function variable contributed by Q. In addition to this, I assume that an existential operator over choice functions can be inserted via a rule of existential closure (Reinhart 1992, 1997; Yatsushiro 2001). I assume here that such existential closure occurs at the level of the IP, to bind any free variables occurring within the IP (cf. Reinhart 1997, Kratzer 1997).

(181) **Existential Closure at the Level of the IP**

$$[{}_{CP} [{}_{IP} \dots Q_i \dots]] \quad \longrightarrow \quad [{}_{CP} \exists_i [{}_{IP} \dots Q_i \dots]]$$

*Existential Closure over
Choice Function Variables*

The final ingredient of our semantic theory for Q-particles concerns their method of semantic composition. Q-particles are assumed to semantically compose with their sisters via a syncategorematic rule specific to Q-particles (cf. Beck 2006). The normal-semantic value of a Q-particle and its sister is stipulated to be the normal semantic value of the Q-particle applied to the *focus* semantic value of its sister. The rule may be stated as follows.

indices allow the Q-particles to be bound by higher operators. This distinction will receive greater attention in Chapter 4.

⁸² Throughout this thesis, I adopt the label *cf* as a means for abbreviating the logical type of the choice function. Furthermore, I implicitly assume a cross-categorical definition for choice functions, of the kind used in Winter (1997). This would allow both a choice function over a set of entities and a choice function over a set of properties to both be considered instances of the kind ‘choice function’, even though their specific logical types may differ.

(182) **Special Composition Rule for Q-Particles**

$$[[Q_i XP]] = [[Q_i]]([[XP]]^F)$$

Note that according to this semantics, a Q-particle takes as argument the *focus*-semantic value of its sister. Therefore, as alluded to earlier, Q-particles are under our view *focus-sensitive operators*.

7.4 **The Compositional Semantics of Wh-Indefinites**

Given the semantic machinery thus far introduced, we can now provide a compositional semantics for the wh-indefinites of Tlingit. In the following chapter, we will see that this semantics may also be applied to the wh-indefinites of Sinhala and Japanese.

To begin, let us first observe how our system puts together the meaning of a Tlingit QP. In the simplest case, the wh-word itself is the sister to the Q-particle. The following demonstrates the trivial semantic derivation for these cases.

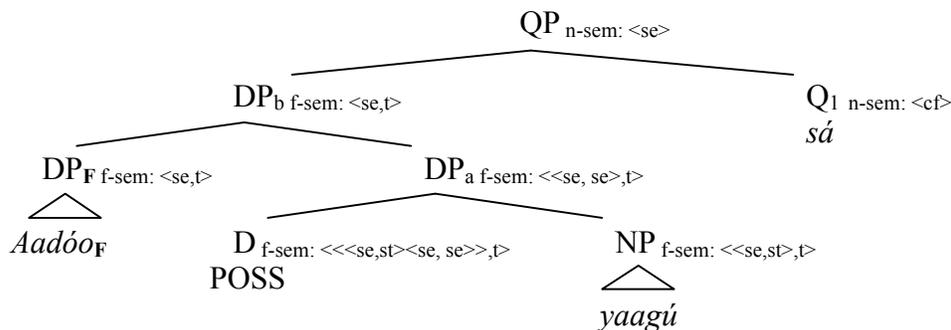
(183) **Semantics of a Simple QP**

$$\begin{aligned} [[[_{QP} Daa_F sá_1]]]^g &= && \text{(by (182))} \\ [[sá_1]]^g ([[Daa_F]]^F g) &= && \text{(by (177))} \\ [[sá_1]]^g (\{ x_{\langle se \rangle} : x \notin \text{human} \}) &= && \text{(by (179))} \\ g(1) (\{ x_{\langle se \rangle} : x \notin \text{human} \}) &= && \text{(by Identity)} \\ f(\{ \lambda w.Fido(w), \lambda w.MIT(w), \lambda w.CharlesRiver(w), \dots \}) \end{aligned}$$

As the derivation above shows, relative to a given variable assignment g , the semantic value of the simple QP *Daa sá₁* ‘What Q’ is the choice function that g assigns to the index ‘1’ taking as argument the set of all non-human individual concepts. Of course, given the nature of choice functions, this means that the ultimate semantic value of this QP is some non-human individual concept, and so such a QP is of type $\langle se \rangle$.

The semantic computation becomes a bit more interesting when the Q-particle is not directly adjacent to the wh-word. Such a structure is witnessed by the Tlingit phrase *Aadóo yaagú sá* ‘Whose boat Q’, which we might assume to have the structure indicated under (184). The semantic value of structure (184) is computed below under (185).

(184) **Assumed Structure of the Complex QP *Aadóo Yaagú Sá* ‘Whose boat Q’**



(185) **Semantic Computation for Structure (184)**

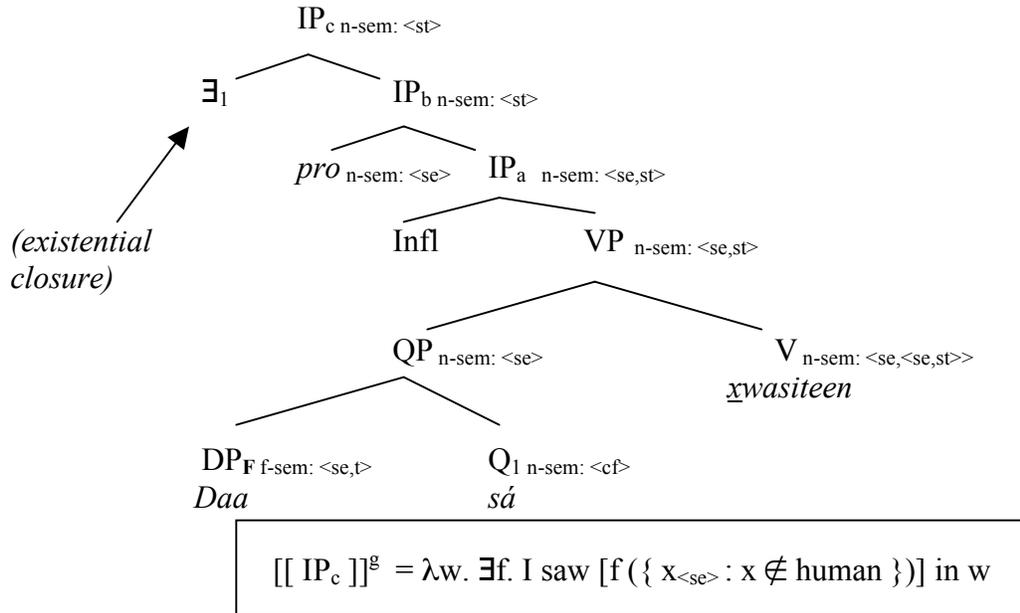
$$\begin{aligned}
 & [[[\text{QP} [\text{DP } Aadóo_F [\text{POSS } yaagú]] sá_1]]]^g & = & \text{(by (182))} \\
 & [[sá_1]]^g ([[[\text{DP } Aadóo_F [\text{POSS } yaagú]]]]^{F^g}) & = & \text{(by (179))} \\
 & g(1)([[[\text{DP } Aadóo_F [\text{POSS } yaagú]]]]^{F^g}) & = & \text{(by (173))} \\
 & g(1)([[[\text{POSS } yaagú]]]^{F^g} ([[Aadóo_F]]^{F^g})) & = & \text{(by (173))} \\
 & g(1)(([[\text{POSS}]]^{F^g} ([[yaagú]]^{F^g})) ([[Aadóo_F]]^{F^g})) & = & \text{(by Lexicon, (172))} \\
 & g(1)((\{ [\lambda P_{\langle se, st \rangle} [\lambda x_{\langle se \rangle} [\lambda w. \text{ the } P(w) \text{ of } x(w) \text{ in } w]]] \} \{ [\lambda x_{\langle se \rangle}. \lambda w. \text{ boat}(x)(w)] \}) & = & \text{(by (173))} \\
 & ([[Aadóo_F]]^{F^g})) \\
 & g(1)(\{ [\lambda x_{\langle se \rangle} [\lambda w. \text{ the boat}(w) \text{ of } x(w) \text{ in } w]] \} ([[Aadóo_F]]^{F^g})) & = & \text{(by (178))} \\
 & g(1)(\{ [\lambda x_{\langle se \rangle} [\lambda w. \text{ the boat}(w) \text{ of } x(w) \text{ in } w]] \} \{ x_{\langle se \rangle} : x \in \text{human} \} & = & \text{(by (173))} \\
 & g(1)(\{ h_{\langle se \rangle} : \exists x_{\langle se \rangle} \in \text{human} . h = \lambda w. \text{ the boat}(w) \text{ of } x(w) \text{ in } w \}) & = & \text{(by Identity)} \\
 & f(\{ [\lambda w. \text{ the boat}(w) \text{ of } \text{Jim}(w) \text{ in } w], [\lambda w. \text{ the boat}(w) \text{ of } \text{Tom}(w) \text{ in } w], \dots \})
 \end{aligned}$$

As the computation above demonstrates, the semantic value of the Tlingit phrase *Aadóo yaagú sá₁* ‘Whose boat Q₁’ relative to a variable assignment *g* is the choice function *f* that *g* assigns to the index 1 taking as argument *all those individual concepts* which for some human individual concept *x_{<se>}* are the concept $[\lambda w. \text{ the boat}(w) \text{ of } x(w) \text{ in } w]$. Therefore, given the nature of choice functions, the ultimate semantic value of this QP is *one* from this set of individual concepts $\{[\lambda w. \text{ the boat}(w) \text{ of } \text{Jim}(w) \text{ in } w], [\lambda w. \text{ the boat}(w) \text{ of } \text{Tom}(w) \text{ in } w], [\lambda w. \text{ the boat}(w) \text{ of } \text{Phil}(w) \text{ in } w], \dots\}$, and so such a QP is of type *<se>*.

Having presented the semantic computations for these two types of QPs, we can now see how our remaining semantic hypotheses provide us with a compositional semantics for Tlingit sentences containing wh-indefinites. Briefly, the picture for wh-indefinites is the following: a Tlingit wh-indefinite simply arises when the QP containing the wh-word remains inside the IP, and so is bound by existential closure. Let us now see that the meanings our system assigns to such structures indeed capture their observed truth-conditions. The following illustrates the interpretation our system derives for the Tlingit sentence in (129e), *Daa sá xwasiteen* ‘I saw something’, which is assumed to have the structure in (186).

(186) **Semantics of a Simple Wh-Indefinite in Tlingit**

Daa sá xwasiteen
 what Q I.saw.it.
I saw something.



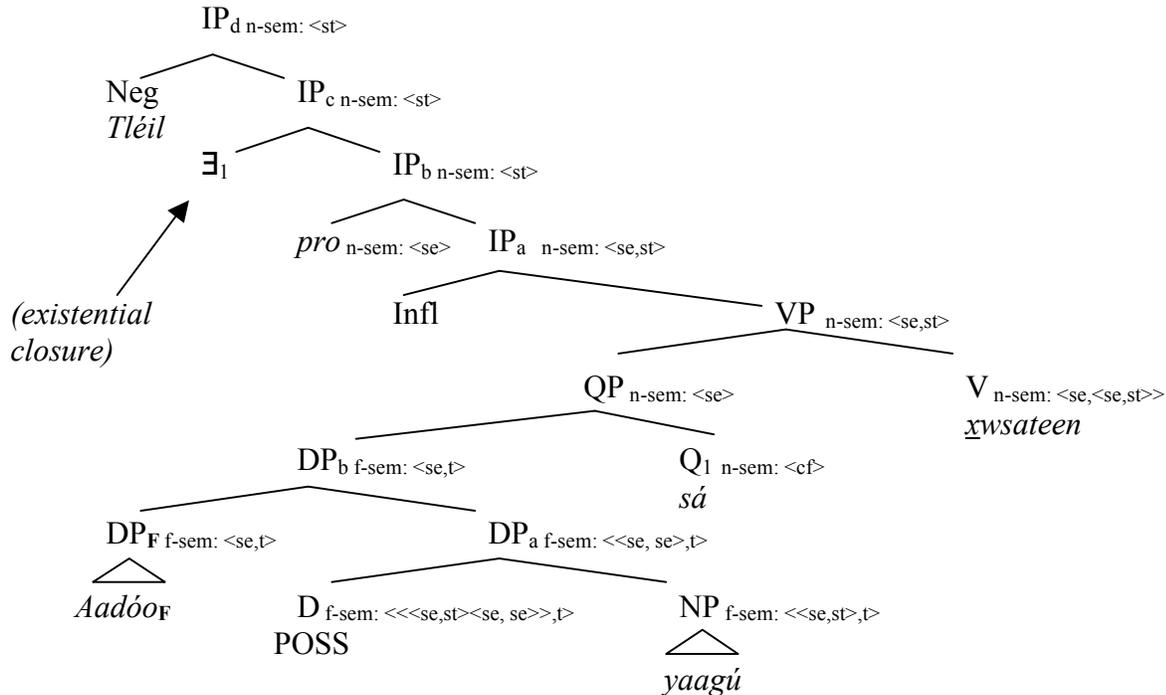
An inspection of the tree above reveals that our system assigns to the structure in (186) the proposition $[\lambda w. \exists f. \text{I saw } [f(\{ x_{\langle se \rangle} : x \notin \text{human} \})]]$ in w .⁸³ At a particular world w , this proposition is true if there is some choice function f such that f applied to the set of non-human things yields an entity that the speaker saw in w . Of course, such a choice function exists *if and only if* there is a non-human entity that the speaker saw in w . We conclude, therefore, that our semantics correctly assigns to the structure in (186) its observed meaning, a proposition equivalent to ‘there is some non-human thing which the speaker saw’.

Let us next consider a somewhat more complex case, one where the Q-particle is not directly adjacent to the wh-word. Such a wh-indefinite appears in sentence (117) *Tléil aadóo yaagú sá xwsateen* ‘I didn’t see anyone’s boat’. The following illustrates the interpretation that our semantics assigns to this sentence, which is assumed to have the structure indicated below.

⁸³ Note, however, that this tree abstracts away from certain complexities concerning the interpretation of extensional quantifiers in an intensional system of the kind we adopt here.

(187) **Semantics of a Complex Wh-Indefinite in Tlingit**

Tléil **aadóo** yaagú **sá** xwsateen.
 not who boat Q I.saw.it
I didn't see anyone's boat.



$$[[\text{IP}_d]]^g = \lambda w. \neg \exists f. \text{I saw } [f(\{ h_{\langle se \rangle} : \exists x_{\langle se \rangle} \in \text{human} . h = \lambda w'. \text{the boat}(w') \text{ of } x(w') \text{ in } w' \})](w) \text{ in } w$$

An inspection of this tree reveals that our system derives as the meaning of structure (187) the following proposition: $[\lambda w. \neg \exists f. \text{I saw } [f(\{ h_{\langle se \rangle} : \exists x_{\langle se \rangle} \in \text{human} . h = \lambda w'. \text{the boat}(w') \text{ of } x(w') \text{ in } w' \})](w) \text{ in } w]$. To break down this complex formula, let us first note that at a particular world w , this proposition is true if there is *no* choice function f such that the speaker saw the entity which f yields when applied to the set of all individual concepts of the form $[\lambda w. \text{the boat}(w) \text{ of } x(w) \text{ in } w]$, where x is human. Of course, this is equivalent to stating that this is no individual concept h of the form $[\lambda w. \text{the boat}(w) \text{ of } x(w) \text{ in } w]$, where x is human, such that the speaker saw h . Finally, note that this is itself equivalent to simply stating that there is no human x such that the speaker saw the boat of x in w , which simply amounts to the proposition that there is no person such that the speaker saw that person's boat. We therefore conclude that our semantics correctly assigns to the structure in (187) its observed meaning, a proposition equivalent to 'there is no person such that the speaker saw that person's boat'.

We have thus far seen two cases where our semantics assigns the correct meaning to Tlingit sentences containing wh-indefinites. In both cases, we find that existential quantification over choice functions is truth-conditionally equivalent to existential quantification over the set of entities denoted by the wh-word. Of course, this result is most interesting in those cases where

the Q-particle is *not* directly adjacent to the wh-word itself. In such cases, the argument of the choice function variable is not simply the set contributed by the wh-word, and so the equivalence between existential quantification over that set and over the domain of choice functions is not so intuitively obvious. We may rightly wonder, then, whether the result in (187) is but a particular instance of a more general one. That is, is it ever the case in our system that altering the position of the Q-particle alters the proposition denoted by the sentence?

The answer to this question is ‘no’; as long as the Q-particle c-commands the wh-word and is c-commanded by the existential quantifier, the same propositional function is assigned to the structure, one which is equivalent to existential quantification over the set denoted by the wh-word. This result will be of much importance to our semantic discussion in Chapter 4, as it will allow us to convert otherwise complex formulae into more manageable and recognizable ones. Let us therefore see in detail why it is so.

We wish to show that no matter how far the Q-particle is from the wh-word, existential quantification over the domain of choice functions is still equivalent to existential quantification over the set of entities denoted by the wh-word. In other words, we wish to show that any arbitrary structure of the form in (188a), where T is the semantic type of the wh-word, is equivalent to the structure in (188b), where the wh-word is replaced with a (normal) variable of its type, the Q-particle is removed, and the type- T variable is existentially bound and restricted to the set denoted by the wh-word.

(188) Structures to be Proven Semantically Equivalent

- a. $\exists_1 [A \dots Q_1 [B \dots \text{wh-word}_T \dots] \dots]$
 b. $\exists x \in [[\text{wh-word}_F]]^F [A \dots [B \dots x_T \dots] \dots]$

First, let us note that our semantics entails that the syntactic structure in (188a) will be assigned the following as its truth conditions: $\exists f [A \dots f [B \dots \{ x : x \in D_T \ \& \ P(x) \} \dots] \dots]$, where ‘ $P(x)$ ’ represents the lexical presuppositions of the wh-word (e.g. ‘human(x)’ for *who*, and ‘ \sim human(x)’ for *what*). Thus, the structure in (188a) will be true *iff* there is some choice function $f \in D_{cf}$ such that the following holds: $[A \dots f [B \dots \{ x : x \in D_T \ \& \ P(x) \} \dots] \dots]$. Of course, given the nature of choice functions, this last condition holds if and only if there is some R within the set constituting $[B \dots \{ x : x \in D_T \ \& \ P(x) \} \dots]$ such that $[A \dots R \dots]$ holds. Note, however, that since R is a member of $[B \dots \{ x : x \in D_T \ \& \ P(x) \} \dots]$, our semantics entails that there is some entity $a \in \{ x : x \in D_T \ \& \ P(x) \}$ such that $R = [B \dots a \dots]$.⁸⁴ Thus, $[A \dots R \dots]$ holds *iff* for some $a \in \{ x : x \in D_T \ \& \ P(x) \}$, $[A \dots [B \dots a \dots] \dots]$ holds. Finally, this later condition holds *iff* the structure in (188b) is true, which was to be proven. This chain of reasoning is laid out in the following outline.

⁸⁴ The fact that there is some $a \in \{ x : x \in D_T \ \& \ P(x) \}$ such that $R = [B \dots a \dots]$ follows ultimately from the fact that wh-words in our system only ever semantically compose with their sisters via *point-wise* semantic composition.

(189) **Proof of the Equivalence of (188a) and (188b)**

$\exists_1 [A \dots Q_1 [B \dots \text{wh-word}_T \dots] \dots]$ is true *iff*
 $\exists f [A \dots f [B \dots \{ x : x \in D_T \ \& \ P(x) \} \dots] \dots]$ is true *iff*
 For some $f \in D_{cf}$, $[A \dots f [B \dots \{ x : x \in D_T \ \& \ P(x) \} \dots] \dots]$ is true *iff*
 For some $R \in [B \dots \{ x : x \in D_T \ \& \ P(x) \} \dots]$, $[A \dots R \dots]$ is true *iff*
 For some $a \in \{ x : x \in D_T \ \& \ P(x) \}$, $[A \dots [B \dots a \dots] \dots]$ is true *iff*
 $\exists x \in [[\text{wh-word}_F]]^F [A \dots [B \dots x_T \dots] \dots]$ is true.

The equivalence between (188a) and (188b) can also be seen via reflection upon the meanings of the QPs themselves and the nature of variable assignments. Recall that Q-particles are variables over choice-functions. Therefore, relative to an arbitrary variable assignment g , the semantic value of $[_{QP} [_{XP} \dots \text{wh}_T \dots] Q]$ will be some entity A of the normal-semantic type of the XP. Now, consider the structure $[_{XP} \dots y_T \dots]$, where the wh-word is replaced with a (normal) variable of its type (which is also assumed to share the presuppositions of the wh-word). Relative to a variable assignment g , this latter structure is *also* some entity A' of the normal-semantic type of the XP.

Clearly, then, for any variable assignment g such that $[[[_{QP} [_{XP} \dots \text{wh}_T \dots] Q]]]^g = A$, there is some other variable assignment g' such that $[[[_{XP} \dots y_T \dots]]]^g = A$, and *vice versa*. Therefore, if there is a variable assignment g such that $[[[A \dots Q_1 [B \dots \text{wh-word}_T \dots] \dots]]]^g = 1$, then there is a variable assignment g' such that $[[[A \dots [B \dots y_T \dots] \dots]]]^g = 1$, and *vice versa*. It follows, then, that if ever the structure in (188a) is true, then the structure in (188b) must also be true, and *vice versa*.

As mentioned before, the equivalence between (188a) and (188b) will provide us a powerful tool in our following discussion, and will allow us to simplify many otherwise complex formulae that our semantics derives for particular structures. In several cases, the formulae are so complex that this simplification is the primary means for determining that the predicted semantics is accurate.

Of course, a more immediate consequence the result in (189) is that the existential interpretation of wh-indefinites in Tlingit (and other languages) may be obtained from our proposed semantics via existential closure over the choice function variable contributed by the Q-particle.⁸⁵ Thus, our semantic theory illuminates the essential role played by so-called ‘Q-particles’ in the meaning of wh-indefinites in declarative clauses. The reader may recall, however, that Q-particles also seem to play a crucial role in the semantics of wh-questions (hence, their very moniker). In Section 7.6, we will see how the semantics for Q-particles and wh-words just proposed can be incorporated into a compositional semantics for wh-questions. Before we come to this, however, we will in the next section observe two notable corollaries of our semantics for Q and wh.

⁸⁵ For more information regarding the applications of and issues surrounding choice functions in the semantics of indefinites, I refer the reader to the following, foundational papers: Reinhart (1992), Reinhart (1997), Winter (1997), Kratzer (1997), Matthewson (1999).

7.5 The Special Relationship Between Q-Particles and Wh-Words

In Section 4, I presented evidence that the Tlingit particle *sá*, the Japanese particle *ka*, and the Sinhala particle *da* should all be considered instances of the same formal element, the Q-particle. This conclusion was based on a number of distributional similarities between these elements. In this section, we will see that certain of these shared distributional properties follow from the semantics for Q-particles and wh-words put forth earlier. In particular, we will see that this semantics can derive the following two properties: (a) wh-words must be c-commanded by Q-particles, and (b) Q-particles must c-command wh-words.⁸⁶

To begin, let us recall that our semantics for wh-words and Q-particles adopts the leading views of Beck (2006). Furthermore, recall that one indirect argument for these views is the way in which they fit into Beck (2006)'s overall theory of so-called 'LF/Focus-Intervention Effects'. There are, however, some further components to the Beck (2006) system that will prove to be of use to us in the analysis of Q-particles. The theory of LF/Focus-Intervention Effects put forth in Beck (2006) relies upon two, independently plausible assumptions. The first is the 'Principle of Interpretability', stated below.

(190) Principle of Interpretability (Beck 2006; p. 16)

A sentence must have a normal-semantic value.

As stated, this principle entails that any sentence which cannot be computed to have a normal-semantic value is ill-formed.

The second crucial assumption is somewhat more complex, though equally as important.

(191) Uniqueness of the Q-Particle (Beck 2006; p. 13)

The Q-particle is the only focus-sensitive operator whose meaning does not also take as input the normal-semantic value of its sister.

Let us pause for a moment to consider what the condition in (191) states. First, let us note that, according to the semantics under (182), repeated below, the Q-particle takes as argument only the *focus-semantic* value of its sister.

(192) Special Composition Rule for Q-Particles

$$[[Q_i XP]] = [[Q_i]]([[XP]]^F)$$

Of course, this insensitivity of Q to the normal-semantics of its sister is needed for our semantics to work. Given our semantic assumptions in Section 7.2, wh-words are assumed *not* to have normal-semantic values. Consequently, the sister of the Q-particle will never have a normal-semantic value. Thus, if semantic composition ever required us to compute the normal-semantic value of the Q's sister, the derivation would crash. Now, although this insensitivity to normal-semantics is required for Q, it is clearly not a property of other focus sensitive operators. For

⁸⁶ Recall that we observed earlier, under Footnote 54, that this result undermines one possible objection to our arguments for the analysis in (18).

example, note how the formal semantics we adopted earlier for ‘only’, repeated below, requires one to compute the normal-semantic value of the operator’s sister.

(193) **Formal, Focus-Semantic Definition of ‘Only’**

$$\begin{aligned} &[[\text{Only XP}]] = \\ &[[\text{XP}]]^U = 1, \text{ and for all } p \in [[\text{XP}]]^F . p \neq [[\text{XP}]] \rightarrow p^U = 0 \end{aligned}$$

Thus, we find that Q differs from ‘only’ in that computing the meaning of a phrase containing Q does not require that one compute the normal-semantic value of its sister. The principle in (191) – which is crucial for the theory of Beck (2006) – states that, in fact, it is *only* the Q-particle which has this peculiar insensitivity to normal-semantic values.⁸⁷

The principles in (190) and (191) are sufficient to derive the fact that wh-words must be c-commanded by Q-particles. Suppose that a wh-word in a given sentence is *not* c-commanded by a Q-particle. By assumption, then, either (i) the wh-word is c-commanded by a focus-sensitive operator *OP* that is *not* Q, or (ii) the wh-word is not c-commanded by *any* focus-sensitive operator. Let us first consider condition (i). Since *OP* is not a Q-particle, principle (191) entails that the semantic computation for the entire sentence requires one to compute the normal-semantic value of the sister of *OP*. However, since *OP* c-commands the wh-word, it follows that the sister of *OP* contains the wh-word. Therefore, computing the normal-semantic value of the sister of *OP* requires one to compute the normal-semantic value of the wh-word, and so the sentence is predicted to be uninterpretable. Now, let us consider condition (ii). Since there is no focus-sensitive operator c-commanding the wh-word at all, computing the normal semantic value for the entire sentence requires that one compute the normal-semantic value of the wh-word. However, since the wh-word does not have a normal-semantic value, the derivation crashes. Resultingly, the sentence cannot be assigned a normal-semantic value, in violation of principle (190).

We find, then, that the principles in (190) and (191) entail that every wh-word must be c-commanded by a Q-particle. Finally, let us consider the inverse condition, that every Q-particle must c-command a wh-word. We will see that this condition follows from a particular version of the principle of ‘Full Interpretation’ (Chomsky 1995). Informally, the principle of Full Interpretation is understood to require that semantically interpretable elements be semantically interpreted, that there be no entirely superfluous elements within the structure of a sentence. Thus, the impossibility of sentences like those under (194) is understood to partly follow from some version of Full Interpretation.

(194) **Structure Ruled Out by Full Interpretation**

* I saw my dad the.

Another way of stating the general notion behind Full Interpretation is that ‘meanings are used’; the procedure for semantically interpreting a sentence cannot selectively ‘ignore’ the meaningful

⁸⁷ As noted in Footnote 38, it is possible for wh-indefinites in Sinhala and Japanese to co-occur with particles other than *da* and *ka*, respectively. Under our current semantics for wh-words, it must be assumed that these particles are also insensitive to the normal-semantic values of their sisters. As such, for our purposes here, these other indefinite particles will be assumed to fall under the category of ‘Q-particles’.

elements a sentence contains. Therefore, we might adopt the following principle as one specific version (or sub-case) of Full Interpretation.

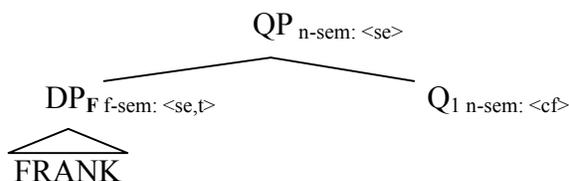
(195) The Principle of Full Interpretation

Given a structure $[_A X Y]$, if X has a normal-semantic value, then there is some replacement Z differing from X *only in its normal-semantic value* such that $[[[_A X Y]]] \neq [[[_A Z Y]]]$.⁸⁸

In essence, the principle in (195) states that if any phrase X has a normal semantic value, then the normal-semantic value of any phrase containing X must partly depend upon X 's normal semantics. Thus, normal-semantic values must be 'used' in the computation of a phrase's meaning.

If we accept the principle in (195), we thereby predict the need for Q-particles to c-command wh-words. To see this, let us first consider the structure under (196), where the sister to the Q-particle does not contain a wh-word, but does contain a focused DP. As the semantic derivation under (196) demonstrates, such a structure is in principle interpretable by our system.

(196) Interpretable Structure Where the Q-Particle Does not C-Command a Wh-Word

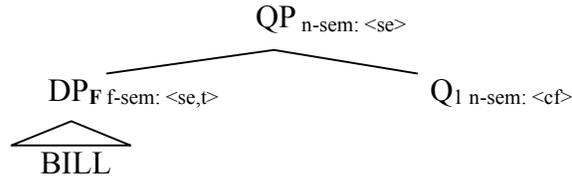


$$\begin{aligned}
 [[\text{QP}]]^g &= && \text{(by Identity)} \\
 [[\text{DP}_F \text{Q}_1]]^g &= && \text{(by (182))} \\
 [[\text{Q}_1]]^g ([[\text{DP}_F]]^{Fg}) &= && \text{(by (179))} \\
 g(1) ([[\text{DP}_F]]^{Fg}) &= && \text{(by Identity)} \\
 g(1) ([[\text{FRANK}_F]]^{Fg}) &= && \text{(by (172b))} \\
 g(1) (\{ x : x \in D_e \}) &= && \text{(by Identity)} \\
 f(\{ \text{Frank, Bill, John, Fido ... } \}) & & &
 \end{aligned}$$

As the derivation above illustrates, since we view Q-particles as focus-sensitive operators, our semantics requires only that they contain *some* focused XP within their scope; the semantics alone does not entail that the focused XP be a wh-word. However, with the addition of the principle in (195), structures like that in (196) may be ruled out. Consider, for example, the structure in (197), which differs from (196) only in the normal-semantic value of the focused DP.

⁸⁸ As in our proof for (188), 'replacements' here are assumed to share the same semantic type.

(197) **Interpretable Structure Where the Q-Particle Does not C-Command a Wh-Word**



$$\begin{array}{lcl}
 [[\text{QP}]]^g & = & \text{(by Identity)} \\
 [[\text{DP}_{\text{F}} \text{Q}_1]]^g & = & \text{(by (182))} \\
 [[\text{Q}_1]]^g ([[\text{DP}_{\text{F}}]]^g) & = & \text{(by (179))} \\
 g(1) ([[\text{DP}_{\text{F}}]]^g) & = & \text{(by Identity)} \\
 g(1) ([[\text{BILL}_{\text{F}}]]^g) = & & \text{(by (172b))} \\
 g(1) (\{ x : x \in D_e \}) & = & \text{(by Identity)} \\
 f(\{ \text{Frank, Bill, John, Fido ...} \}) & &
 \end{array}$$

Although the focused DP in (197) differs in its normal-semantic value from that in (196), the normal-semantic value of the entire QP remains unchanged. Furthermore, given our rules for computing focus-semantic values in (172), it follows that if one attempts to replace ‘Frank’ in (196) with *any* expression of its type, the interpretation of the QP will always be the same, namely, $f(\{ x : x \in D_e \})$. Thus, we find that the structure in (196) violates the Principle of Full Interpretation in (195); although ‘Frank’ has a normal-semantic value, any replacement of it differing in normal-semantic value will always result in the same interpretation for the larger QP. Consequently, the focused phrase within a QP can never be an arbitrary DP possessing a normal-semantic value. On the other hand, if the focused element within a QP is wh-word, no violation of (195) need result. After all, our assumptions in (177) and (178) state that wh-words *lack* normal semantic values. As a result, wh-words *vacuously* satisfy the condition in (195). We may conclude, therefore, that the condition in (195) entails that the focused element within a QP must be a wh-word, and so any Q-particle must c-command a wh-word.

Before moving on, let us momentarily reflect on the result just obtained, as our reasoning here suggests a potential broader rationale for the existence of wh-words, and their characteristic lack of normal-semantic values. According to the view just put forth, there exists some principle of natural language requiring that the normal-semantic value of a phrase ‘matters’ for the normal-semantic value of those phrases containing it. Interestingly, this principle sets up a *prima facie* problem for the existence of Q-particles. Q-particles are assumed to characteristically be focus-semantic operators that take as argument only the *focus-semantic* values of their sisters. Thus, the normal-semantic value of a QP depends only upon the focus-semantic value of the sister of Q. However, according to the principles in (172), varying the *normal-semantic* value of a focused phrase (of a given type) does not affect the *focus-semantic* value of the overall phrase. Consequently, any QP will have the property that its normal-semantic value will in no way be affected by changes (modulo type) of the normal-semantic value of the focused phrase it obligatorily contains. For this focused phrase, then, its normal-semantic value simply *doesn’t* ‘matter’ for the normal-semantic value of the larger QP. Thus, if the focused phrase inside the QP were to bear a normal-semantic value, such a QP would be in blatant violation of the principle requiring that normal-semantic values ‘matter’.

Enter the wh-words. Because they crucially *lack* normal-semantic values, wh-words provide an essential solution to the challenge posed to Q-particles by the principle in (195). Given their lack of normal-semantic values, wh-words may stand as the obligatory focused elements within a QP, *without the QP thereby violating (195)*. Thus, we find that, given the principle in (195), the existence of Q-particles *entails* the existence of wh-words.⁸⁹ Furthermore, we may again note that these principles entail that the focused phrase obligatorily contained within a QP must always be a wh-word, and so our system predicts that every Q-particle must c-command some wh-word.

In summary, we have seen that our semantics for wh-words and Q-particles, when combined with certain independently plausible principles, is able to derive the obligatory co-occurrence and c-command relation between Q-particles and wh-words. In as much as these properties are shared the particles *sá*, *ka* and *da*, applying our proposed semantics to each of these particles would thereby account for the characteristic behavior of each, which lends further credence to their underlying formal identity.

7.6 The Compositional Semantics of Wh-Questions

In this section, I will show how the semantic proposals made thus far may be incorporated into a compositional semantics for wh-questions. As we will see, such a semantics will illuminate the contribution made by Q-particles to the meaning of wh-questions, the second environment where Q-particles appear to be obligatory.

Before laying out our proposed system, however, I will begin with some preliminary background regarding the semantics of wh-questions.

7.6.1 The Semantics of Wh-Questions: Basic Background

Before we can address how the meaning of a wh-question is composed, we must, of course, adopt some view on what the meaning of a wh-question *is*. Although the answer to this logically prior question remains a matter of much controversy (Hamblin 1958, 1973; Karttunen 1977; Groenendijk & Stokhof 1982, 1984; Heim 1994; Kratzer 2006), I will here simply assume much the same views as those adopted in prior works on the semantics of Q (e.g. Hagstrom 1998, Shimoyama 2001, Kratzer & Shimoyama 2002, Beck 2006).

For our purposes here, we will adopt the classic (though not uncontroversial) proposal that the meaning of a wh-question is a *set of propositions*, those propositions which constitute potential answers to the wh-question (Hamblin 1958, 1973; Karttunen 1977). For example, the meaning of the wh-question under (198a) below would be the set of propositions under (198b), understood to be the set of all the potential answers to the wh-question itself.

⁸⁹ The reader may also note that, given the principle in (191), the existence of wh-words similarly entails the existence of Q-particles.

(198) **The Semantics of Wh-Questions**

- a. What did Dave eat?
- b. $\{ [\lambda w. \text{Dave}(w) \text{ ate pizza}(w) \text{ in } w], [\lambda w. \text{Dave}(w) \text{ ate bread}(w) \text{ in } w],$
 $[\lambda w. \text{Dave}(w) \text{ ate cereal}(w) \text{ in } w], [\lambda w. \text{Dave}(w) \text{ ate fish}(w) \text{ in } w], \dots \}$

Similarly, the meaning of the wh-question under (199a) would be the set of propositions under (199b), again understood to be the set of all the potential answers to the wh-question itself.

(199) **The Semantics of Wh-Questions**

- a. Whose book did Joe read?
- b. $\{ [\lambda w. \text{Joe}(w) \text{ read Lou's-book}(w) \text{ in } w], [\lambda w. \text{Joe}(w) \text{ read Ian's-book}(w) \text{ in } w],$
 $[\lambda w. \text{Joe}(w) \text{ read Phil's-book}(w) \text{ in } w], [\lambda w. \text{Joe}(w) \text{ read Ty's-book}(w) \text{ in } w], \dots \}$

Although it might at first appear arcane, the view that ‘the meaning of a question is the set of its possible answers’ can be given some immediate conceptual motivation.⁹⁰ One way to philosophically approach the question of ‘What do questions mean?’ is to ask ‘What must one know in order to be said to know the meaning of a question?’ As first observed by Hamblin (1958), a plausible answer to this latter question is that one must know *how* the question is to be answered, what could count as a possible answer to the question. Thus, to know the meaning of a question is to know the set of its potential answers, and so the meaning of a question may be regarded as that set of propositions.

We will end this preliminary section by introducing some notation and terminology that will be of much use to our later discussion. First, note that the set of potential answers to a wh-question can be an infinite one; this is of course indicated by the ellipses in (198b) and (199b). We therefore require some notation for finitely representing this set of propositions. Throughout this thesis, we will adopt a version of the notation first employed in Karttunen (1977). This notation is illustrated below.

(200) **The Semantics of Wh-Questions**

- a. What did Dave eat?
- b. $\lambda p [\exists x_{\langle se \rangle} \notin \text{human}. p = [\lambda w. \text{Dave}(w) \text{ ate } x(w) \text{ in } w]]$

(201) **The Semantics of Wh-Questions**

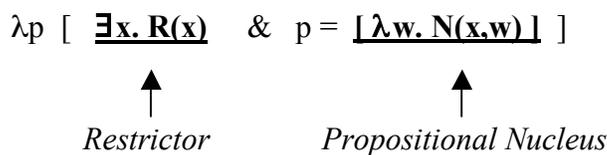
- a. Whose book did Dave read?
- b. $\lambda p [\exists x_{\langle se \rangle} \in \text{human}. p = [\lambda w. \text{Dave}(w) \text{ read } [\text{the book of } x](w) \text{ in } w]]$

⁹⁰ For some *empirical* considerations supporting this view over its competitors, see Heim (1994).

To spell it out, the lambda notation in (200b) reads ‘the set of propositions p such that p is the proposition *Dave ate x* for some non-human thing x.’ Intuitively, this is indeed the set of propositions informally represented in (198b), and so the lambda notation successfully represents this infinite set. Similarly, the notation in (201b) reads ‘the set of propositions p such that p is the proposition *Dave read x’s book* for some human x.’ Again, this set is intuitively the set of potential answers to the question in (199a), and so the notation successfully performs its job.

Finally, to facilitate our later discussion, let us introduce some terminology that will allow us to refer to distinct portions of the lambda notation just introduced. When we examine the lambda notations in (200b) and (200a), it is apparent that such lambda expressions can be divided into two components. Such a division is schematically illustrated below.

(202) **Anatomy of a Wh-Question Meaning**



Propositional Nucleus: *provides the ‘form’ of the answer to the question*

Restrictor: *constrains what can fill the ‘information gap’ in the question*

As shown above, within our lambda notation, the representation of a set of propositions consists of two core components: a ‘restrictor’ and a ‘propositional nucleus’. Structurally speaking, the ‘restrictor’ of the wh-question is the existential quantifier and the material immediately following it, while the ‘propositional nucleus’ is the propositional function equated to the bound propositional variable. Each of these sub-components, however, also plays its own distinct role in determining the resulting set of propositions, and so we may further characterize both in terms of their logical function. As informally stated under (202), the propositional nucleus of a wh-question provides the abstract ‘form’ of the answers to the question, while the restrictor serves to put limits on what can fill the ‘information gap’ of the question.

Finally, given the particular logical roles played by the restrictor and the propositional nucleus, the lambda notation we use to represent the meanings of wh-questions can be read in a rather illuminating informal fashion. Once the restrictor and the propositional nucleus of a given lambda expression have been identified, the expression may be informally read as ‘Which x, RESTRICTOR(x), is such that PROPOSITIONAL NUCLEUS(x).’ This informal reading of the lambda notation is illustrated below.

(203) **Informal Reading of Lambda Notation**

- a. Sentence:
Whose book did Dave read?
- b. Formal Representation of Meaning:
 $\lambda p [\exists x_{\langle se \rangle} \in \text{human. } p = [\lambda w. \text{ Dave}(w) \text{ read } [\text{the book of } x](w) \text{ in } w]]$
- c. Informal Reading of Formal Representation:
'Which x , x a human, is such that Dave read the book of x ?'

As we see here, given the proposed method of informal reading, our formal representation of the meaning of question (203a) can be informally read as 'which x , x a human, is such that Dave read the book of x '. Note that this informal reading does seem to paraphrase the intuitive meaning of (203a), which confirms the usefulness of this method for 'unpacking' our lambda notations.

7.6.2 The Compositional Semantics of Tlingit Wh-Questions

Given the preceding semantic preliminaries, we may now build a compositional semantics for Tlingit wh-questions. We begin by introducing two final, additional hypotheses, one semantic and the other syntactic.

The semantic hypothesis concerns the source of the characteristic interrogative semantics of a wh-question. I assume that every wh-question contains in its left periphery a dedicated Force head, Force_Q , supplying the interrogative force of the clause. More concretely, I assume that this Force_Q is interpreted as an operator, one that binds the choice-function variable introduced by the Q-particle within the wh-question. As an operator, the Force_Q comes paired with an index. Also paired with this Force_Q head is the following syncategorematic rule, which effectuates the binding of the Q-particle by the Force head.

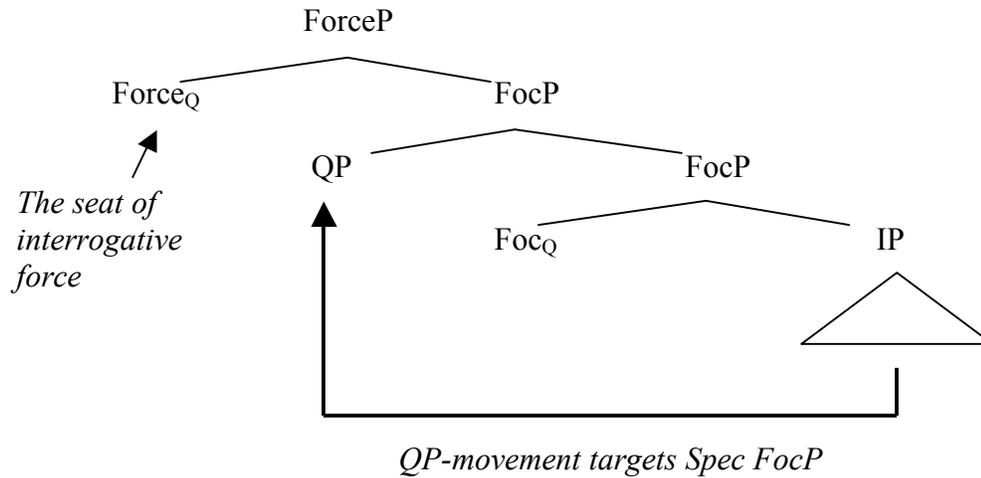
(204) **Special Composition Rule for Force_Q**

$$[[\text{Force}_{Q_i} \text{XP}]]^g = \lambda p [\exists f . p = [[\text{XP}]]^{g(i/f)}]$$

The second, syntactic hypothesis that must be introduced concerns the exact position of the QP within the left periphery of a Tlingit wh-question. Until now, we have assumed simply that such a QP occupies the Spec CP of the matrix clause. However, given the assumed presence of the Force_Q head within the left-periphery, we must now ask specifically *which* specifier position within the left periphery the QP occupies. Let us here assume the view that the specifier occupied by the QP is located *below* the interrogative Force head. More concretely, adopting the theory of the left periphery put forth in Rizzi (1997), we might assume that the QP of a wh-question moves to the specifier of a Focus_Q phrase, which is obligatorily selected by the Force_Q head. This proposal is schematically illustrated below.

(205) **The Fine Structure of the Left-Periphery**

QP-movement targets a Spec position just below the interrogative Force head.



We now have everything necessary to provide a compositional semantics for Tlingit wh-questions. Let us begin by considering the simple wh-question under (1b), *Daa sá i éesh al'óon?* ‘What is your father hunting?’, repeated below.

(206) **Simple Wh-Question in Tlingit**

- a. Sentence:
 Daa sá i éesh al'óon?
 what Q your father he.hunts.it
What is your father hunting?
- b. Targeted Interpretation:
 $\lambda p [\exists x_{\langle se \rangle} \notin \text{human. } p = [\lambda w. [\text{your father}](w) \text{ is hunting } x(w) \text{ in } w]]$

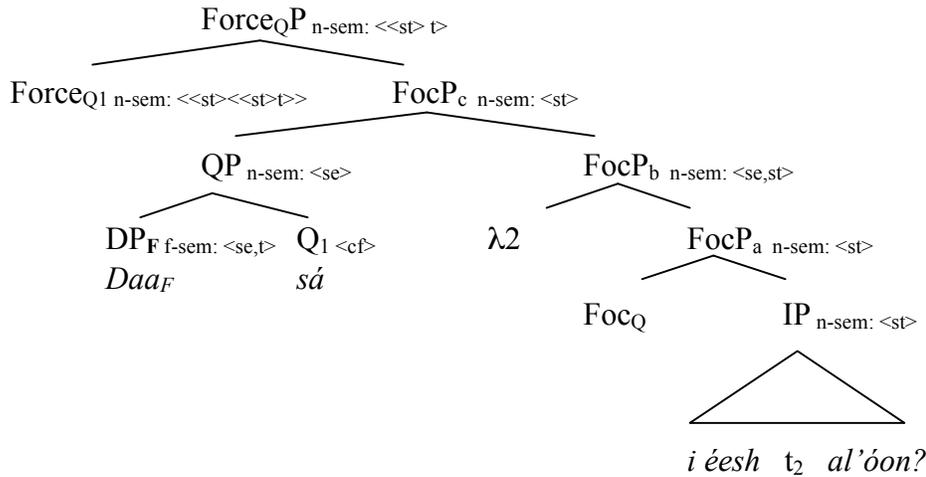
Given the English translation of this sentence, we want for our semantic theory to assign as its interpretation the set of propositions represented by the lambda expression under (206b), which picks out the set of propositions *p* such that *p* is of the form ‘your father is hunting *x*’, where *x* is non-human.⁹¹ Let us, then, determine whether our semantic system can correctly assign the meaning in (206b) to sentence (206a).

Given all our preceding syntactic hypotheses, the following represents the structure we assign to sentence (206a).⁹²

⁹¹ I am, of course, ignoring here the complexities surrounding the meaning of the indexical *your* in these sentences.

⁹² The reader may note that the structure in (207) also assumes the Heim & Kratzer (1998) theory concerning the interpretation of structures with movement. According to this theory, movement of a phrase *XP* to a position *Y* results in the insertion of a lambda operator directly below *Y*, binding the trace of the *XP*.

(207) **The Syntactic Structure of Sentence (206a)**



Assuming that the Foc_Q head here has a trivial semantic value (i.e., $[\lambda p. p]$), the following derivation computes the meaning which our semantics assigns to the sentence in (206a).

(208) **Semantic Interpretation of Structure (207)**

$$\begin{aligned}
 [[Force_{QP}]]^g &= && \text{(by Identity)} \\
 [[Force_{Q1} FocP_c]]^g &= && \text{(by (204))} \\
 \lambda p [\exists f. p = [[FocP_c]]^g(1/f)] &= && \text{(by Identity)} \\
 \lambda p [\exists f. p = [[QP FocP_b]]^g(1/f)] &= && \text{(by Function Application)} \\
 \lambda p [\exists f. p = [[FocP_b]]^g(1/f)([[QP]]^g(1/f))] &= && \text{(by (183))} \\
 \lambda p [\exists f. p = [[FocP_b]]^g(1/f)(f(\{ x_{<se>} : x \notin \text{human} \}))] &= && \text{(by standard rules)} \\
 \lambda p [\exists f. p = [\lambda x_{<se>}. \lambda w. [\text{your father}](w) \text{ is hunting } x(w) \text{ in } w] (f(\{ x_{<se>} : x \notin \text{human} \}))] &= && \text{(by Lambda Conversion)} \\
 \lambda p [\exists f. p = [\lambda w. [\text{your father}](w) \text{ is hunting } [f(\{ x_{<se>} : x \notin \text{human} \})](w) \text{ in } w] &= && \text{(by Identity)} \\
 \lambda p [\exists f. p = [\lambda w. [\text{your father}](w) \text{ is hunting } [f([\lambda w'. \text{bear}(w')], [\lambda w'. \text{duck}(w')], \dots])](w) \text{ in } w] &= &&
 \end{aligned}$$

As the derivation above demonstrates, our semantic theory assigns to the structure in (207) the following meaning: $\lambda p [\exists f. p = [\lambda w. [\text{your father}](w) \text{ is hunting } [f(\{ x_{<se>} : x \notin \text{human} \})](w) \text{ in } w]]$. This lambda notation picks out the set of propositions p such there is some choice function f such that p is the proposition ‘your father is hunting $f(\{ x_{<se>} : x \notin \text{human} \})$ ’. Thus, we must now determine whether this set of propositions is equivalent to the ‘targeted interpretation’ in (206b).

The set of propositions computed in (208) is indeed the very same set of propositions as picked out by the lambda expression in (206b). To see this, let us first note that the equivalence of these two lambda expressions follows from the general equivalence proven in (189), repeated below.

(209) Structures Proven Semantically Equivalent

- a. $\exists_1 [A \dots Q_1 [B \dots \text{wh-word}_T \dots] \dots]$
- b. $\exists x \in [[\text{wh-word}_F]]^F [A \dots [B \dots x_T \dots] \dots]$

Given this general equivalence, it follows that the formulae in (210a) and (210b) are equivalent (relative to any value for the free propositional variable).

(210) Structures Proven Semantically Equivalent

- a. $\exists f . p = [\lambda w . [\text{your father}](w) \text{ is hunting } [f(\{ x_{<se>} : x \notin \text{human} \})](w) \text{ in } w]]$
- b. $\exists x_{<se>} \notin \text{human} . p = [\lambda w . [\text{your father}](w) \text{ is hunting } x(w) \text{ in } w]]$

Finally, given the equivalence of the formulae in (210), it follows that the formulae in (211) are equivalent.

(211) Structures Proven Semantically Equivalent

- a. $\lambda p [\exists f . p = [\lambda w . [\text{your father}](w) \text{ is hunting } [f(\{ x_{<se>} : x \notin \text{human} \})](w) \text{ in } w]]$
- b. $\lambda p [\exists x_{<se>} \notin \text{human} . p = [\lambda w . [\text{your father}](w) \text{ is hunting } x(w) \text{ in } w]]$

The formula in (211a) is, of course, the meaning computed in (208) for structure (207), while the formula in (211b) is simply the targeted meaning in (206b). It therefore follows that these meanings are equivalent, and so our semantics correctly assigns the ‘targeted meaning’ in (206b) to the sentence in (206a).⁹³

⁹³ Although we have proven it adequate to assign the correct meaning to wh-questions, one might nevertheless criticize our proposed semantics as being ‘overly complicated’. For example, one could still assign the correct meaning to wh-questions if one assumed that Q-particles were semantically vacuous, and that the interrogative C’s themselves were the focus-sensitive operators associating with wh-words (cf. Shimoyama 2001, Kratzer & Shimoyama 2002, Beck 2006).

Although this point is well-taken, we have seen in Section 7.5 that there is some definite benefit to the assumption that Q-particles are *not* semantically vacuous, and rather play an important role in the compositional semantics of the wh-question. On the other hand, as to the more fundamental question of *why* there should be Q-particles at all in natural language, we might take up the view that the necessity of Q reflects a fundamental syntactic property of interrogative complementizers. That is, one might propose that some more fundamental principle of syntax entails that interrogative Cs necessarily bear an uninterpretable instance of the Q-feature. This fundamental property of C would in turn require that all wh-questions contain some interpretable instance of the Q-feature, which would necessitate the existence of Q-particles.

Aside from the argument offered above, we can also perceive at a more intuitive level the equivalence between (211a) and (211b). Consider any proposition p from the set represented by (211a). By definition, there is some choice function f such that p is the proposition ‘your father is hunting x ’, where x is the value that f yields when applied to the set of non-humans. Given the nature of choice functions, this simply means that p is the proposition ‘your father is hunting x ’, for some non-human x . Consequently, p is also in the set of propositions represented by (211b). Now, let us consider any proposition p from the set represented by (211b). By definition, there is some non-human x such that p is the proposition ‘your father is hunting x ’. Again, however, by the nature of choice functions, this entails that there is some choice function f such that p is the proposition ‘your father is hunting x ’, where x is the value that f yields when applied to the set of non-humans. Thus, p is also in the set represented by (211a). The sets represented by these formulae are therefore identical.

Thus far, we have seen that our semantic system assigns the correct interpretation to Tlingit wh-questions where the Q-particle is directly adjacent to the wh-word. Let us now consider a somewhat more difficult structure, one where the Q-particle is sister to phrase *properly containing* the wh-word. We will use as our representative example of such structures the wh-question in (98a), *Aadóo yaagú sá ysiteen?* ‘Whose boat did you see?’ Given the English translation of this sentence, we want our semantic theory to assign as its interpretation the set of propositions represented by the lambda expression under (212b), which picks out the set of propositions p such that p is of the form ‘you saw x ’s boat’, where x is human.

(212) **Tlingit Wh-Question Containing a ‘Pied-Piping Structure’**

a. Sentence:

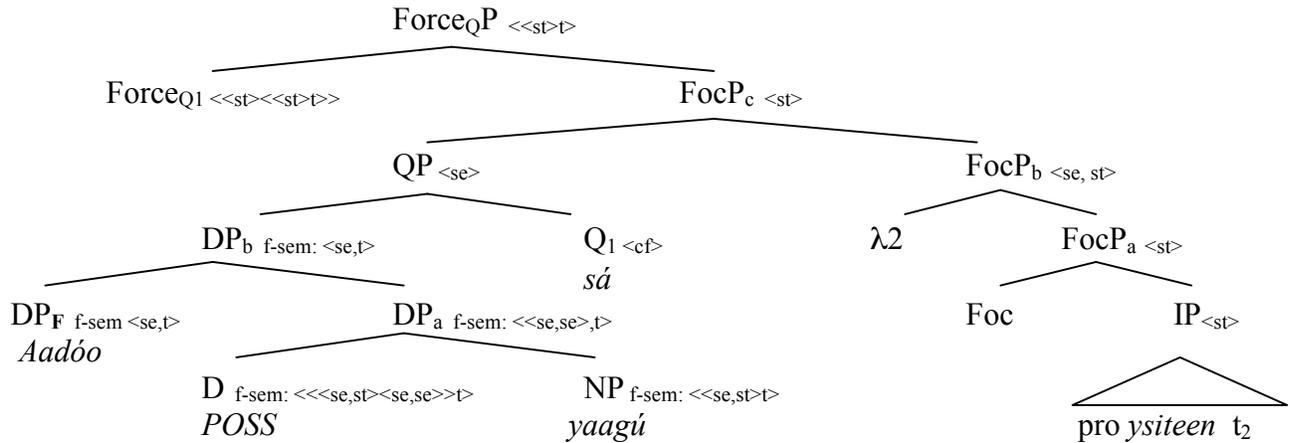
Aadóo yaagú sá ysiteen?
 who boat Q you.saw.it
Whose boat did you see?

b. Targeted Interpretation:

$\lambda p[\exists x_{\langle se \rangle} \in \text{human. } p = [\lambda w. \text{ you saw } [\lambda w'. \text{ the boat}(w') \text{ of } x(w') \text{ in } w'] (w) \text{ in } w]]$

Let us now determine whether our semantic theory can correctly assign the meaning in (212b) to sentence (212a). First, our syntactic theory entails that (212a) has the structure below.

(213) **The Syntactic Structure of Sentence (212a)**



The derivation below computes the meaning which our semantics assigns to the structure above.

(214) **Semantic Interpretation of Structure (213)**

$$\begin{aligned}
 & [[\text{Force}_{QP}]]^g & = & & \text{(by Identity)} \\
 & [[\text{Force}_{Q1} \text{ FocP}_c]]^g & = & & \text{(by (204))} \\
 & \lambda p [\exists f . p = [[\text{FocP}_c]]^g(1/f)] & = & & \text{(by Identity)} \\
 & \lambda p [\exists f . p = [[\text{QP} \text{ FocP}_b]]^g(1/f)] & = & & \text{(by Function Application)} \\
 & \lambda p [\exists f . p = [[\text{FocP}_b]]^g(1/f) ([[\text{QP}]]^g(1/f))] & = & & \text{(by (185))} \\
 & \lambda p [\exists f . p = [[\text{FocP}_b]]^g(1/f) (f (\{ h_{<se>} : \exists x_{<se>} \in \text{human} . h = \lambda w'. \text{the boat}(w') \text{ of } x(w') \text{ in } w' \}))] & = & & \text{(by standard rules)} \\
 & \lambda p [\exists f . p = [\lambda x_{<se>} . \lambda w . \text{you saw } x(w) \text{ in } w] & & & \\
 & (f (\{ h_{<se>} : \exists x_{<se>} \in \text{human} . h = \lambda w'. \text{the boat}(w') \text{ of } x(w') \text{ in } w' \}))] & = & & \text{(by Lambda Conversion)} \\
 & \lambda p [\exists f . p = \lambda w . \text{you saw} & & & \\
 & [f (\{ h_{<se>} : \exists x_{<se>} \in \text{human} . h = \lambda w'. \text{the boat}(w') \text{ of } x(w') \text{ in } w' \})] (w) \text{ in } w] & = & & \text{(by Identity)} \\
 & \lambda p [\exists f . p = \lambda w . \text{you saw} & & & \\
 & [f (\{ [\lambda w'. \text{the boat}(w') \text{ of Jim}(w') \text{ in } w'], [\lambda w'. \text{the boat}(w') \text{ of Tom}(w') \text{ in } w'], \dots \})] (w) \text{ in } w] & & &
 \end{aligned}$$

We find, then, that our semantic theory assigns to the structure in (213) the following meaning: $\lambda p [\exists f . p = \lambda w . \text{you saw} [f (\{ h_{<se>} : \exists x_{<se>} \in \text{human} . h = \lambda w'. \text{the boat}(w') \text{ of } x(w') \text{ in } w' \})] (w) \text{ in } w]$. This rather complex expression denotes the set of propositions p such that p is the

proposition ‘you saw x ’, where x is the value obtained by applying *some* choice function f to the set of individual concepts of the form ‘ $[\lambda w. \text{the boat}(w) \text{ of } x(w) \text{ in } w]$ ’, where ‘ $x(w)$ ’ is human. As a final step in establishing the adequacy of our proposed semantics, let us now determine whether this set of propositions is indeed equivalent to the ‘targeted interpretation’ in (212b).

First, let us again observe that the general equivalence in (209) entails that these two sets of propositions are identical. Given (209), it follows that the formulae in (215) are equivalent.

(215) Structures Proven Semantically Equivalent

$$\exists f. p = [\lambda w. \text{you saw} \\ [f (\{ [\lambda y_{\langle se \rangle} [\lambda w'. \text{the boat}(w') \text{ of } y(w') \text{ in } w'] \} \{ x_{\langle se \rangle} : x \in \text{human} \})](w) \text{ in } w]$$

$$\exists x_{\langle se \rangle} \in \text{human}. p = [\lambda w. \text{you saw} \\ [\lambda y_{\langle se \rangle} [\lambda w'. \text{the boat}(w') \text{ of } y(w') \text{ in } w']](x)(w) \text{ in } w]$$

Again, however, the equivalence of the formulae in (215) entails the equivalence of the two set descriptions in (216).

(216) Structures Proven Semantically Equivalent

$$\lambda p [\exists f. p = [\lambda w. \text{you saw} \\ [f (\{ [\lambda y_{\langle se \rangle} [\lambda w'. \text{the boat}(w') \text{ of } y(w') \text{ in } w'] \} \{ x_{\langle se \rangle} : x \in \text{human} \})](w) \text{ in } w]]$$

$$\lambda p [\exists x_{\langle se \rangle} \in \text{human}. p = [\lambda w. \text{you saw} \\ [\lambda y_{\langle se \rangle} [\lambda w'. \text{the boat}(w') \text{ of } y(w') \text{ in } w']](x)(w) \text{ in } w]]$$

Finally, Function Application and Point-Wise Composition entail that the formulae in (216) are equal to those in (217) below.

(217) Structures Proven Semantically Equivalent

$$\lambda p [\exists f. p = [\lambda w. \text{you saw} \\ [f (\{ h_{\langle se \rangle} : \exists x_{\langle se \rangle} \in \text{human} . h = \lambda w'. \text{the boat}(w') \text{ of } x(w') \text{ in } w' \})](w) \text{ in } w]]$$

$$\lambda p [\exists x_{\langle se \rangle} \in \text{human}. p = [\lambda w. \text{you saw} [\lambda w'. \text{the boat}(w') \text{ of } x(w') \text{ in } w']](w) \text{ in } w]]$$

Given that the formulae in (217) are simply the targeted interpretation in (212b) and the meaning computed in (214), it follows that these two sets are equivalent, and so our semantics correctly assigns the ‘targeted meaning’ in (212b) to the sentence in (212a).

The equivalence of the formulae in (217) can also be grasped at a more intuitive level. To see this, let us consider any proposition p from the set denoted by the first formula in (217). By definition, this proposition p is of the form ‘ $[\lambda w. \text{you saw } y(w) \text{ in } w]$ ’, where y is the value obtained by applying *some* choice function f to the set of individual concepts of the form ‘ $[\lambda w. \text{the boat}(w) \text{ of } x(w) \text{ in } w]$ ’, where ‘ $x(w)$ ’ is human. Given the nature of choice functions, this entails that p is of the form ‘ $[\lambda w. \text{you saw } y(w) \text{ in } w]$ ’, where y is some *individual concept* of the

form ‘ $[\lambda w. \text{the boat}(w) \text{ of } x(w) \text{ in } w]$ ’, where ‘ $x(w)$ ’ is human. But this simply means that p is of the form ‘ $[\lambda w. \text{you saw } [\lambda w'. \text{the boat}(w') \text{ of } x(w') \text{ in } w'] (w) \text{ in } w]$, for some human ‘ $x(w)$ ’. Consequently, p is also a member of the set denoted by the second formula in (217).

Now let us consider any proposition p from the set denoted by the second formula in (217). By definition, p is of the form ‘ $[\lambda w. \text{you saw } [\lambda w'. \text{the boat}(w') \text{ of } x(w') \text{ in } w'] (w) \text{ in } w]$ ’, where ‘ $x(w)$ ’ is some human. Of course, this simply means that p is of the form ‘ $[\lambda w. \text{you saw } y(w) \text{ in } w]$ ’, where y is the individual concept ‘ $[\lambda w. \text{the boat}(w) \text{ of } x(w) \text{ in } w]$ ’ and ‘ $x(w)$ ’ is human. Consequently, there is a choice function f such that p is of the form ‘ $[\lambda w. \text{you saw } y(w) \text{ in } w]$ ’, where y is the value obtained by applying f to the set of individual concepts of the form ‘ $[\lambda w. \text{the boat}(w) \text{ of } x(w) \text{ in } w]$ ’, where ‘ $x(w)$ ’ is human. Thus, p is also within the set denoted by the first formula in (217), and we have thereby shown the equivalence of these two formulae.

Having established the equivalence between the ‘targeted interpretation’ in (212b) and the meaning computed in (214), we may conclude that our semantics assigns the correct interpretation to Tlingit wh-questions where the Q-particle is not directly adjacent to the wh-word. I therefore conclude that our proposed semantic system is adequate for *all* (single) wh-questions in Tlingit.⁹⁴

7.6.3 A Brief Note on the Interpretation of Pied-Piping Structures

In the preceding section, we saw that our semantic hypotheses are sufficient to assign the correct interpretation to wh-questions where the sister of the Q-particle *properly contains* the wh-word. Recalling our discussion from Chapter 1, such structures constitute the so-called ‘pied-piping structures’ of Tlingit, structures where the fronted phrase of the wh-question properly contains the wh-word. It thus follows that our proposed semantics is sufficient to assign the correct interpretation to the pied-piping structures of Tlingit.

We should note here that this is a result of much potential significance. As will be discussed later in Chapter 4, the interpretation of pied-piping structures in wh-questions poses a difficult challenge to certain, classic views regarding the semantics of wh-questions. In response to this challenge, some have proposed that pied-piping structures undergo syntactic alterations before being interpreted (von Stechow 1996), while others have proposed that the interpretation of pied-piping structures requires certain additional semantic operations (Sharvit 1998). Under these prior approaches, however, the interpretation of wh-questions with pied-piping requires mechanisms beyond those required for simple wh-questions without pied-piping, a suspicious state of affairs given the ubiquity of pied-piping. By contrast, the pied-piping structures of Tlingit present no difficulties for the semantics proposed here. The interpretation of such structures requires appeal to no mechanisms beyond those required for wh-questions without pied-piping. Indeed, within this system, pied-piping structures are semantically unremarkable. After all, such structures differ from non-pied-piping structures only in the position of the Q-particle, and we saw in (189) that variations in the position of Q have no semantic effect.

We may conclude, then, that it is a real achievement of the semantics proposed here that the pied-piping structures of Tlingit present it with no *prima facie* difficulties. In Chapter 4, we will discuss this result at more length, particularly its consequences for the theory of wh-questions in other wh-fronting languages of the world.

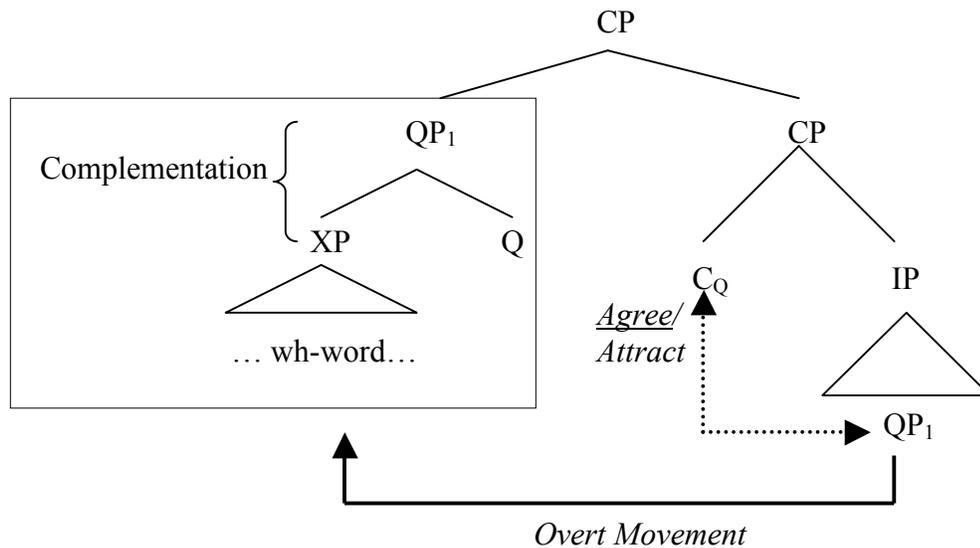
⁹⁴ Multiple wh-questions will be treated in Chapter 4, where we will see that the system proposed here is not sufficient to interpret them.

8. Conclusion

This chapter has principally concerned the syntax and semantics of wh-questions and wh-indefinites in Tlingit. In our analysis of these structures, we have been led to adopt and defend a variety of proposals, principles and generalizations. In this concluding section, I will briefly list the ‘main ideas’ of this chapter, as well as the evidence for them.

The primary claim of this chapter has been that the analysis in (18) is correct for the wh-questions of Tlingit.

(18) Wh-Fronting as a Secondary Effect of Q-Movement



The principle evidence supporting the structure in (18) was the following.

- Tlingit is a wh-fronting language; the wh-operator of a Tlingit wh-question must be located within its left-periphery.
- The Tlingit particle *sá*, which obligatorily marks the right edge of the fronted phrase in a Tlingit wh-question, should be regarded as a Q-particle.
- The well-formedness of a Tlingit wh-question depends only upon the locality of the Q-particle to the left-periphery; the locality of the wh-word is ultimately irrelevant.

Beyond the analysis in (18), this chapter also defended the claim that the position of the Q-particle *sá* within a Tlingit clause is (partly) governed by the ‘QP-Intervention Condition’ stated under (155), repeated below.

(155) **The QP-Intervention Condition**

A QP cannot intervene between a functional head and a phrase selected by that functional head.

The QP-Intervention Condition was found to independently predict the ill-formedness of structures which in other languages are commonly thought to be ill-formed due to constraints on movement, such as the ‘Left Branch Condition’. The following is the principal evidence showing that the ill-formedness of such structures in Tlingit is indeed due to the QP-Intervention Condition, and *not* to any constraints on the movement relation itself.

- The hypothesis that the Tlingit structures are ill-formed because of constraints on movement requires covert movements that do not exist in the language.
- Other constructions in Tlingit demonstrate that the hypothesized constraints on movement (e.g. the ‘LBC’) do not generally hold of Tlingit wh-fronting.

Finally, this chapter put forth a semantics for the wh-words and Q-particles of Tlingit that could account for their behavior both as wh-operators in wh-questions and as wh-indefinites in declarative clauses. The core assumptions of this semantics are the following.

- Wh-words have only a focus-semantic value; they lack a normal-semantic value.
- Q-particles are variables over choice functions, and take as argument the set contributed by the focus-semantic value of the wh-word.

The following are the chief results of this semantics thus far obtained.

- Existential quantification over the Q-particle is always equivalent to existential quantification over the set denoted by the wh-word.
- The obligatory co-occurrence of Q-particles and wh-words follows from their semantics.
- Wh-questions with pied-piping in Tlingit can be interpreted without any appeal to mechanisms beyond those necessary for wh-questions without pied-piping.

This chapter has shown us how these core ideas and proposals can advance our understanding of the wh-questions and wh-indefinites of Tlingit. In the following chapters, we will look beyond Tlingit, and examine how these ideas can help us to understand phenomena in a number of other languages. Ultimately, we will conclude that the structure in (18) is not parochial to the Southeast of Alaska; rather, it is found in all the wh-fronting languages of the world.

Chapter 3

Applications to the Theory of Wh-*In-Situ* Languages

1. Introduction and Chapter Outline

The preceding chapter introduced a variety of principles and doctrines concerning Q-particles, their syntax and semantics. The proposals were initially made in order to cover facts observed in Tlingit, a wh-fronting language. In this chapter, we will see how these ideas can also advance our understanding of certain phenomena in wh-*in-situ* languages. Thus, this chapter stands as the first, brief argument for the (cross-)linguistic reality of the theory of Q-particles advanced in Chapter 2.

I begin in the following section by introducing the core proposals concerning wh-*in-situ* languages. I claim that wh-*in-situ* languages constitute a heterogeneous class, consisting of at least two distinct syntactic types: the languages where the Q-particle adjoins to its sister (Q-Adjunction languages), and the languages where the Q-particle takes its sister as complement, as in Tlingit, but in which QP-movement occurs covertly (Q-Projection languages). Furthermore, I claim that Japanese and Korean witness the Q-Adjunction type of languages, whereas Sinhala witnesses the Q-Projection type of wh-*in-situ*. Following the introduction of these proposals, the remainder of Section 2 presents evidence in support of them. I demonstrate that, given the QP-Intervention Condition of Chapter 2, the proposed typology correctly predicts certain differences between the three languages in the distribution of their Q-particles. Aside from supporting our typology, this result also supports the cross-linguistic universality of the QP-Intervention Condition.

The third section is concerned with the semantics of wh-indefinites and wh-questions in these *in-situ* languages. I demonstrate that the semantic theory developed in Chapter 2 may be applied to the wh-*in-situ* structures of these languages. This result is taken to support the cross-linguistic universality of the semantic theory of Chapter 2.

Building upon the semantic results of Section 3, Section 4 introduces the assumed semantic theory of LF/Focus-Intervention Effects. This theory, which is essentially that first developed by Beck (2006), understands LF/Focus-Intervention Effects to follow from the semantics of wh-words and Q-particles. Under this account, the structures inducing ‘Intervention Effects’ are ill-formed because they are uninterpretable, ultimately because their interpretation requires one to compute the normal-semantic value of a wh-word. I demonstrate how the analysis applies to a relatively simple case: the LF/Focus-Intervention Effects found in Q-Adjunction languages like Japanese and Korean. This will lay the groundwork for the more advanced discussion, in Chapter 4, of Intervention Effects in wh-fronting languages.

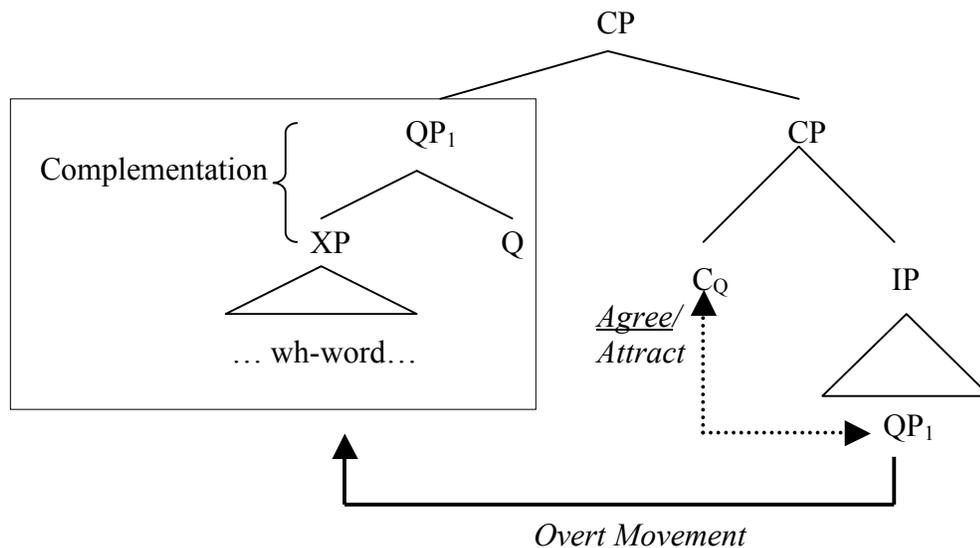
2. The Nature of Wh-*In-Situ* Languages

In this section, I present and defend the proposed theory of wh-*in-situ* languages. In Section 2.1, I introduce the typological distinction between Q-Adjunction and Q-Projection languages, identifying Japanese and Korean as instances of the former, and Sinhala as an instance of the latter. In Section 2.2, I demonstrate that this hypothesis correctly predicts certain features of the distribution of Sinhala *da*. In Section 2.3, I show that the hypothesis also correctly predicts various features of Japanese *ka* and Korean *ka*.

2.1 Two Kinds of Wh-*In-Situ* Languages: Q-Adjunction vs. Q-Projection

Throughout Chapter 2, we were presented with evidence that some languages (e.g. Tlingit) contain the structure introduced under (18), repeated below.

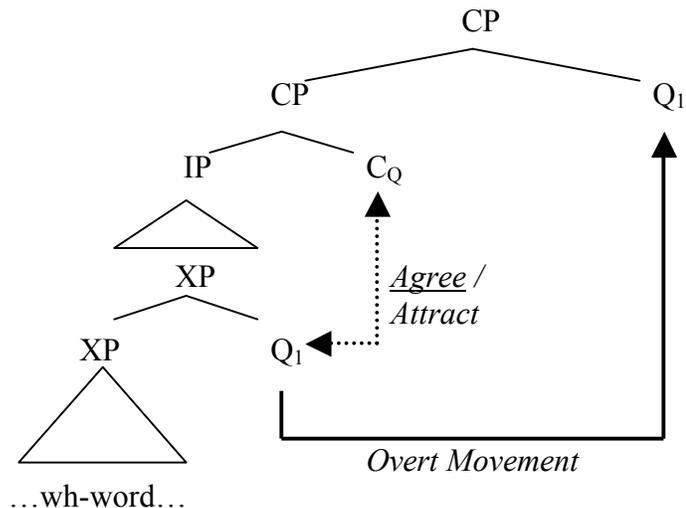
(18) Wh-Fronting as a Secondary Effect of Q-Movement



Within this structure, a Q-particle takes its sister as complement, with the result that a QP node immediately dominates the Q-particle and its sister. Consequently, attraction of the Q-feature to the projection of the interrogative C head entails that the entire QP projection is moved into the specifier of the matrix CP.

The reader may recall that this structure is nearly (but not quite) identical to the one introduced under (83), repeated below.

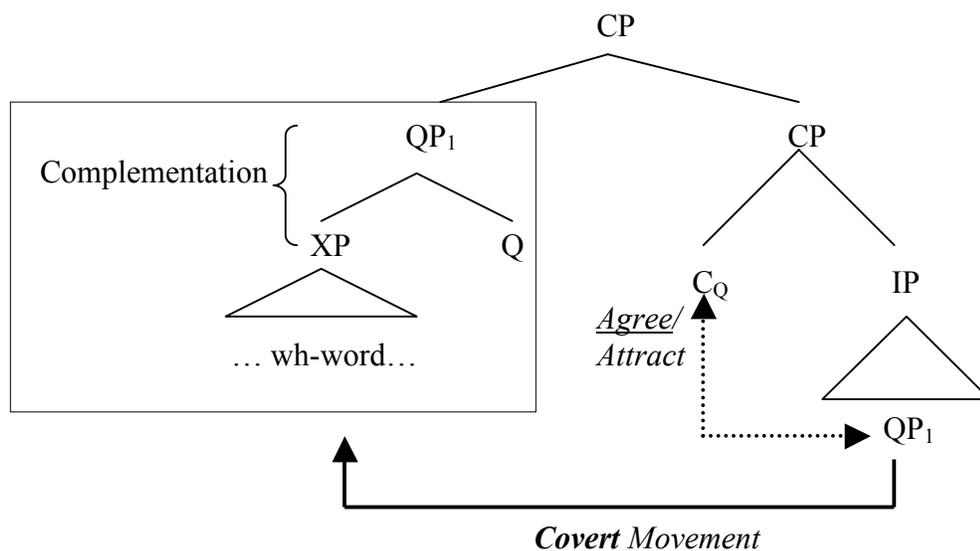
(83) Hagstrom (1998)'s Analysis of Japanese Wh-Questions



This structure, which was originally developed by Hagstrom (1998) as an analysis of Japanese wh-questions, differs from the structure under (18) in only one respect. In (83), the Q-particle does not take its sister as complement, but rather *adjoins* to its sister. Consequently, the node immediately dominating the Q-particle and its sister is not a QP node, but rather simply the node projected by the sister of Q. As a result, attraction of the Q-feature into the CP entails only that the Q-particle moves into the CP projection; the sister of the Q-particle is left *in-situ*. Given that the sister of the Q-particle contains the wh-word, such a language is predicted to be a *wh-in-situ* language. Thus, (83) might accurately represent the structure of certain *wh-in-situ* languages.

Note, however, that if we accept the existence of covert movement *and* the structure in (18), then there is another imaginable means for deriving a *wh-in-situ* structure. Consider the structure below.

(218) Covert QP-Movement as a Source of Wh-In-Situ



Like (83), the structure above differs from that in (18) in only one respect: in (218), the movement of the QP is *covert*. Since the QP in (218) is pronounced in its base position, it follows that the wh-word is also pronounced in its base position. Thus, (218) might also represent the structure of certain wh-*in-situ* languages.

If we assume that wh-*in-situ* languages are a homogeneous class, that the *in-situ* position of the wh-word receives a uniform account in all languages, then we must conclude that only *one* of (218) or (83) is the correct account of wh-*in-situ*. This, in turn, would force us to ask *which* of these two accounts is correct. In the remainder of this section, however, we will see that *both* these accounts are, in fact, correct. That is, wh-*in-situ* languages are *not* a homogeneous class; some languages contain the structure in (218), while others contain the structure in (83). More concretely, we will see that Sinhala is a language where (218) represents the structure of its wh-questions, a language type I will refer to as ‘Q-Projection languages.’¹ On the other hand, we will also see that Japanese and Korean are languages whose wh-questions have the analysis in (83), a type I refer to as ‘Q-Adjunction languages.’²

I begin in the next section by presenting evidence that Sinhala is a Q-Projection language.

2.2 The Distribution of Sinhala *Da*

In Section 4 of Chapter 2, we saw that the Sinhala particle *da* shares a variety of properties with the Tlingit particle *sá*. At the time, these grammatical similarities were taken only to show that the two particles shared the same syntactic category; we did not directly address *how* their uniform categorization as ‘Q-particles’ would predict the range of properties they were observed to share. In subsequent sections, however, we saw that a particular semantics would predict the properties observed in Sections 4.1 and 4.2, while a shared role in the syntax of wh-questions would account for the properties noted in Section 4.3.

What, though, of the properties observed in Section 4.4? To recall, neither Sinhala *da* nor Tlingit *sá* can appear at the right edge of a matrix clause, while both particles can appear at the right edge of subordinate clauses. The relevant data for Sinhala *da* are repeated below.

¹ The term ‘Q-Projection language’ will also be used to refer to *all* languages where the Q-particle takes its sister as complement, including wh-fronting languages like Tlingit.

² Given that we will argue that Sinhala wh-questions have the structure in (218), we will be rejecting the view that they receive the analysis under (82), originally put forth by Hagstrom (1998) and Kishimoto (2005). In this context, it should be noted that the evidence put forth by Hagstrom and Kishimoto in support of (82) would not serve to distinguish it from (218). Both authors principally show that the (projection) of the Q-particle – and not that of the wh-word – is attracted to C in Sinhala wh-questions. Their arguments do not bear on whether the Q-particle *alone* moves covertly, or whether the sister of Q is also dragged along with it.

Furthermore, since we are giving up (82) as the analysis of Sinhala wh-questions, one might wonder whether it can be established for any other wh-*in-situ* languages. That is, given that we accept the existence of both (218) and (83), our theory also predicts the existence of (82), that (82) should also represent the structure of wh-questions in some wh-*in-situ* languages. At present, I do not currently know of any language for which the analysis in (82) is necessitated. It is clear, however, what such a language would look like. As the reader will see from the subsequent discussion, such a language would be predicted to have wh-questions where (i) the Q-particle is *not* at the edge of the matrix clause (like Sinhala), but (ii) where the Q-particle *can* occur between functional heads and their complements (like Japanese/Korean). Again, it is currently unknown to me whether such a language exists.

(219) **Sinhala *Da* Cannot Appear at the Right Edge of a Matrix Clause (Kishimoto 2005)**

a. Chitra **monawa da** gatte?
Chitra what Q buy
What did Chitra buy?

b. * Chitra **monawa gatta da**?
Chitra what buy Q (Kishimoto 2005; p. 3, 4)

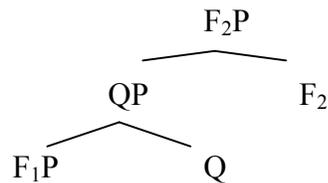
(220) **Sinhala *Da* Can Appear at the Right Edge of a Subordinate Clause**

Ranjit [**kauru aawa kiyala**] **da** danne?
Ranjit who came that Q know
Who does Ranjit know came? (Kishimoto 2005; p. 13)

Given that this shared pattern was taken as evidence for a shared syntactic categorization, it follows that it must receive a uniform account in both Tlingit and Sinhala.

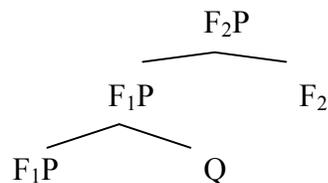
Note, however, that the explanation that was offered for this pattern in Tlingit crucially relies upon the assumption that Tlingit is a Q-Projection language. To recall, it was shown in Section 6.3 of Chapter 2 that the QP-Intervention Condition, *given the fact that Tlingit is a Q-Projection language*, derives the pattern above for Tlingit. Briefly, *sá* cannot be initially merged at the right edge of a matrix CP, because such a position would necessarily entail the existence of a QP intervening between a functional head and its complement, as illustrated below.

(221) **Tlingit *Sá* Taking as Complement Projections in the Matrix ‘Functional Spine’**



In this context, let us observe that if Tlingit were a *Q-Adjunction* language, nothing would rule out the appearance of *sá* matrix-finally. After all, as the structure below illustrates, if Tlingit *sá* did not project a QP, then a matrix-final position would not entail a violation of the QP-Intervention Condition, nor indeed of any other known principles.³

(222) **Q-Particles in Q-Adjunction Languages Can Be in the Matrix ‘Functional Spine’**



³ This fact will play a large role in our discussion in the following section.

Therefore, under our account, the inability for Tlingit *sá* to appear at the right edge of a matrix clause ultimately follows from the fact that it takes its sister as complement and projects a QP. Consequently, if we are to pursue a uniform account of the properties shared between Tlingit *sá* and Sinhala *da*, the parallel behavior of Sinhala *da* in (219) forces us to conclude that *da*, like *sá*, takes its sister as complement and projects a QP. Thus, Sinhala must be analyzed as a Q-Projection language, and not as a Q-Adjunction language as was earlier suggested under (82). Finally, let us note that our hypotheses concerning the semantics of *wh*-questions and *wh*-indefinites entail that Q-particles in *wh*-questions must move into the projection of the interrogative C by LF.⁴ Given that the surface form of a Sinhala *wh*-question places the Q-particle and the *wh*-word in their base positions, our semantic system therefore entails that the QP of a Sinhala *wh*-question must move *covertly* into the projection of the interrogative C. We must ultimately conclude, then, that *wh*-questions in Sinhala have the structure under (218). Under this view, the *wh*-questions of Sinhala differ from those in Tlingit only in that Sinhala QPs move covertly, and they are otherwise identical to Tlingit *wh*-questions at LF.

There is, moreover, further independent evidence supporting this analysis of Sinhala *wh*-questions. Let us first observe that Sinhala *da* appears to be subject to the additional constraints observed to hold of Tlingit *sá* in Section 6.1 of Chapter 2. That is, like Tlingit *sá*, the particle *da* in Sinhala *wh*-questions cannot appear (i) between a post-position and its DP complement, (ii) between a possessor and its possessed NP, or (iii) between a determiner and its NP complement. This is stated in the following passage, taken from Kishimoto (2005).

(223) **Further Conditions Governing the Distribution of Sinhala *Da***

It is not possible to place *da* immediately after a *wh*-word embedded inside a PP or DP, since DPs and PPs constitute islands in Sinhala... (Kishimoto 2005; p. 13).

Although Kishimoto (2005) does not illustrate the pattern described above with (negative) data, it is evident from context that the following data pattern is intended.

(224) **No Q Between a Post-Position and Its Complement in Sinhala *Wh*-Question**

- a. Chitra [**kauru** ekka] **da** kataa kalee?
 Chitra who with Q talk did
Who did Chitra talk with? (Kishimoto 2005; p. 13)
- b. * Chitra [**kauru da** ekka] kataa kalee?
 Chitra who Q with talk did

⁴ Otherwise, existential closure at the level of the IP (181) will bind the choice-function variable contributed by the Q-particle, preventing it from being bound by the interrogative force head, and a semantic crash due to vacuous quantification will result. This point will receive greater attention in Chapter 4.

(225) **No Q Between a Possessor and the Possessed NP in a Sinhala Wh-Question**

- a. Chitra [**kaa-ge** amma] **da** daekke?
Chitra who-gen mother Q saw
Whose mother did Chitra see? (Kishimoto 2005; p. 13)
- b. * Chitra [**kaa-ge da** amma] daekke?
Chitra who-gen Q mother saw

(226) **No Q Between a D and its NP Complement in a Sinhala Wh-Question**

- a. Chitra [**mona** pota] **da** gatte?
Chitra what book Q bought
What book did Chitra buy? (Kishimoto 2005; p. 13)
- b. * Chitra [**mona da** pota] gatte?
Chitra what Q book bought

Of course, as we saw earlier in Chapter 2, the Tlingit particle *sá* is also subject to these conditions. In order to have a unified theory of this pattern, then, we must apply our analysis of it in Tlingit to its realization in Sinhala.⁵ Note, however, that again our analysis of the pattern in Tlingit ultimately rests upon the assumption that Tlingit is a Q-Projection language. The reader will recall that our proposed account of the contrasts seen above for Tlingit was that the ill-formed (b)-sentences necessarily contain a violation of the QP-Intervention Condition, while the well-formed (a)-sentences do not. However, as we will soon see in greater detail, such an account ultimately rests on the assumption that the Q-particle in Tlingit takes its sister as complement; if Tlingit were instead a Q-Adjunction language, then our theory would incorrectly predict that its Q-particles would *not* be subject to the pattern seen above. Given that this pattern is also found in Sinhala, we must likewise conclude that Sinhala is *not* a Q-Adjunction language, but is rather a Q-Projection language. I therefore conclude that the data in (224) – (226) provide independent evidence that Sinhala is a Q-Projection language, as in (218), and not a Q-Adjunction language, as in (82).

In summary, we have seen that the Sinhala Q-particle *da* shares a number of properties with the Tlingit particle *sá*. For certain of these properties, our account of them for Tlingit *sá*

⁵ However, it's not entirely obvious that a uniform account of these facts would be accurate. As alluded to in the quote above, Kishimoto (2005) adopts a movement-based account of the pattern in (224) – (226), given the Q-Adjunction analysis in (82). Recall that such a movement-based account was rejected for Tlingit largely because this pattern was also observed to hold with Tlingit wh-indefinites. Interestingly, Kishimoto (p.c.) reports that the pattern witnessed above for Sinhala wh-questions is *not* observed for Sinhala wh-indefinites. That is, when appearing with Sinhala wh-indefinites, the particle *da* behaves just as we will soon see the Japanese and Korean particle *ka* does, and can come between functional heads and the phrases those heads select for. Such facts indeed lend credence to a movement-based account of the pattern in (224) – (226), and constitute a strong challenge to the analysis proposed here.

On the other hand, it should also be noted that Kishimoto (2005) does not provide any independent evidence for the islandhood of PP and DP in Sinhala. Given our discussion in Section 6.2.3 of Chapter 2, one should confirm that sub-extraction from CompPP and SpecDP is indeed impossible in Sinhala before deciding in favor of the movement-based account.

rests on the assumption that Tlingit is a Q-Projection language. Therefore, to adopt a uniform account of these facts in both Tlingit and Sinhala, we must similarly assume that Sinhala is a Q-Projection language. Thus, we must conclude that Sinhala wh-questions have the analysis outlined in (218), and so there is at least one language witnessing that structure.

2.3 The Distribution of Japanese *Ka* and Korean *Ka*

In the previous section, we saw that further parallels between Tlingit *sá* and Sinhala *da* force the view that Sinhala is a Q-Projection language. In this section, we will see that the converse holds for the languages Japanese and Korean. That is, we will see that certain *differences* between the behavior of Q-particles in Tlingit/Sinhala and Japanese/Korean force the view that Japanese and Korean are Q-*Adjunction* languages.

We begin in the following subsection by outlining how such a view accounts for the behavior of *ka* in Japanese and Korean wh-questions. In Section 2.3.2, we turn to wh-indefinites in these two languages, and show that they independently reveal Japanese and Korean to be of the Q-Adjunction type.

2.3.1 Behavior in Wh-Questions

As was briefly noted in Chapter 2, the particle *ka* in Japanese differs from Tlingit *sá* and Sinhala *da* in that it can (and indeed must) appear at the right edge of a matrix wh-question.

(227) Japanese *Ka* Can Appear at the Right Edge of a Matrix Clause

John-ga nani-o kaimasita ka ?
 John-nom what-acc bought.polite Q
What did John buy?

This property is shared with the homophonous Q-particle in Korean, as illustrated below.

(228) Korean *Ka* Can Appear at the Right Edge of a Matrix Clause

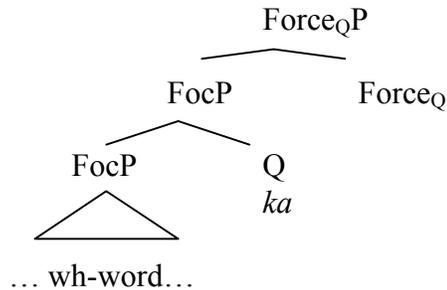
Eti-ey sensayng-nim-i ka-si-pni-kka?
 where-to teacher-HON-NOM go-HON-FORM-Q
Where did the teacher go?

We observed in the previous section that the *inability* for Tlingit *sá* and Sinhala *da* to appear in a matrix-final position ultimately follows from the fact that these are Q-Projection languages. Similarly, we will see in more detail here that the ability for Japanese/Korean *ka* to appear matrix-finally would follow from those languages being Q-*Adjunction* languages.

Assuming that Japanese and Korean are Q-Adjunction languages, as in (83), there are actually *two* possible derivations producing a matrix final Q-particle. First, let us again observe that our theory predicts that Q-particles in Q-Adjunction languages may be initially merged as sisters to VP and the higher functional projections along the ‘spine’ of the matrix clause. That is, since Q-particles in these languages do not project a QP when they merge with their sisters, it

follows that the QP-Intervention Condition would not be violated if a Q-particle were to take as its (base) sister the phrase immediately below the interrogative Force_Q head.

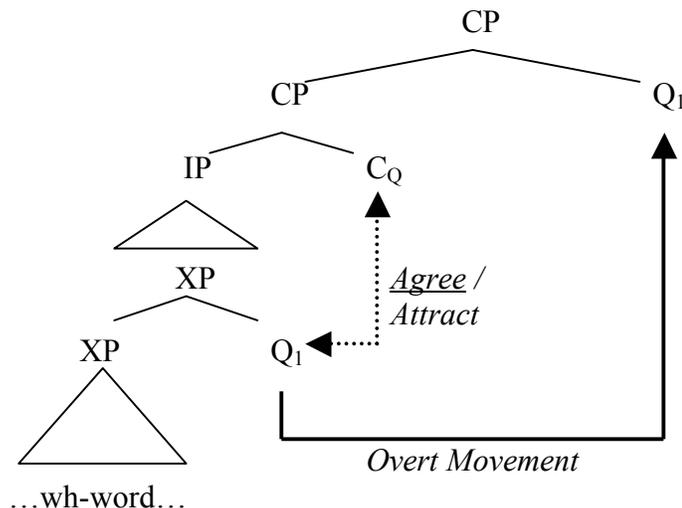
(229) **Q-Particles in Q-Adjunction Languages Can Be Initially Merged in the Periphery**



As we see above, because the Q-particle in these languages adjoins to its sister, initial-merger of Q in the periphery of the clause would not violate the QP-Intervention Condition. Moreover, if we assume that Q is merged directly below the interrogative Force_Q head, then (as we will see in Section 3), our semantics will correctly interpret the resulting structure as a wh-question. We see, then, that our theory predicts that Q can be initially merged at a matrix-final position in the wh-questions of a Q-Adjunction language.

Of course, our theory doesn't predict that Q *must* be merged matrix-finally in such languages. What, then, does our theory predict for those structures where Q is merged at some lower position internal to the IP? Recall that the structure in (83), repeated below, already demonstrates the prediction of our theory for these cases.

(83) **Matrix-Final Position of Q in the Wh-Questions of a Q-Adjunction Language**



As we see above, our theory predicts that if ever the Q-particle is merged at a lower, clause-internal position within the IP of a wh-question, then that Q-particle subsequently undergoes movement to the periphery of the clause. In a Q-Adjunction language, of course, such movement targets the Q-particle alone, leaving its sister containing the wh-word below in its

base position. Thus, we see that the matrix-final position of Q in a Q-Adjunction language can also be derived via movement of the Q-particle from its base position. Furthermore, given the obligatory attraction of Q in wh-questions, the assumption that Korean and Japanese are Q-Adjunction languages as in (83) entails that the Q-particles of their wh-questions *must always* appear matrix-final position. No matter what the base position of Q is, no matter whether the question is matrix or embedded, the analysis in (83) entails that a wh-question *must* end in a Q-particle.⁶

We find, then, that the hypothesis that Korean and Japanese are Q-Adjunction languages correctly predicts that Q-particles can (and, indeed, *must*) be matrix-final in the wh-questions of those languages.⁷ Moreover, we saw in the prior section that, conversely, the hypothesis that these languages are of the *Q-Projection* type would incorrectly predict that a matrix-final position of their Q-particles should be impossible. We must conclude, then, that the behavior of Q in Japanese and Korean wh-questions entails that these languages are Q-Adjunction languages, as outlined in (83).⁸

In the following section, we will see that the wh-indefinites of these languages provide further, independent evidence for this analysis.

2.3.2 Behavior in Wh-Indefinites

In this section, we will see that the analysis in (83) correctly predicts that Q-particles in the wh-indefinites of Japanese and Korean will – unlike those found in Tlingit and Sinhala – *not* be subject to the additional constraints introduced in Section 6.1 of Chapter 2.

To begin, let us note that the analysis in (83) predicts that Japanese and Korean wh-indefinites should permit the Q-particle to come between an adposition and its DP complement. Consider the structure below.

⁶ Given that our theory allows for the surface position of Q in a Japanese/Korean wh-question to be either the result of movement or of base generation, one may rightly wonder whether there are any grammatical tests that could distinguish between these two derivations. That is, our theory would receive further support if there were some independently observable properties that were correctly predicted to correlate with whether a Q were moved or base-generated in its surface position. Perhaps unfortunately, our system will not (to my knowledge) predict any observable differences between movement or base-generation of Q; both structures will be predicted to have the same semantic and syntactic properties.

⁷ Note that it also predicts the possibility of matrix-final Q in wh-indefinites, in as much as nothing rules out the base-generation of a Q-particle as sister to the matrix VP in a wh-indefinite.

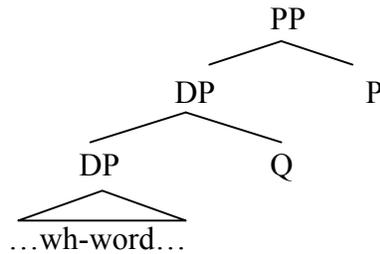
(i) John-ga [VP [VP nani-o katta] ka]
 John-nom what-acc bought Q
 * *John bought something.*

This is, however, a false prediction; these structures are not possible as wh-indefinites. Indeed, there is a strong tendency to keep the Q-particle in a Japanese/Korean wh-indefinite as close to the wh-word as possible. I currently have no principled account of this feature of Japanese/Korean wh-indefinites.

⁸ On the other hand, it should be acknowledged that the literature contains a number of arguments that the wh-word in Japanese and Korean wh-questions is covertly moved into the left-periphery. Such arguments, of course, challenge our analysis that these two languages are Q-Adjunction languages, and would suggest instead that they are Q-Projection languages.

Hagstrom (1998), which is the original source of our Q-Adjunction analysis of Japanese/Korean in (83), includes a substantial discussion of the arguments supporting covert phrasal movement of wh-words in Japanese/Korean, and how they might be answered by our Q-Adjunction analysis in (83). I therefore refer the reader to Hagstrom (1998) for a thorough discussion of these important issues.

(230) Structures Where Q Appears Between P and its Complement in Japanese/Korean



As illustrated above, in a Q-Adjunction language, the Q-particle is adjoined to its sister, and so does not project the category of the phrase minimally dominating it and its sister. Therefore, in such languages, an adposition may directly take as its complement the DP it selects for, even when a Q-particle comes between them. Since no projection of Q intervenes between the P and the DP in structures like (230), the QP-Intervention Condition is respected, and they are predicted to be well-formed. This prediction is accurate, as the sentences below demonstrate.

(231) Japanese Q Can Appear Between a Post-Position and Its Complement

- a. Taroo-wa doko-**ka**-e itta.
Taro-TOP where-**Q**-to went
Taro went somewhere.
- b. Taroo-ga [dono tosi]-**ka**-e ryoko sita-rasii.
Taro-NOM which city-**Q**-to travel did-seems
Taro seems to have traveled to some city.

(232) Korean Q Can Appear Between a Post-Position and Its Complement ⁹

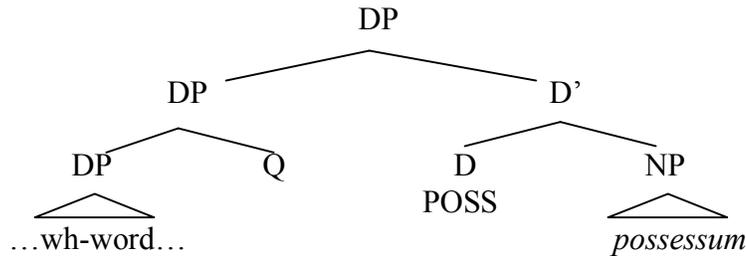
- Ku-nun eti-eyn-**ka**-ey ka-ess-ta.
he-TOP where-link-**Q**-to go-past-DEC.
He went somewhere.

The Japanese and Korean sentences above contain wh-indefinites associated with the Q-particle *ka*. As the particle *ka* is not sentence-final when appearing with the wh-indefinites of these languages, we can test the accuracy of the aforementioned prediction, and we find that it is accurate. In each sentence the Q-particle *ka* appears in between the post-position *e/ey* ‘to’ and the DP it selects for.

We have just seen that our theory correctly predicts that Q may come between P and its DP complement in the wh-indefinites of Japanese and Korean. Of course, our theory also predicts that Q-particles in these languages should be permissible in between possessors and possessed NPs, as it would allow the existence of structures like that in (233).

⁹ The reader may note that the Q-particle in (232) is separated from the wh-word by a ‘linking’ morpheme *eyn*. This ‘linking component’ is obligatory in Korean wh-indefinites; unlike Japanese *ka*, Korean *ka* cannot directly combine with wh-indefinites. As the reader will observe below, there are other linking morphemes besides *eyn*, and the choice of morpheme depends upon the syntactic position of the wh-indefinite.

(233) Structures Where Q Appears Between Possessor and Possessed in Japanese/Korean



In the structure above, the Q-particle is adjoined to its DP sister, and so no projection of Q intervenes between the possessive D head and the possessor DP which it selects for. Our QP-Intervention Condition therefore permits the structure in (233), and we predict that Q-particles in Japanese/Korean should be able to come between possessors and possessa. As the following sentences demonstrate, this is again an accurate prediction.

(234) Japanese Q Can Appear Between a Possessor and Possessed NP

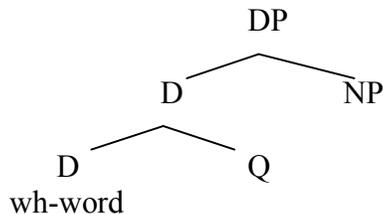
Taroo-wa [dare-ka-no oniisan]-ni atta.
Taro-TOP who-Q-GEN brother-DAT met
Taro met someone's older brother.

(235) Korean Q Can Appear Between a Possessor and Possessed NP

Ku-ka [nwukwu-in-ka-uy tongsayng]-ul manna-ess-ta.
he-TOP who-link-Q-GEN brother-ACC meet-past-DEC
He met someone's brother.

Finally, let us note that our theory predicts that Q-particles in Q-Adjunction languages should be able to intervene between wh-determiners and their NP complements. After all, nothing stated thus far would rule out structures like the following.

(236) Q Appearing Between D and its NP Complement in a Q-Adjunction Language



This prediction, however, is incorrect for Japanese and Korean. Even in Japanese and Korean, a Q-particle cannot intervene between a D and its NP complement, as the following sentences illustrate.

(237) **Japanese Q Cannot Appear Between D and its NP Complement**

- a. Taroo-ga [dono hito]-ka-o hoomon sita-rasii.
Taro-NOM which man-Q-ACC visit did-seem
Taro seems to have visited some man.
- b. * Taroo-ga [dono-ka hito]-o hoomon sita-rasii.
Taro-NOM which-Q man-ACC visit did-seem

(238) **Korean Q Cannot Appear Between D and its NP Complement**

- a. Ku-ka [enu salam]-in-ka-lul manna-ess-ta.
he-NOM which man-link-Q-ACC meet-PAST-DEC
He met some man.
- b. * Ku-ka [enu-in/eyn-ka salam]-ul manna-ess-ta.
he-NOM which-link-Q man-ACC meet-PAST-DEC

Of course, our proposed analysis is not necessarily inconsistent with the facts in (237) and (238), as the impossibility of the deviant structures above may result from independent factors. To build towards one possible explanation, note that the structure in (236) differs from those in (230) and (233) in that the Q-particle in (236) is adjoined to the head of a phrase.¹⁰ Thus, the D-head in (236) is initially merged with Q, rather than with the NP constituting its internal argument. Let us suppose, however, that selection for the internal argument of a head H must be satisfied no later than at the point where H first externally merges with something.¹¹ Under this assumption, the ill-formedness of (236) would follow. Since initial merger of D in (236) joins it with Q, and Q does not contain the phrase selected as internal argument by D, a selectional violation ensues, and the structure is ill-formed. Therefore, we find that factors independent of the QP-Intervention Condition may be responsible for the ill-formedness of (236) in even the Q-Adjunction languages.

We have seen that the analysis in (83) accurately predicts that the Q-particles in Japanese and Korean wh-indefinites can appear in positions not available to the Q-particles in Tlingit and Sinhala. More acutely, the fact that Q-particles in Japanese and Korean can generally appear between functional heads and their complements entails that these two languages cannot be Q-Projection languages, and instead must be Q-Adjunction languages. This data, of course, converges with that gained from the wh-questions of Korean and Japanese, demonstrating that a range of potentially independent facts can be all be derived from the hypothesis that these two languages are of the Q-Adjunction type.

¹⁰Another possibility, mentioned by native speakers of both languages, is that Q-particles in Japanese/Korean can only cliticize onto nominal categories, and the words I identify above as D-heads (*dono/enu*) are actually *adjectives*. Note, however, that this restriction on the cliticization of Q wouldn't follow from anything within our analysis.

¹¹After all, within a Bare Phrase Structure system, some principles must entail that the phrase initially merging with a head H must be the internal argument of H, rather than its external argument. Presumably, these principles could also entail that the *only* thing that may undergo initial merger with a head is its internal argument.

2.4 Summary

The data presented in Section 2.3 effectively show that the wh-questions of Korean and Japanese receive the analysis in (83). Furthermore, the facts discussed in Section 2.2 provide evidence that wh-questions in Sinhala receive the analysis in (218). Therefore, both (83) and (218) represent structures found in the languages of the world, rendering the so-called ‘wh-*in-situ* languages’ a heterogeneous class. In some wh-*in-situ* languages, the in-situ position of the wh-word is a result of the ‘detachability’ of the Q-particle paired with the wh-word (as in (83)), while in others it is a result of the covert movement of the QP containing the wh-word (as in (218)). As we have seen here, however, we may determine which type of structure a given wh-*in-situ* language has via the distribution of its Q-particles, particularly by determining whether its Q-particles can generally appear between functional heads and the phrases they select for.

Finally, given that this theory of the wh-*in-situ* languages rests squarely upon the analysis in (18) and the QP-Intervention Condition, I conclude that its empirical successes provide further, indirect evidence for those proposals.

3. The Semantics of Wh-Indefinites and Wh-Questions in Wh-*In-Situ* Languages

In this section, we move from the syntax of wh-*in-situ* languages to their semantics. We will quickly confirm that the semantic hypotheses presented in Chapter 2 are sufficient to assign the correct interpretations to the wh-indefinites and wh-questions of the Q-Adjunction languages. Such confirmation will also provide a concrete illustration of how the semantic theory of Chapter 2 is to be applied to the structures of these languages.

Finally, the result that our semantics can apply to *both* Q-Adjunction and Q-Projection languages is taken to support its cross-linguistic universality.

3.1 The Semantics of Wh-Indefinites in Wh-*In-Situ* Languages

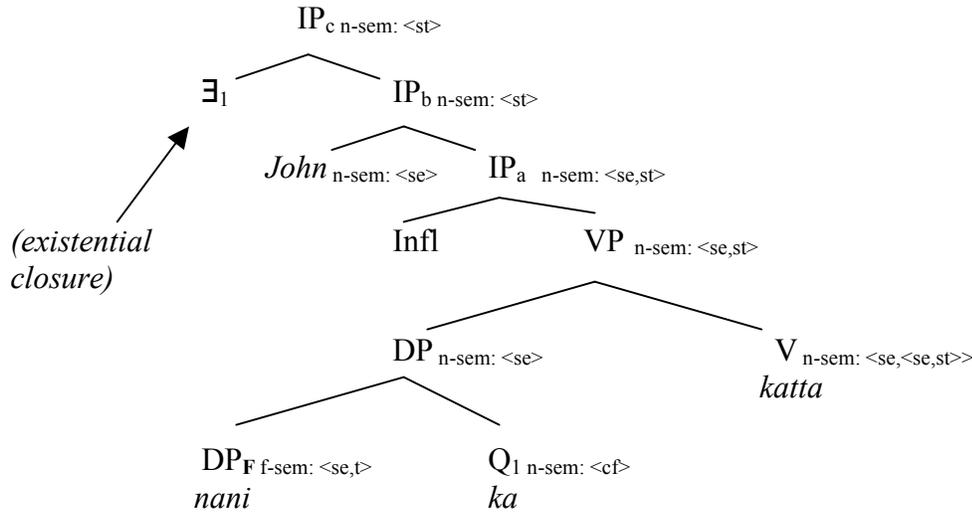
Let us begin by briefly considering the wh-indefinites of those wh-*in-situ* languages that, like Sinhala, possess the structure in (218). Recall that such languages differ from Tlingit only in that their QPs move covertly in wh-questions. Thus, the wh-indefinites of such languages will not differ in their structure from the wh-indefinites of Tlingit. Given the adequacy of our semantics for Tlingit, we may therefore conclude that this semantics will also assign the correct interpretation to the wh-indefinites of these wh-*in-situ* languages.

Let us now, however, turn to the wh-indefinites of the Q-Adjunction languages, such as Japanese and Korean. Recall that in such languages, the Q-particle is adjoined to its sister in a wh-indefinite. Note, however, that since no movement of the Q-particle occurs in a wh-indefinite, such structures are otherwise identical to the wh-indefinites of the Q-Projection languages. Finally, given that the semantic principles of Chapter 2 make no reference to whether the Q-particle is adjoined to its sister or not, it follows that this semantics will also correctly interpret the wh-indefinites of the Q-Adjunction languages.

To illustrate this result, the Q-Adjunction structure below is interpreted according the semantic system in Chapter 2. The reader is invited to confirm that our semantic system can also interpret any of the other examples of wh-indefinites in Q-Adjunction languages found throughout this thesis.

(239) **Semantics of a Wh-Indefinite in a Q-Adjunction Language (cf. (186))**¹²

Japanese: John-ga nani-ka-o katta.
 John-NOM what-Q-ACC bought
John bought something.



(existential closure)

$$[[\text{IP}_c]]^g = \lambda w. \exists f. \text{John bought } [f (\{ x_{\langle se \rangle} : x \notin \text{human} \})] \text{ in } w$$

3.2 The Semantics of Wh-Questions in Wh-*In-Situ* Languages

Having shown that our semantic system is sufficient to interpret the wh-indefinites of both types of wh-*in-situ* languages, we now turn our attention to the interpretation of wh-questions.

Let us begin again with those wh-*in-situ* languages possessing the structure in (218). Recall, again, that such languages differ from Tlingit only in that their QPs move covertly in wh-questions. Thus, at LF – the structural input to semantic interpretation – the wh-questions of these languages will not differ in their structure from the wh-questions of Tlingit. Given the adequacy of our semantics for Tlingit wh-questions, we may therefore conclude that this semantics will also assign the correct interpretation to the wh-questions of these wh-*in-situ* languages. Our semantics is thereby adequate for the wh-questions of Sinhala and the other languages of this type.

Consider now, however, the wh-questions of the Q-Adjunction languages. Recall, from Section 2.3.1, that in the wh-questions of such languages the Q-particle obligatorily appears at the periphery of the clause, just beneath the interrogative Force_Q head. Recall, also, that the Q-particle obtains this peripheral position either via movement or via base-generation. To simplify our semantics, we will assume throughout this thesis the following additional syntactic assumption.

¹² Note that the structure in (239) is agnostic as to the structural position (and nature) of the case markers in Japanese, which can be assumed to be semantically vacuous.

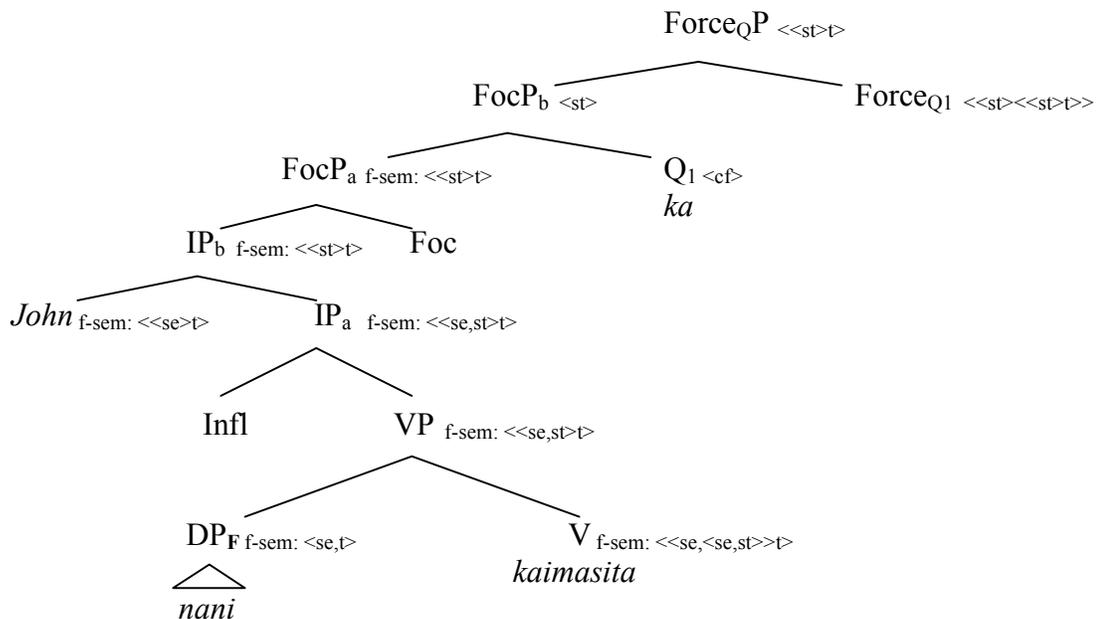
(240) **The Absence of Q-Traces at LF**^{13,14}

If a Q-particle alone undergoes movement (rather than a QP), then its traces are deleted by LF.

According to this principle, there are no movement-traces of Q at LF, all such traces having been deleted at earlier derivational levels. Assuming this principle, then, there is no syntactic difference at LF between those wh-questions where the Q obtains its peripheral position via movement and those where it is base-generated at that position. All such wh-questions have at LF a structure akin to that indicated below, which we will assume is representative of all wh-questions in Q-Adjunction languages.

(241) **The LF Structure of Wh-Questions in Q-Adjunction Languages**

Japanese: John-ga nani-o kaimasita ka?
 John-NOM what-ACC bought Q
What did John buy?



¹³ Note that this additional syntactic assumption only simplifies our semantics at the cost of rendering our syntactic theory more complicated.

¹⁴ The stipulation in (240) is not absolutely required for our system to correctly interpret wh-questions with pure Q-movement. See Cable (to appear) for a theory where (240) is replaced with a special rule for interpreting moved Q-particles. Note, however, that one of these two additions must be made to our theory. Briefly, the only rule we currently have for interpreting Q-particles is that in (182), which states that they take the focus-semantic value of their sister as argument. Assuming the traces of Q to be interpreted at LF, this rule will not be sufficient to interpret structures where the Q-particle alone undergoes movement. Thus, either a further semantic rule must be added to our system, or we must add a syntactic principle that eliminates the traces of moved Qs by the time the structure is interpreted.

Let us now determine whether our semantic system assigns the correct interpretation to the structure in (241). Given its English translation, we wish to derive as the meaning of this structure the following set of propositions: those propositions of the form ‘John bought x’ where x is some non-human. This set, which intuitively constitutes the set of possible answers to question (241), may be represented via the lambda notation in (242).

(242) The Targeted Interpretation of Structure (241)

$$\lambda p [\exists x_{<se>} \notin \text{human. } p = [\lambda w. \text{John}(w) \text{ bought } x(w) \text{ in } w]]$$

Assuming that structure (241) is representative, the following derivation demonstrates how our semantic system interprets the wh-questions of a Q-Adjunction language.

(243) Semantic Interpretation of Structure (241)

$$\begin{aligned} [[\text{Force}_{QP}]]^g &= \text{(by Identity)} \\ [[\text{FocP}_b \text{Force}_{Q1}]]^g &= \text{(by (204))} \\ \lambda p [\exists f . p = [[\text{FocP}_b]]^{g(1/f)}] &= \text{(by Identity)} \\ \lambda p [\exists f . p = [[\text{FocP}_a \text{Q}_1]]^{g(1/f)}] &= \text{(by (182))} \\ \lambda p [\exists f . p = [[[\text{Q}_1]]^{g(1/f)} ([[\text{FocP}_a]]^{F g(1/f)})]] &= \text{(by (179))} \\ \lambda p [\exists f . p = [f ([[\text{FocP}_a]]^{F g(1/f)})]] &= \text{(by Identity)} \\ \lambda p [\exists f . p = [f ([[[\text{John} [\text{nani}_F \text{kaimasita}]]]^{F g(1/f)})]]] &= \text{(by (173))} \\ \lambda p [\exists f . p = [f ([[\text{nani}_F \text{kaimasita}]]^{F g(1/f)} ([[\text{John}]]^{F g(1/f)}))]] &= \text{(by (173))} \\ \lambda p [\exists f . p = [f (([[\text{kaimasita}]]^{F g(1/f)} ([[\text{nani}_F]]^{F g(1/f)})) ([[\text{John}]]^{F g(1/f)}))]] &= \text{(by (172a))} \\ \lambda p [\exists f . p = [f ((\{ \lambda x_{<se>} . \lambda y_{<se>} . \lambda w . y(w) \text{ bought } x(w) \text{ in } w \} ([[\text{nani}_F]]^{F g(1/f)})) (\{ \text{John} \}))]] &= \text{(by (177))} \\ \lambda p [\exists f . p = [f ((\{ \lambda x_{<se>} . \lambda y_{<se>} . \lambda w . y(w) \text{ bought } x(w) \text{ in } w \} (\{ x_{<se>} : x \notin \text{human} \})) (\{ \text{John} \}))]] &= \text{(by (173))} \\ \lambda p [\exists f . p = [f (\{ q_{<st>} : \exists x_{<se>} \notin \text{human. } q = [\lambda w . \text{John}(w) \text{ bought } x(w) \text{ in } w] \})]] &= \text{(Identity)} \\ \lambda p [\exists f . p = [f (\{ [\lambda w . \text{John}(w) \text{ bought Fido}(w) \text{ in } w], [\lambda w . \text{John}(w) \text{ bought MIT}(w) \text{ in } w], \\ [\lambda w . \text{John}(w) \text{ bought CharlesRiver}(w) \text{ in } w], \dots \})]] \end{aligned}$$

We find, then, that our semantic system assigns the following set of propositions as the interpretation of the wh-question in (241): those propositions p such that p is the value that some choice function f yields when applied to the set of propositions of the form ‘John bought x ’ where x is non-human. As a final step in proving the adequacy of our semantics, let us determine whether this latter set is equivalent to that represented in (242). Indeed, such a determination is rather trivial. After all, given that choice functions simply yield members of their arguments, the set computed in (243) is clearly just the set of propositions p such that p is ‘John bought x ’ where x is non-human. This latter set is, of course, the one in (242).¹⁵

We have thus demonstrated that our semantics assigns the correct interpretation to the wh-question structure in (241). Again, assuming this structure to be representative of *all* wh-question structures in *all* Q-Adjunction languages, we have thereby shown that our semantics is sufficient to correctly interpret the wh-questions of Japanese and all other Q-Adjunction languages. Therefore, we have shown that the semantic proposals of Chapter 2 are sufficient for the wh-questions of both the Q-Adjunction and Q-Projection types of *wh-in-situ* languages.

3.3 Summary

The results obtained in Section 3.1 show that our semantics can interpret the wh-indefinite structures of both Q-Adjunction and Q-Projection languages. Moreover, Section 3.2 has shown that this semantics is sufficient to interpret the wh-question structures of both these language types. We may rightly conclude, then, that the semantics from Chapter 2 is sufficient to handle both wh-questions and wh-indefinites in *all wh-in-situ* languages. Combined with the earlier semantic results from Chapter 2, we may conclude that this semantics is sufficient for the wh-indefinites and wh-questions of all the language types predicted by our theory.

Let us finally note in passing that the cross-linguistic applicability of this semantics is a potential advantage of our overall theory of wh-questions and wh-indefinites.

4. The Theory of LF/Focus-Intervention Effects

In Chapter 4, we will discuss at length the potential consequences that our syntactic and semantic theory has for the analysis of LF/Focus-Intervention Effects in wh-fronting languages. In this section, we will lay the groundwork for this later discussion by introducing the theory of LF/Focus-Intervention Effects that we will assume here. Our introductory discussion will center on the relatively simple case of LF/Focus-Intervention effects in Q-Adjunction languages, such as Korean.

Let us begin by reviewing the basic facts regarding LF/Focus-Intervention Effects. In many languages, it is not possible for an *in-situ* wh-word to be in the scope of any of a set of ‘offending operators’. Thus, the Korean sentence in (244) is ill-formed, as the wh-word *nuku-lul* ‘who-ACC’ is in the scope of the offending operator *-man* ‘only’.

¹⁵ Also note that the equivalence between (242) and (243) follows from the general equivalence proved in (189).

(244) **Intervention Effect in Korean**

* [Minsu-man nuku-lul po-ss]-ni?
Minsu-only who-acc see-past-Q
Who did only Minsu see?

However, such ill-formed structures may easily be repaired by movement of the wh-word to a position higher than the offending operator. Thus, sentence (245) is well-formed, as *nuku-lul* is no longer c-commanded at the surface by the operator *-man*.

(245) **Obviation of Intervention Effect via Movement of the Wh-Word**

[**Nuku-lul** Minsu-man po-ss]-ni?
who-acc Minsu-only see-past-Q
Who did only Minsu see?

One way of describing the contrast between (244) and (245) is that the none of the ‘offending operators’ can come between – or *intervene* – between the Q-particle and the wh-word. If such intervention occurs, the resulting sentence is ill-formed, a state of affairs referred to as an ‘(LF- or Focus-) Intervention Effect’.

Throughout this thesis, we will assume the analysis of these effects first put forth in Beck (2006). Under the analysis of Beck (2006), the ill-formedness of sentences like (244) follows from the principles introduced under (190) and (191) in Chapter 2, repeated below.

(190) **Principle of Interpretability (Beck 2006; p. 16)**

A sentence must have a normal-semantic value.

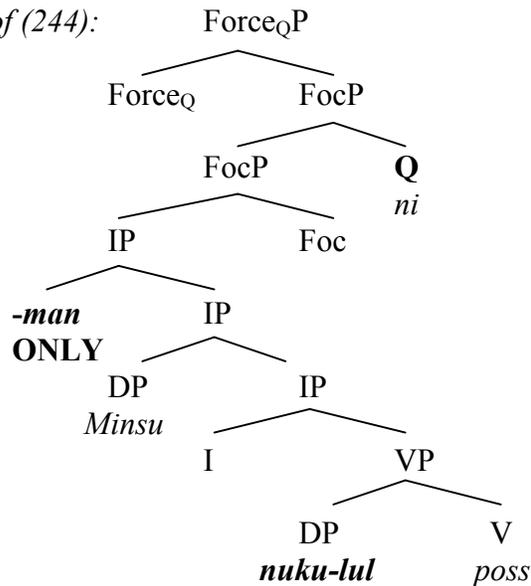
(191) **Uniqueness of the Q-Particle (Beck 2006; p. 13)**

The Q-particle is the only focus-sensitive operator whose meaning does not also take as input the normal-semantic value of its sister.

In brief, it is assumed that the ‘offending operators’ triggering LF/Focus-Intervention Effects are simply the non-Q focus-sensitive operators. Given principle (191), all such operators require computation of the normal-semantic value of their sisters. As the LF of a sentence like (244) is assumed to be that in (246), it follows that computation of the semantic value of (244) requires that one compute the normal-semantic value of the wh-word *nuku*.

(246) **Deriving the Intervention Effects in Q-Adjunction Languages**

Assumed LF of (244):

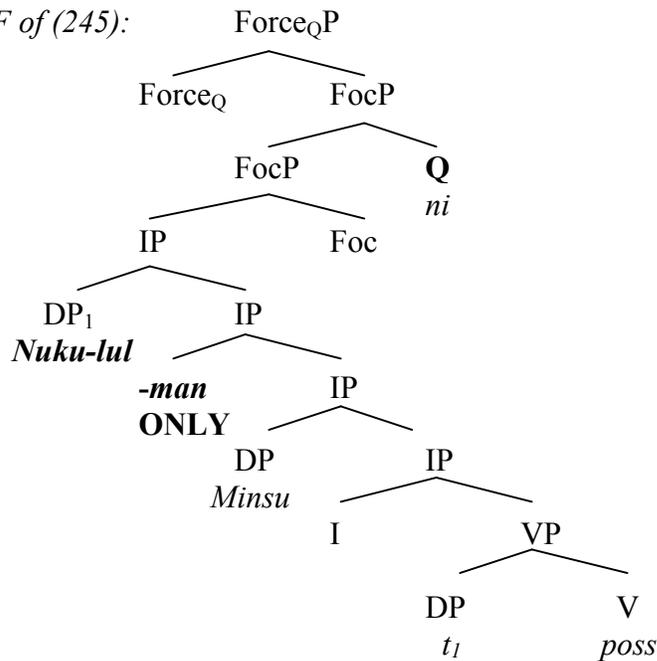


However, because wh-words are assumed not to have normal-semantic values (see (177), (178)), it follows that a normal-semantic value cannot be computed for sentence (244), in violation of principle (190). Sentence (244) is resultingly uninterpretable, and thus deviant.

On the other hand, sentences like (245) are predicted to be semantically interpretable. The fronting of the wh-word in (245) entails that this sentence may be assigned the LF in (247).

(247) **Obviation of Intervention Effects in Q-Adjunction Languages**

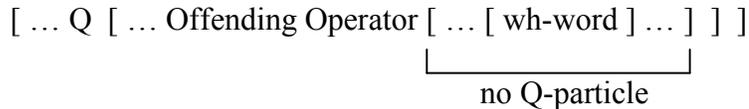
Assumed LF of (245):



In this LF structure, the complement of *-man* ‘only’ does not contain a wh-word.¹⁶ Therefore, semantic computation of the sentence in (245) does not require that one compute the normal-semantic value of a wh-word, and the computation can proceed successfully.

We have thus seen that our semantic theory, given the assumptions in (190) and (191), can correctly predict the contrast between (244) and (245). Of course, our arguments above generalize to many other structural types. Consequently, our semantic theory predicts that the following schematic configuration is that generally triggering an LF/Focus-Intervention Effect.

(248) Configuration Resulting in an Intervention Effect



Again, due to principle (191), computing the semantic value of a structure of this form requires that one compute the normal-semantic value of the sister to the ‘offending operator’. However, the absence of a Q-particle within the sister of the offending operator entails that one must eventually compute the normal-semantic value of the wh-word itself. Since wh-words are assumed not to have normal-semantic values, the semantic computation therefore crashes, and deviance results. The following quote from Beck (2006) nicely states this result of our overall semantic theory.

...the system I have introduced requires a wh-phrase to have as its first c-commanding operator a Q operator. (Beck 2006; p. 16)

We have seen in this section that our adoption of the core semantic hypotheses of Beck (2006) permits us to adopt without modification her analysis of the LF/Focus-Intervention Effects found in Q-Adjunction languages like Korean and Japanese. In the following chapter, we will see that when this theory of LF/Focus-Intervention effects is combined with our theory of wh-fronting in (18), it can make a variety of predictions regarding the distribution of LF/Focus-Intervention Effects in the wh-fronting languages of the world.

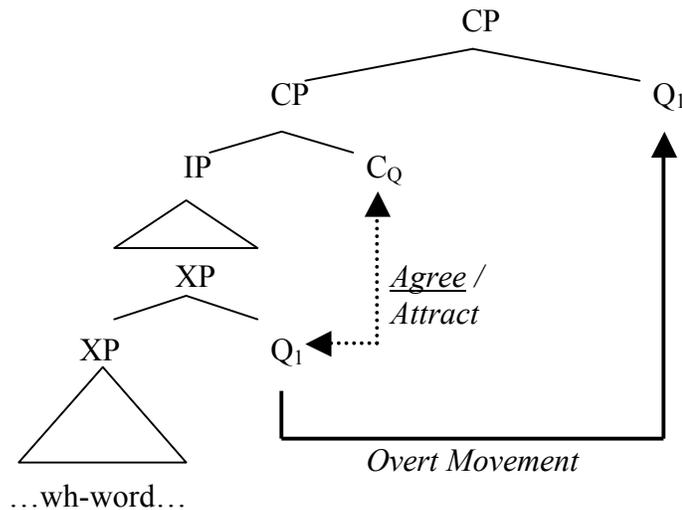
5. Conclusion

This rather brief chapter chiefly concerned the application of the proposals made in Chapter 2 to the theory of *wh-in-situ* languages.

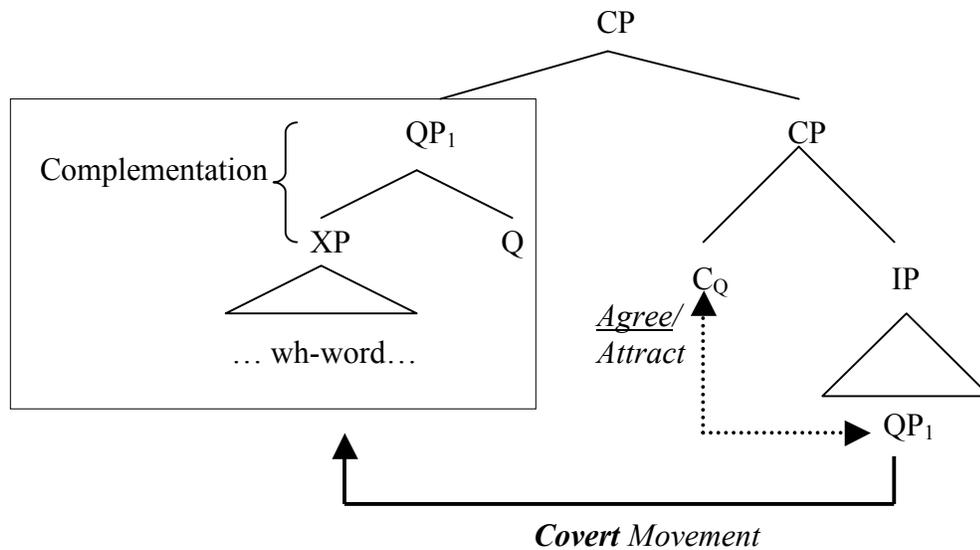
We first saw that those proposals entailed the existence of (at least) two different types of *wh-in-situ* languages, those whose wh-questions have the structure in (83) and those whose wh-questions have the structure in (218).

¹⁶ Although the complement of *-man* in (247) does contain the trace of the fronted wh-word, it might be assumed that such traces possess normal-semantic values as individual variables.

(83) Wh-Questions in the Q-Adjunction Type of Wh-*In-Situ* Language



(218) Wh-Questions in the Q-Projection Type of Wh-*In-Situ* Language



It was argued that indeed both types of *wh-in-situ* languages are attested, Japanese and Korean being instances of the former and Sinhala being an instance of the latter. The following constitutes the chief argument that Sinhala *wh*-questions possess the structure in (218).

- Q-Particles in Sinhala *wh*-questions cannot come between any functional head *F* and a phrase *F* selects for. This follows from the QP-Intervention Condition only if Sinhala *Q* takes its sister as complement. This, in turn, implies that Sinhala *wh*-questions have the structure in (218).

Similarly, the following constitutes the chief argument that Japanese and Korean *wh*-questions possess the structure in (83).

- Q-Particles in Japanese and Korean can generally come between a functional head F and a phrase F selects for. Assuming that the QP-Intervention Condition is universal, such a distribution could only be allowed if Japanese/Korean Q adjoins to its sister. In turn, this implies that Japanese/Korean wh-questions have the structure in (83).

In Section 3, we saw that our semantic theory from Chapter 2 may be applied to both the above types of *wh-in-situ* languages. That is, our semantic hypotheses are sufficient to assign the correct meanings to the wh-indefinites and wh-questions of both Q-Adjunction and Q-Projection languages. This result was taken to support the cross-linguistic universality of the semantic theory of Chapter 2.

Finally, in Section 3, we presented our assumed theory of LF/Focus-Intervention Effects, the one first developed by Beck (2006). It was shown that our semantic theory from Chapter 2 – which incorporates the core proposals of Beck (2006) – predicts the uninterpretability, and thus deviance, of the following structural configuration.

(248) **Configuration Resulting in an Intervention Effect**

$$[\dots Q [\dots \text{Offending Operator} [\dots [\text{wh-word}] \dots]]]$$



no Q-particle

This result, in turn, was shown to predict the deviance of ‘Intervention Effect sentences’ in Q-Adjunction *wh-in-situ* languages like Korean.

The results outlined above demonstrate the applicability of our core proposals to languages beyond Tlingit. This overall theme will be continued throughout the remainder of this thesis. It is also the core subject of the following chapter, which explores the applications of our proposals to the theory of wh-fronting languages. There, we will argue that the perhaps exotic-looking structure in (18) represents the form of wh-questions in *all* wh-fronting languages, including such familiar languages as English and German.

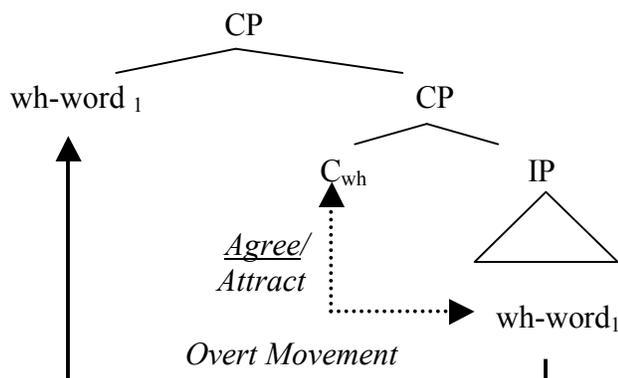
Chapter 4

Applications to the Theory of Wh-Fronting Languages, Part 1: *Pied-Piping and Intervention Effects*

1. Introduction and Chapter Outline

In Chapter 2, we defended at length the claim that wh-fronting in Tlingit must receive the Q-based account in (18). In this chapter, and the one immediately following, we develop our argument that the wh-questions of *all* wh-fronting languages possess this structure. That is, in *no* wh-fronting language does the left-peripheral position of a wh-word in a wh-question result from a *direct* syntactic relationship between the wh-word and the interrogative C head, as illustrated in (17), repeated below.

(17) Wh-Fronting as Direct Attraction of the Wh-Word



Rather, in all such languages, the left-peripherality of wh-operators is a mere epiphenomenal consequence of the real syntactic relationship between the interrogative C head and a (possibly null) Q-particle.

The chapter begins, in Section 2, with a few brief, initial arguments in support of this ‘universalist position’. Section 2.1 provides some general typological and learning-theoretic considerations in support of extending the analysis in (18) to all wh-fronting languages. Section 2.2 briefly discusses a few other wh-fronting languages possessing overt Q-particles, and how certain patterns in those languages receive analyses under the Q-based account of wh-fronting. In Section 2.3, we consider how the analysis in (18), in conjunction with the QP-Intervention Condition, can predict the ill-formedness of P-stranding and ‘left branch extractions’ across wh-fronting languages. We also here discuss the analysis of languages in which P-stranding and left branch extractions appear *not* to be ill-formed. Section 2.4 introduces two immediate challenges facing the universalist position: (i) the absence of wh-indefinites in some languages, and (ii) the

apparent absence of Q-particles from the wh-indefinites of some languages. We will see that a solution to the former puzzle paves the way to a solution to the latter. Finally, Section 2.5 briefly compares the analysis in (18) to two earlier, similar accounts: Watanabe (1992) and Tanaka (1998, 1999).

Having presented these initial motivations for our universalist position, Section 3 begins our longer discussion of the ways in which (18) can advance the general theory of pied-piping structures. Section 3.1 discusses how the syntax of pied-piping is simplified under the Q-based account, while Section 3.2 demonstrates that the analysis in (18) similarly provides an especially simple semantics for pied-piping. Our discussion of pied-piping is then put on hold until Chapter 5, which is devoted to the ways in which (18) can shed light on certain other observed properties of pied-piping structures.

Finally, in Section 4, our discussion turns to two widely-studied parameters of variation between the wh-fronting languages: the presence/absence of Superiority Effects and the presence/absence of Intervention Effects. Here, we will see that, given our proposed semantic theory, the extension of the analysis in (18) to all wh-fronting languages would provide an account of the distribution of Intervention Effects and Superiority Effects across languages, one that correctly ties the appearance of Superiority Effects in multiple wh-questions to the insusceptibility of *in-situ* wh-operators to Intervention Effects. It is furthermore shown that this Q-based account correctly predicts that ‘pied-piping’ wh-words are subject to Intervention Effects, even in languages where *in-situ* wh-operators are not generally sensitive to them.

The chapter ends with a summarizing conclusion.

2. The Universalist Position: Some Initial Motivation

In this section, we will be presented with three, comparatively brief arguments in favor of extending the analysis in (18) to all wh-fronting languages. Following these arguments, I discuss in Section 2.4 two *prima facie* empirical challenges to this universalist position, and I show how those data can nevertheless be incorporated into our overall Q-based theory. Finally, in Section 2.5, I discuss the similarities and differences between the analysis in (18) and those of Watanabe (1992) and Tanaka (1998, 1999).

2.1 General Typological and Learning-Theoretic Considerations

In this section, I will argue that certain general typological and learning-theoretic considerations motivate the abandonment of (17) as an analysis of wh-fronting languages, in light of the existence of languages possessing the structure in (18).

To begin, let us observe that the typological study of wh-*in-situ* languages has provided some empirical motivation for the independently plausible notion that the Q-particle can be phonologically null in certain languages (Cheng 1991). For example, as illustrated below, although Tibetan yes/no questions contain the yes/no-particle *ngas*, no such particle seems to exist in the language’s wh-questions.

(249) **Wh-Questions and Yes/No Questions in Tibetan**

a. Khyodras su mthong byung ngas?
you.erg who see AUX yes/no
Did you see anyone?

b. Khyodras su mthong pa red?
you.erg who see perf. AUX
Who did you see?

(Cable 2005a; p. 22, 23)

Although it is difficult to establish empirically, it is certainly reasonable to think of wh-questions in Tibetan as possessing some phonologically null correlate of the particle seen overtly in their yes/no questions (Baker 1970, Cheng 1991). Thus, the form of a wh-question in a wh-*in-situ* language like Tibetan might be nearly identical to that in Japanese, the only relevant difference being that the Q-particles in Tibetan wh-questions are unpronounced.

With this perspective as background, let us now consider a hypothetical language nearly identical to *Tlingit*, but whose Q-particles are unpronounced. That is, suppose that all the *śá*'s were purged from the all the *Tlingit* sentences that we've seen. How would such a language appear, either to the linguist or to the child learner? For all intents and purposes, such a language would look exactly like a wh-fronting language of the kind we are familiar with.¹ Thus, having accepted the analysis in (18) for *Tlingit* wh-questions, as well as the possibility of phonologically empty Q-particles, it is most theoretically parsimonious to view wh-questions in the more familiar wh-movement languages as also having the structure in (18).

To put the matter more acutely, given that we accept the existence both of languages possessing the structure in (18) and of languages where Q is null, the logical independence of those parameters entails that we predict the existence of languages where *both* Q is null and wh-questions receive the analysis in (18). Given that we predict the existence of such languages, we must now ask what evidence there is for the existence of that languages possessing the 'classic' structure in (17). As we will see throughout this chapter and the next, however, many languages purported to have the structure in (17) receive interesting accounts under the Q-based analysis in (18). To my knowledge, there is indeed *no* positive motivation for maintaining the analysis in (17) in opposition to that in (18), no special insight captured by (17) that is lost under (18). Consequently, the special analytic benefits brought by (18) force us to adopt it in place of (17) as the analysis of wh-fronting languages. Similarly, assuming the position of the language learner, the absence of any properties requiring the analysis in (17) would entail that a hypothesis space containing *both* (17) and (18) would create a substantially more difficult learning task than one containing (18) alone (along with its own assumed parameters of variation).

Following this line of thought, I conclude that in *no* languages – not even English – do wh-words bear a direct syntactic relationship with interrogative C-heads. Rather, in all languages, the interrogative C heads probe and Agree with Q-particles obligatorily accompanying the wh-words. As in *Tlingit*, the obligatory left-peripheral position of wh-words

¹ Of course, given that relative clause islands in *Tlingit* may be 'pied-piped' (e.g. (69)-(71)), it is apparent that the class of pied-piping structures are wider in *Tlingit* than in languages like English, where structurally parallel sentences are not possible. However, as we will see in Chapter 5, this difference may be due to an independent morpho-syntactic difference between the wh-words of English and those of *Tlingit*.

in the wh-questions of all wh-fronting languages is an epiphenomenal consequence of the obligatory overt fronting of the QP.

Pursuing these ideas further, we find that whether a language requires wh-words to overtly front in wh-questions ultimately depends upon two parameters: (i) whether the projection of Q overtly moves into the projection of C, and (ii) whether the Q-particle takes its sister as complement and projects the category label of the phrase minimally dominating it and its sister. Under this view, wh-fronting languages are simply those whose Q-particles move overtly and take their sisters as complement. A third, independent property affecting the surface appearance of a language's wh-questions is whether the Q-particles have any phonological content.

The chart in (250) below illustrates the typology emerging from this perspective. As (250) indicates, this perspective invites the notion that (i) English differs from Tibetan only in that English Q-particles take their sister as complement, (ii) Tibetan differs from Japanese only in that Tibetan Q-particles are phonologically null, (iii) Japanese differs from Tlingit only in that Japanese Q-particles adjoin to their sisters, and (iv), Tlingit differs from Sinhala only in that QP movement in Tlingit is overt.

(250) **The Emerging Typology**

| Language | Movement of Q-Particle: Covert / Overt | Q-Particle Takes Sister as Complement: Yes / No | Phonology of Q-Particle: Null / Pronounced |
|-----------------|---|--|---|
| English | Overt | Yes | Null |
| Tibetan | Overt (?) | No (?) | Null |
| Japanese | Overt | No | Pronounced |
| Tlingit | Overt | Yes | Pronounced |
| Sinhala | Covert | Yes | Pronounced |

As our discussion proceeds, two additional parameters will be added to the theory described above. In Section 4, we will introduce the idea that languages differ in how many Q-particles their multiple wh-questions contain, while Chapter 5 fleshes out the notion – alluded to in earlier footnotes – that languages differ in whether an Agreement relation holds between their Q-particles and their wh-words. This complete typology will be summarized and discussed in our concluding chapter.

2.2 Other Wh-Fronting Languages with Overt Q-Particles

As we will soon see, many of the most familiar wh-fronting languages receive interesting analyses under the view that they have phonologically null Q-particles. Of course, if it turned out that *no* wh-fronting language (besides Tlingit) seemed to possess an overt instance of Q, then the resulting theory of wh-fronting would look rather suspicious.

There are, however, other wh-fronting languages that seem to overtly possess the QP structure in (18). It is important to note that the claim here is not merely that there are wh-fronting languages whose wh-questions contain an element that we would pre-theoretically dub a ‘question particle’. After all, given that we assume the existence of an interrogative C head in wh-questions, such an element could in principle simply be an overt pronunciation of this C, and

not an instance of Q. Moreover, since the classic analysis in (17) shares the assumption that wh-questions contain an interrogative C, the existence of languages where interrogative C is overtly pronounced does not specifically argue for our Q-based account. Thus, we must be careful here to argue for the following, more specific claim: there are wh-fronting languages whose wh-questions contain an overtly pronounced element that is best analyzed as a Q-particle, in our technical sense of the term.

The following two sub-sections discuss two cases that support this more specific claim: the Tupí languages of Central and South America, and the Nigerian language Edo.

2.2.1 Wh-Fronting and Overt Q in the Tupí Languages

Let us begin by considering the Tupí languages of Central and South America, as described by Brandon and Seki (1984). In many of these languages (e.g. Assuriní, Sateré-Mawé, Paraguayan Guaraní, Tupinambá, Kayabí, Oiampí, Mundurukú), wh-fronting is obligatory in wh-questions, as is a special particle that Brandon and Seki gloss as ‘Q’. The following sentences illustrate.

(251) Wh-Questions in Selected Tupí Languages

- Assuriní:
- a. Mo **pa** i-ha-i ne-memyra?
 where Q 3-go-circum 2s-child
Where did your child go?
- b. Ma'e **pa** o-apo a-ka ne-mena?
 what Q 3-make 3-be 2s-husband
What is your husband making? (Brandon & Seki 1984; p. 89)
- Kayabí:
- c. Ma'ja **te** re-juka
 what Q 2s-kill
What did you kill?
- d. [Ma'a pe] **te** êê o-i?
 where to Q 3sf 3-go-circum
Where is she going? (Brandon & Seki 1984; p. 90)

Brandon and Seki observe that an important task for any analysis of Tupí wh-questions is to capture the distribution of their obligatory Qs. Specifically, any analysis of Tupí wh-questions should derive the fact that Qs in wh-questions must directly follow the fronted phrase containing the wh-word, as illustrated below.

(252) The Distribution of Q in Tupí Wh-Questions

- Assuriní:
- a. Ma'e **pa** o-apo a-ka ne-mena?
 what Q 3-make 3-be 2s-husband
What is your husband making?

- b. * Ma'e o-apo a-ka **pa** ne-mena?
 what 3-make 3-be Q 2s-husband
- c. * Ma'e o-apo a-ka ne-mena **pa**?
 what 3-make 3-be 2s-husband Q

(Brandon & Seki 1984; p. 89)

- Kayabí:
- d. [Ma'a pe] **te** êê o-i?
 where to Q 3sf 3-go-circum
Where is she going?
- e. * [Ma'a pe] êê **te** o-i?
 where to 3sf Q 3-go-circum
- f. * [Ma'a pe] o-i **te** êê?
 where to 3-go-circum Q 3sf

(Brandon & Seki 1984; p. 90)

This is apparently in contrast to the behavior of these 'Q' elements in the languages' yes/no questions, where they may instead be freely positioned.

(253) The Distribution of Q in Tupí Yes/No Questions

- Assurini:
- a. Karoa o-ata a-ha **pa** ?
 Karoa 3-hunt 3-go Q
Is Karoa hunting?
- b. Itasoa **pa** ere-reka?
 triangle Q 2s-have
Do you have a triangle?

(Brandon & Seki 1984; p. 84)

Within their own account, Brandon and Seki are only able to derive these facts via a range of construction-specific phrase structure rules and transformations. However, our Q-based analysis in (18) provides a somewhat simpler account. First, note that in the ill-formed sentences of (252), the Q-particle of the wh-question either does not c-command the wh-word (252e) or it follows the matrix predicate (252b, c, f). Thus, under the view that these languages' wh-questions possess the structure in (18), the identification of *pa/te* as a Q-particle would immediately predict its inability to appear in those positions (cf. Chapter 2, Section 6.3 & Section 7.5). Moreover, the contrast between wh-questions and yes/no questions in these languages would follow from our assumptions regarding 'yes/no-particles' (cf. Chapter 2, Footnotes 40 & 46). Under those assumptions, the yes/no-particles found in some languages' yes/no questions are formally distinct from (though possibly homophonous to) the Q-particles found in wh-questions. Thus, the behavior of Q-particles in Tupí wh-questions may differ quite

considerably from the behavior of yes/no-particles in yes/no questions, though the two types of particle may appear on the surface to be identical.²

We see, then, that under the assumption that Tupí *pa/te* is a Q-particle, our Q-based theory of wh-fronting provides a simple account of the facts in (252) and (253). The reader might wonder, however, whether the following, opposing view might not also be possible. Suppose that the particle *pa/te* of a Tupí wh-question were instead the interrogative C head of the wh-question. Under this view, it would seem that the facts in (252) also follow straightforwardly, even assuming the ‘classic’ theory of wh-fronting in (17). After all, it follows from the analysis in (17) that the fronted phrase in a wh-question will always be directly adjacent to the interrogative C head. Thus, if *pa/te* were this C head, then those particles would still be predicted to obligatorily follow the fronted wh-phrase, as shown in (252).

Although the identification of *pa/te* with the interrogative C head would indeed predict its distribution in (252), this analysis cannot predict the data in (253). If the *pa/te* of a Tupí wh-question were the interrogative C, then we would expect this element also to overtly surface in Tupí yes/no questions. Although we do see a *pa/te* element within Tupí yes/no questions, it crucially has a freer distribution in the sentence than what is found for the *pa/te* in wh-questions. As noted by Brandon and Seki (1984), it is unclear how this freer distribution would follow if we were to assume that the *pa/te* of Tupí yes/no questions is simply identical to the *pa/te* of Tupí wh-questions. However, if we were to suppose that the *pa/te* of Tupí yes/no questions is *distinct* from the *pa/te* of Tupí wh-questions, then another troubling question arises. Since the *pa/te* of a wh-question is assumed to be the interrogative C head, and this interrogative C head is also found in yes/no questions, why do we not see two *pa/te* particles in a Tupí yes/no question, one the overt realization of C and one the yes/no particle with its peculiar distribution?

Thus, we find that the hypothesis that Tupí *pa/te* is a Q-particle (in its wh-questions) provides a successful account of its particular distribution.³ Given that the Tupí languages discussed here are wh-fronting languages, it follows that there is at least one group of such languages, besides Tlingit, whose wh-questions have overtly pronounced Q-particles. Thus, there are other wh-fronting languages where the QP structure in (18) is phonologically observable.

2.2.2 Wh-Fronting and Overt Q in Edo

The Niger-Congo language Edo, spoken in Nigeria, provides us with an additional, striking case of the overt realization of Q in a wh-fronting language. As described by Baker (1999), the wh-questions of Edo obligatorily contain a particle *dè*, which Baker glosses as ‘Q’. The following sentences illustrate.

² In this context, recall that yes/no particles in Sinhala likewise differ from the homophonous Q-particles of its wh-questions in that the former can be freely positioned in the sentence, even appearing in matrix-final position (Chapter 2, Footnote 46). This is also a property shared with the yes/no particles of Tlingit, which are phonologically distinct from its Q-particles (Chapter 2, Footnotes 30 & 40).

³ Let us also note in passing that the Tupí languages discussed here share with Tlingit the property of being head-final, as is illustrated by the post-positions in sentences like (251d). Consequently, our Q-based analysis in (18) correctly predicts that Tupí *pa/te* must, like Tlingit *sá*, follow the fronted phrase of the wh-question, as the Q-particles are assumed to take the fronted phrases as complement.

(254) **The Structure of Edo Wh-Questions**⁴

- a. **Dè** òmwàn nè Àdésúwà bó!ó ?
Q who that Adesuwa comfort
Who did Adesuwa comfort? (Baker 1999)
- b. **Dè** èmwin nè Òzó há!é Úyi rè ?
Q what that Ozo pay Uyi it
What did Ozo pay Uyi? (Baker 1999)
- c. **Dè** [èbé [òmwán]] nè Úyi dé ?
Q book whose that Uyi buy
Whose book did Uyi buy? (Baker 1999)

In the wh-questions above, the wh-word obligatorily co-occurs with the particle *dè*. Note that this particle cannot be viewed as merely a sub-morpheme of the wh-word, akin to the [wh-] morpheme of English, as sentences like (254c) show that *dè* may be separated from the wh-word by other structure in the clause.

In his discussion of the syntax of *dè*, Baker (1999) first considers the hypothesis that *dè* is some kind of wh-determiner, obligatorily taking the following (wh-)phrase as argument. One of the strongest arguments against this analysis concerns the placement of *dè* inside of PPs and DPs. As Baker notes, wh-determiners in English and other languages can generally appear in such structures, where they pied-pipe the larger phrase they are contained in.

(255) **Wh-Determiners Inside SpecDP and CompPP in English**

- a. [[**Which** person's] book] did Uyi buy?
b. [To [**which** person]] did Uyi give the coconut?

In Edo, however, the particle *dè* cannot appear in either of these environments. As the following data illustrate, if *dè* ever intervenes between a possessor and a possessed NP, the sentence is ill-formed.

(256) **Edo Dè Cannot Appear Between Wh-Possessor and Possessed NP (cf. (254c))**

- * [Èbé [**dè** òmwán]] nè Úyi dé ?
book Q whose that Uyi buy (Baker 1999)

⁴ Note that Baker (1999) glosses the word *òmwàn* as 'person' and the word *èmwin* as 'thing'. However, this glossing convention seems to reflect mainly the fact that these words may be used as indefinites meaning, respectively, 'someone' and 'something'. Thus, I consider it possible that these words *are* wh-words, their indefinite meaning following from the existence of wh-indefinites in the language.

On the other hand, I will also suggest in Footnote 6 that Edo *dè* differs from Tlingit *sá* in that the former *does* take normal-semantic values as arguments. Under such a semantics, *dè* could semantically combine with full NPs, rather than only with wh-words lacking normal-semantic values. Consequently, this semantics would be consistent with Baker's translations of the Edo words *òmwàn* and *èmwin*.

Similarly, if *dè* ever appears between a P and its DP complement, the sentence is ill-formed.

(257) **Edo *Dè* Cannot Appear Between a P and its DP Complement**

* [Nè [**dè** òmwàn]] nè Òzó rhié né!né ívìn ?
 to Q who that Ozo give the coconut
To whom did Ozo give the coconut?

From these facts, Baker concludes that *dè* should not be analyzed as a wh-determiner like English *which*.⁵

Again, however, our Q-based theory of wh-fronting can provide a rather simple account of these facts, under the assumption that Edo *dè* is a Q-particle. Because Edo is a wh-fronting language, our analysis entails that it must be a Q-Projection language, where the Q-particle takes its sister as complement and projects a QP. Given our QP-Intervention Condition, then, we predict that Q-particles in Edo will be unable to appear between (i) wh-possessors and their possessed NPs and (ii) prepositions and their DP complements. Consequently, if we suppose that *dè* is the overt realization of Q in Edo, then our theory predicts the data in (256) and (257). Furthermore, let us also observe that Edo wh-questions contain a separate, overt realization of the interrogative C head; each of the sentences above contains the element *nè*, which generally functions as a complementizer in the language. We must conclude, then, that – not only does *dè* receive an interesting analysis as Q – it *cannot* receive an analysis as the interrogative C head.⁶

We find, then, that the special behavior of *dè* in Edo suggests that it is a Q-particle, in our sense of the term. Consequently, Edo provides us with another case where the QP structure in (18) is overtly pronounced in a wh-fronting language. Moreover, as we have just seen, Edo also demonstrates that it *is* possible for *both* the Q-particle *and* the interrogative C to be overtly pronounced in the same language. Thus, the structure of Edo wh-questions provides some

⁵ Instead, Baker (1999) proposes that *dè* is the head of some higher CP projection that takes the matrix wh-question as argument, like the ‘Force_Q’ head we introduced in Chapter 2, Section 7. Such a view does account for all the data seen above. On the other hand, as noted by Baker (p.c.), such an account would fail to generalize to the Tlingit particle *sá*. Thus, if we wish to capture the similarities between Tlingit *sá* and Edo *dè* noted above, then we must adopt the Q-based analysis of Edo wh-questions, where *dè* is identified as the Edo Q-particle.

⁶ An outstanding challenge to our theory of *dè* as Q is that it can freely combine with *any* full NP, and not simply wh-words. In such sentences, the Q-particle seems to contribute the meaning of a wh-determiner, as the following sentence demonstrates.

(i) **Dè** òmó nè Àdésúwà bọ!ó ?
 Q child that Adesuwa comfort
Which child did Adesuwa comfort?

The following is a possible account of this fact, which retains the parallelism between Tlingit *sá* and Edo *dè*. Suppose that Edo *dè* differs from Tlingit *sá* in that it needn’t take only focus-semantic values as its argument. That is, suppose that Edo *dè* is interpreted as a choice-function taking as argument the *normal-semantic* value of its sister. Consequently, *dè* could combine directly with set-denoting expressions like NPs. Under this view, sentences like (i) above could be assigned interpretations like the following.

(ii) [λp. ∃f. p = [λw. Adesuwa comforted f({x: x is a child}) in w]]

Note that such a meaning indeed reflects the English translation provided to (i) above.

Finally, as pointed out by David Pesetsky (p.c.), it might also be the case that Edo simply possesses a phonologically empty wh-determiner meaning *which*. Thus, it may indeed be correct to assign Edo *dè* the exact same meaning as Tlingit *sá*, with sentences like (i) receiving the following analysis.

(iii) [_{QP} **Dè** [_{DP} ∅ òmó]] nè Àdésúwà bọ!ó ?
 Q which child that Adesuwa comfort

crucial independent evidence for the distinction between Q-particles and interrogative Cs – they *can* both be in the same room at the same time.⁷

2.2.3 The General Lesson of Edo and Tupí

In the sections above, we saw that there are languages besides Tlingit where the Q-based analysis in (18) is concretely motivated by the overt surface structure of their wh-questions. This confirms the fact that, as we would expect, the analysis in (18) is not merely limited to the Tlingit language, and indeed enjoys a broader distribution amongst the languages of the world. This fact, in turn, bolsters the view that (18) is a structure licensed by UG, and so supports the application of (18) to the wh-questions of Tlingit.

In addition, the fact that the structure in (18) is rather transparently found in unrelated languages spanning three continents increases the overall likelihood that it will be encountered in a given language. Consequently, it is increasingly likely that *any* given wh-fronting language (including those without overt Q) will have the structure in (18), which in turn increases the likelihood that (18) represents the structure of wh-questions in our most well-studied wh-fronting languages.

2.3 The Ill-Formedness of Adposition Stranding and Left-Branch Extractions

In the previous section, we saw that the analysis in (18) can be motivated for certain languages on the grounds of their exhibiting grammatical patterns which, in Tlingit, are explained only through the analysis in (18). Beginning in this section, we will see that the same is true, at a more abstract level, for even the most well-studied wh-fronting languages of the world.

In Section 6 of Chapter 2, we were introduced to several further constraints governing the form of wh-questions in Tlingit. To recall, in a Tlingit wh-question, wh-fronting cannot strand a post-position (258), a wh-possessor cannot be fronted away from a (bare) possessed NP (259), and a wh-determiner cannot be fronted away from its NP complement (260).

(258) No P-Stranding in a Tlingit Wh-Question

- a. [QP [PP **Aadóo** teen] **sá**]₁ t₁ yigoot ?
 who with Q you.went
 Who did you go with?
- b. * [QP **Aadóo** **sá**] [PP t₁ teen] yigoot?
 who Q with you.went

⁷ We also note here in passing that Edo is, like most other languages of its area, a head-initial language. Consequently, our Q-based analysis correctly predicts that the particle *dè* must – unlike the Q-particles of Tlingit and Tupí – *precede* the fronted phrase of the wh-question.

This observed correlation between the general headedness of the language and the position of the Q-particle in the wh-question stands as an additional argument in support of the idea that Q-particles in wh-fronting languages take the fronted phrase as their complements. Thus, this correlation also provides striking evidence in favor of our overall theory of wh-fronting.

(259) **No (Pure) Possessor Extraction in a Tlingit Wh-Question**

- a. [QP [DP **Aadóo** yaagú] **sá**] t_1 ysiteen?
who boat Q you.saw.it
Whose boat did you see?
- b. * [QP **Aadóo** **sá**] [DP t_1 yaagú] ysiteen?
who Q boat you.saw.it

(260) **No D-Extraction in a Tlingit Wh-Question**

- a. [QP [DP **Daakw** keitl] **sá**] t_1 ashaa?
which dog Q it.barks
Which dog is barking?
- b. * [QP **Daakw** **sá**] [DP t_1 keitl] ashaa?
which Q dog it.barks

As we immediately noted, these constraints on Tlingit wh-questions are quite similar to facts seen in many other wh-fronting languages across the world. First, we observe that, aside from certain Germanic and African languages, the grand majority of wh-fronting languages in the world do *not* permit P-stranding. The following data illustrate this constraint in Russian.

(261) **No P-Stranding in Wh-Fronting Languages (e.g. Russian)**

- a. [PP Ot **čego**] sleduet otkazat'sja t_1 ?
of what follows give.up-self
What should one give up.
- b. * [DP **Čego**] sleduet otkazat'sja [PP ot t_1]?
what follows give.up-self of (Abels 2003; p. 160)

Similarly, another constraint found across a wide variety of wh-fronting languages is the inability for wh-possessors to be directly extracted from their possessed NPs.

(262) **No Possessor Extraction in Wh-Fronting Languages (e.g. English)**

- a. [DP **Whose** book] did you read t_1 ?
- b. * [**Whose**] did you read [DP t_1 book] ?

Finally, it is also true across a wide variety of wh-fronting languages that wh-determiners cannot extract alone, leaving their NP complements behind.

(263) **No D-Extraction in Wh-Fronting Languages (e.g. English)**

- a. [DP **Which** book] did you read t_1 ?
b. * [**Which**] did you read [DP t_1 book] ?

Given the obvious, striking similarity between the facts in (258) – (260) and those in (261) – (263), we concluded earlier in Chapter 2 that a uniform account should be adopted, one that would derive the ill-formedness of the Tlingit sentences in (258) – (260) as one instance of the more general cross-linguistic pattern seen in (261) – (263). Unfortunately, certain additional facts from Tlingit seemed to immediately throw a wrench into the development of such an account. To recall, the predominant view regarding the cross-linguistic pattern in (261) – (263) is that it reflects properties of *movement*, that the general ill-formedness of the extractions in (261) – (263) is due to their violating certain general constraints on the movement relation *per se*. We saw, however, that such a ‘movement-based analysis’ cannot be extended to the Tlingit data in (258) – (260). Rather, a broader examination of Tlingit syntax revealed that the ill-formedness of (258) – (260) follows from constraints governing *the position of Q*, namely the QP-Intervention Condition, and not from any constraints on movement *per se*.

It follows that, under the standard view that (261) – (263) reflect constraints on movement, a uniform account for all the data in (258) – (263) cannot be adopted. This, of course, is an unacceptable state of affairs, and should be remedied by giving up certain of the assumptions that lead us to it. Given the strength of the Tlingit-internal evidence supporting the QP-Intervention Condition, it follows that the more likely source of error is the assumptions regarding the nature of (261) – (263).

I conclude, then, that in order to obtain a uniform account for all the data in (258) – (263), we must extend our Q-based analysis of the Tlingit facts in (258) – (260) to *all other wh-fronting languages*. Under such an analysis, the ill-formedness of the structures in (261) – (263) is due to the same factor which renders ill-formed the parallel Tlingit structures in (258) – (260). In all these sentences, the ill-formed wh-extraction could only take place from a base structure where a QP intervenes between a functional head F and a phrase F selects for, in violation of the QP-Intervention Condition. The following structures illustrate.

(264) **The Ill-Formedness of P-Stranding in Wh-Fronting Languages**

- * [QP [DP **Čego**] Ø] sleduet otkazat'sja [PP ot t_1] ?
what Q follows give.up-self of

Impossible PP, violates QP-Intervention Condition

(265) **The Ill-Formedness of Possessor Extraction in Wh-Fronting Languages**

- * [QP [DP **Whose**] Ø] did you read [DP t_1 book] ?

Impossible DP, violates QP-Intervention Condition

(266) **The Ill-Formedness of D-Extraction in Wh-Fronting Languages**

* [QP [DP **Which**] Ø] did you read [DP *t*₁ book] ?

Impossible DP, violates QP-Intervention Condition

As these structures illustrate, applying this Q-based analysis to all other wh-fronting languages entails that we similarly extend our Q-based theory of wh-fronting in (18) to all wh-fronting languages. We find, then, that in order to obtain a uniform account of the clearly similar facts in (258) – (263), we must assume that all wh-fronting languages possess (possibly covertly) the QP structure represented in (18).

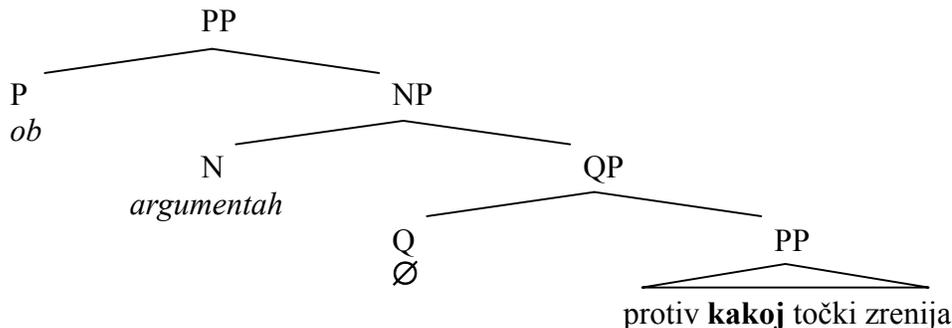
This analysis of the ill-formedness of (261) – (263) receives independent support from the very wh-fronting languages that first motivated the classic, movement-based account. Under the movement-based account, the ill-formedness of (261) – (263) follows from the islandhood of the base positions from which the wh-words are extracted. As has been noted by prior scholars, however, there is some indication that the positions in (261) – (263) are *not* generally islands for extraction, even in the languages where the extractions in (261) – (263) are ill-formed. First, as extensively documented by Abels (2003), even in languages where P-stranding is not possible, it *is* nevertheless possible for a phrase to be extracted from *within* the complement of P. For example, although Russian does not permit extraction of the complement of P (261), we can see from sentences like the following that it *does* permit extraction *from within* the complement of P.

(267) **The Possibility of Sub-Extraction From CompPP in Non-P-Stranding Languages**

[Protiv **kakoj** točki zrenija]₁ ty ešče ne slyšal [PP ob argumentah *t*₁] ?
against which point view you yet not heard about arguments
Which point of view have you not yet heard about arguments against?
(Abels 2003; p. 161)

From facts like this, Abels (2003) concludes that PPs are not islands for extraction in non-P-stranding languages; rather, it is specifically the *stranding of P* which is ill-formed in these languages. Our QP account correctly predicts this contrast between (261) and (267). Although the P-stranding in (261) necessarily violates the QP-Intervention Condition, this isn't so for the wh-extraction in (267). Sentence (267) can be derived from a base structure where the QP is complement/adjunct to the lexical head *argumentah* 'arguments'. The following structure illustrates this point.

(268) **Base Structure From Which (267) May be Derived**



Thus, our QP-based account correctly predicts that it is specifically extraction of CompPP which is ill-formed across wh-fronting languages, there being no general constraints against extraction from within the PP.⁸

Similarly, there is some evidence that SpecDP is a position from which extraction can in principle take place even in languages evincing the pattern in (262).⁹ Note that, even in English, it is possible for a quantificational expression buried deep within SpecDP to bind a pronoun located outside of the DP.

(269) **Binding From Within SpecDP in English**

[[every student's]₁ school's] yearbook] has a picture of him₁.

If we assume that binding requires c-command, then it follows that the quantificational expression in (269) must undergo QR, placing it outside of the DP by LF.

(270) **LF-Structure of Sentence (269)**

[every student's]₁ [[t₁ school's] yearbook] has a picture of him₁

Such QR, however, would necessarily violate any constraints banning the extraction of SpecDP from within the DP. It would thus appear, then, that there are not in English any general constraints preventing movement relations of the kind seen in (270) and (262), a fact that severely weakens the movement-based analysis of (262). On the other hand, our QP-based account can adequately capture the contrast between (269) and (262). If we adopt the plausible assumption that QR is not movement of a QP, but rather of a plain DP, then it follows that the extraction seen in (270) needn't require a base-structure where a QP intervenes between the possessive D-head and the specifier it selects for. Thus, although we rule out (262) as a violation of the QP-Intervention Condition, such a violation needn't occur in the derivation of (269)/(270), and so we predict that such QR should be possible.

⁸ Recall that this point was also made in Chapter 2 regarding P-stranding in Tlingit, where it was similarly found that Tlingit generally permits extraction from within CompPP, despite the ill-formedness of structures like (258).

⁹ I thank an anonymous reviewer of Cable (to appear) for bringing this point to my attention.

In summary, there is independent evidence from even the most widely-studied wh-fronting languages that supports the Q-based analysis of (261) – (263) advocated here. Under this analysis, the ill-formedness of (261) – (263) is not explained in terms of the general islandhood of the positions from which the wh-words are extracted. Rather, we explain the *apparent* islandhood of those positions in terms of certain independently visible constraints on the placement of Q-particles. Consequently, the very motivation for classifying those positions as syntactic islands is greatly weakened, and it becomes possible to adopt a view whereby they are *not* generally islands for extraction, a view that receives independent support from languages besides Tlingit.¹⁰ Of course, in rejecting the status of these positions as islands, we must thereby also reject any syntactic principles whose goal is to *predict* the islandhood of these positions. Thus, we conclude that our QP-based theory of wh-fronting forces us to give up such principles as the ‘Left Branch Condition (LBC)’ (Ross 1967; Corver 1990, 2007), replacing them instead with our more general QP-Intervention Condition.

Although our Q-based analysis of (261) – (263) receives some empirical support, it might be criticized for a certain degree of incompleteness. After all, our discussion has so far ignored a rather well-known fact about the extractions in (261) – (263), a fact that is moreover one of the key data points that theories of (261) – (263) seek to derive: *in some languages, such extractions are not ill-formed*. For example, English wh-fronting may strand prepositions.

(271) Wh-Fronting in English Can Strand Prepositions

Who₁ should I give this [PP to *t*₁]?

Furthermore, in the Slavic languages, it is generally possible for wh-possessors to be extracted out of complex possessive DPs, leaving their possessed NPs behind in base position. The following sentence illustrates this possibility for Russian.

(272) Wh-Fronting in Russian Can Extract Possessors

Ja sprosil [**čju**₁ ty cital [DP *t*₁ knigu]]
 I asked whose you read book
I asked whose book you read. (Heck 2004)

¹⁰ On the other hand, there is the indisputable fact that – QR notwithstanding – there do exist extraction types *besides wh-fronting* for which the positions in (261) – (263) seem to be islands. Indeed, this is the ultimate reason why the positions in (261) – (263) are often considered to be general extraction islands, rather than simply positions from which wh-fronting idiosyncratically cannot take place. For example, the inability to extract possessors holds not only for English wh-fronting, *but also for focus-movement, relativization, etc.*

- (i) **English Focus-Movement Cannot Extract Possessors**
 (a) I’ve read John’s book, but [DAVE’s book]₁ I haven’t read *t*₁
 (b) * I’ve read John’s book, but DAVE’s I haven’t read [*t*₁ book].

One might rightly worry, then, whether our Q-based account doesn’t incorrectly predict that such extractions should be well-formed in all these other constructions of English.

As will be further discussed in Chapter 6, the Q-based theory advocated here can only account for facts such as (i) above if we assume that the extractions in the question are *all* some sub-variant of the Q-movement seen in wh-questions. That is, besides the Q found in wh-questions, there also exist separate, featurally distinct instances of the category ‘Q’ in focus-movement constructions, relative clauses, etc. As we will later see, this idea receives some independent support from recent work on focus-movement by Horvath (2000, 2005), who argues that so-called ‘focus-movement’ is actually movement of a (null) focus-sensitive operator, sitting just above the fronted phrase.

Similarly, the Slavic languages permit wh-fronting to extract wh-determiners, apparently leaving their NP complements in base position, as illustrated below for Russian.

(273) **Wh-Fronting in Russian Can Extract Determiners**

Ja sprosil [**kakuju**₁ ty cital [DP *t*₁ knigu]]
 I asked what.kind.of you read book
I asked what kind of book you read. (Heck 2004)

The ability for certain languages to apparently countenance the extractions in (261) – (263) is a fact that challenges any theory seeking to derive their general ill-formedness. We must naturally ask, then, how our own Q-based account of (261) – (263) fares in light of these facts, how it can capture the apparent cross-linguistic variation in whether (261) – (263) are ill-formed. Must we, in the face of these facts, give up our Q-based account?

In this context, it is important to note that most movement-based accounts of (261) – (263) assume that the syntactic constraints responsible for the ill-formedness of those extractions hold across *all* human languages. Consequently, the apparent well-formedness of those extractions in some languages is held to reflect, not a variation in whether the relevant syntactic principles are ‘active’, but rather some *independent structural difference* of the languages in question. That is, under most accounts, the apparent well-formedness of (e.g.) possessor extraction in some languages is due to possessive nominals in those languages having a *special structure*, one that renders the relevant syntactic principles insufficient to rule out sentences like (272).

This general approach to the well-formedness of (271) – (273) will become clearer in the following three subsections, where we concretely see that certain specific versions of it can be likewise adopted by our Q-based analysis. Thus, our Q-based analysis can adopt without much modification certain already established views regarding the possibility in some languages of adposition stranding and left-branch extractions.

2.3.1 Languages Where Adposition Stranding is Possible

We saw in (271) that, unlike most other wh-fronting languages, English permits wh-extraction to strand prepositions. Another language of this type is Irish, as discussed in Heck (2004).

(274) **Wh-Fronting in Irish Can Strand Prepositions**

Cé₁ a raibh tú ag caint [PP leis *t*₁]
 who C were you at talking with
Who were you talking with? (Heck 2004; p. 143)

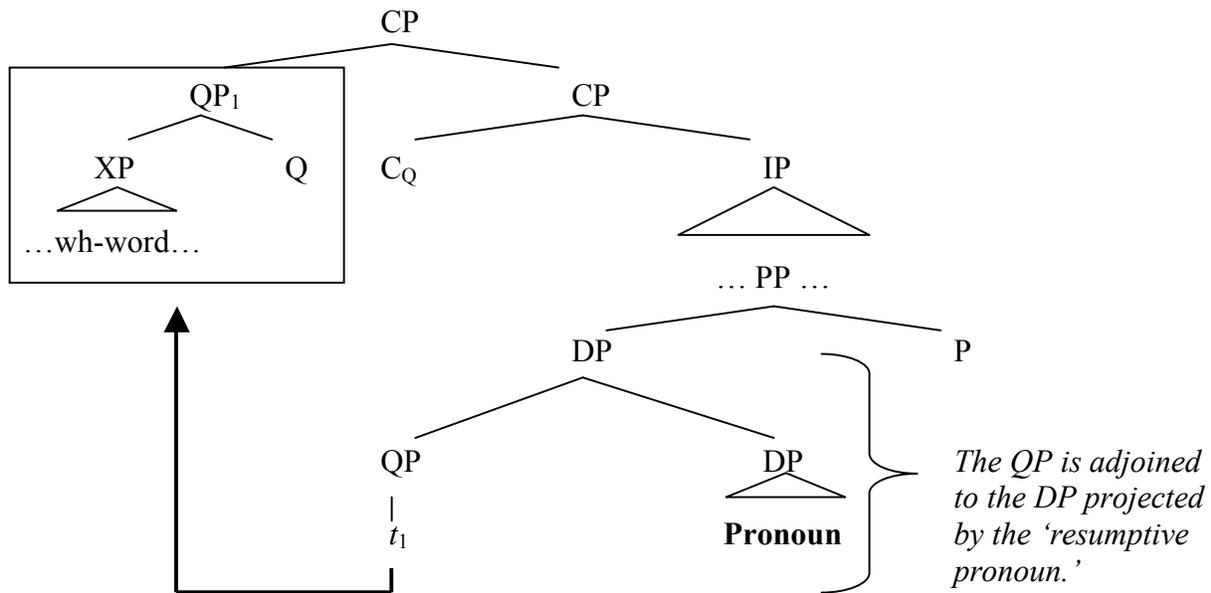
Let us now consider how our Q-based theory of the ill-formedness of adposition stranding can account for the existence of P-stranding in English and Irish. To begin, recall from Section 6 of Chapter 2 that there is a kind of P-stranding-like structure that is found in Tlingit. Although Tlingit does not permit ‘pure’ P-stranding as in (258), it *does* allow for left-peripheral wh-operators to be interpreted as the argument of clause-internal adpositions, just so long as those adpositions are marked with a resumptive pronominal.

(275) **Resumptive P-Stranding in Tlingit**

Daakw **hít** **sá** **aadáx** yeegoot
 which house Q it.from you.left
Which house did you leave from?

In Chapter 2, we saw that these sorts of sentences have the structure represented below, where the fronted QP begins life adjoined to the resumptive pronoun, which is the true complement of the adposition.

(276) **The Structure of Resumptive P-Stranding in Tlingit**



As we saw, under the analysis in (276), the resumptive P-stranding structures like (275) are predicted *not* to violate the QP-Intervention Condition, and so to be well-formed.

The existence of structure (276) in Tlingit raises the following possibility regarding the languages where P-stranding seems to be possible: the apparent ‘P-stranding’ structures of the language might actually be mere ‘resumptive P-stranding’ structures with null resumptive pronouns. Thus, the proper analysis of Irish P-stranding in (274) might be something like the following.

(277) **The ‘Resumptive’ Nature of Irish P-Stranding**

[_{QP} Cé ∅]₁ a raibh tú ag caint [_{PP} leis [_{t₁} pro]]
 who Q C were you at talking with
Who were you talking with?

According to this analysis, the complement of the ‘stranded’ P in (274) is not the trace of the fronted phrase, but is actually a null pronominal. Following the analysis in (276), the fronted QP

is initially merged as an adjunct to this pronominal, and then undergoes subsequent fronting. Finally, because the complement of P in (274) is this null pronominal, and not the QP itself, the sentence does not violate the QP-Intervention Condition, and so is predicted to be well-formed.

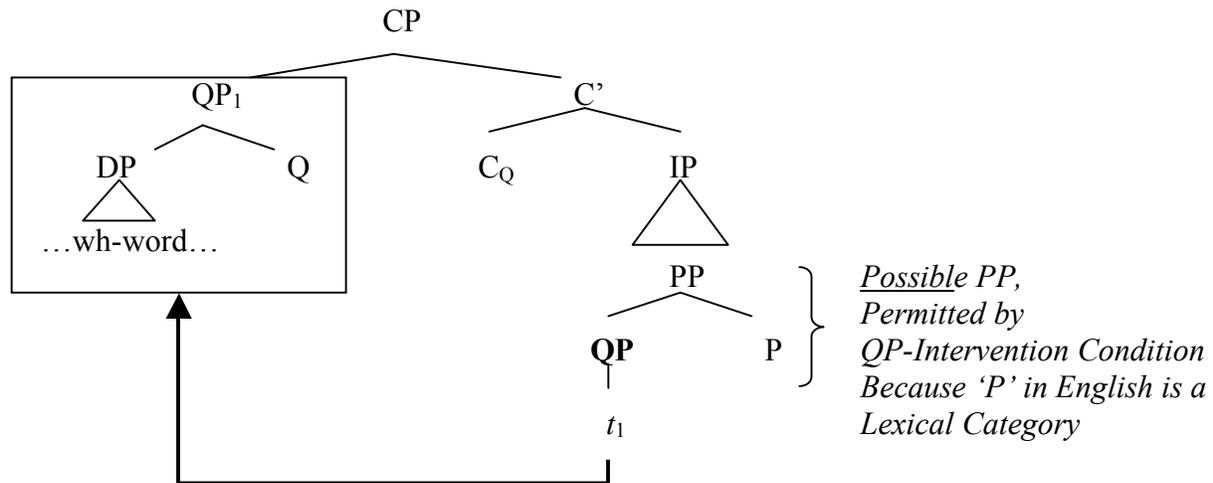
As discussed in Heck (2004), there is some independent support for this analysis of Irish P-stranding. First, Irish is a language that independently allows null pronouns as complements of P; thus, the analysis in (277) is *prima facie* consistent with the known pronominal inventory of the language. Secondly various further facts regarding the special properties of P-stranding in Irish lead McCloskey (1990, 2002) to propose that Irish P-stranding crucially relies upon the presence of a null resumptive pronominal in CompPP. Thus, the analysis in (277) is particularly well-motivated in the case of this P-stranding language.

What, however, can be said about the existence P-stranding in English? Although technically possible, it is far more difficult to motivate the analysis in (276) for the P-stranding structures of English, principally because English does not independently permit null pronouns as complements of P.¹¹ We should therefore seek some other account of the existence of English P-stranding. When we consult the literature devoted to P-stranding, we find that it's widely held that the well-formedness of English P-stranding reflects some special status that the category 'preposition' possesses in English. Thus, Abels (2003) views the impossibility of P-stranding as following from the status of P as a 'phase head', in the sense of Chomsky (2000); consequently, he considers the possibility of P-stranding in English as reflecting the fact that Ps in English have the exceptional property of *not* being phase heads (Abels 2003; p. 233). Similarly, van Riemsdijk (1978) claims that the general impossibility of P-stranding follows from the unavailability of SpecPP as a 'landing site' for long-distance movement; consequently, the acceptability of P-standing in English must follow from an exceptional ability for SpecPP in English to be an intermediate landing site.

Throughout this thesis, I will take up a similar view regarding the nature of English P-stranding. That is, I will adopt the view that the general possibility of P-stranding in English reflects the fact that English prepositions possess a property that prepositions in most other languages do not. In my view, this is the property of being a *lexical category*. First, let us note that if P in English is a lexical category, then we predict that P-stranding will be well-formed in that language. Although P-stranding would still have to be derived from a base structure where P takes a QP as its sister, because P is not a functional head in English the QP-Intervention Condition would not be violated by the interposition of a QP between P and the DP it selects for. The following structure illustrates.

¹¹ One can, however, stipulate that null pronouns in English must simultaneously bear uninterpretable [P] and uninterpretable [Q] features, the combination of which requires them to Agree both with P heads and with QPs. Assuming that selection is a sub-case of Agreement (cf. Collins 2002), such a featural composition would require that English null pronouns can only occur in a sentence if (i) they are complements of P, and (ii) they have a QP adjoined to them. Such a stipulation, then, would allow one to adopt the analysis in (276) for English P-stranding, without thereby predicting that English should generally allow its prepositions to take null pronouns as complements, or that null pronouns should enjoy a wider distribution in the language.

(278) **P-Stranding in English Licensed by the Lexical Status of English P**



As we see above, the assumption that the category ‘P’ in English is a lexical category successfully derives the possibility of preposition stranding in the language. For this reason, although it remains a pure, unprincipled stipulation in our account, we will adopt it throughout the remainder of this thesis.

On the basis of these considerations, I conclude that the well-formedness of P-stranding in languages like English and Irish needn’t be inconsistent with our Q-based analysis of the general ill-formedness of adposition stranding. In certain languages (e.g., Irish), such P-stranding might actually rely upon (covert) pronominal resumption, while in other cases (e.g., English), it may indicate that the language’s adpositions qualify (exceptionally) as lexical items.

2.3.2 Languages Where Possessor-Extractions are Possible

In this subsection, we discuss the well-formedness in certain languages of possessor-extraction. As we saw from the existence of Russian sentences like (272), it is possible in some languages for possessors to be wh-extracted from possessive DPs, leaving their NP possessa behind in base position. Another language of this type is the Mayan language Chol, as described by Coon (2007) and illustrated below.

(279) **Wh-Fronting in Chol Can Extract Possessors**

Maxki_i tyi puli [DP iyotyoty t₁]
 who PERF burn house
Whose house burned? (Coon 2007; p. 3)

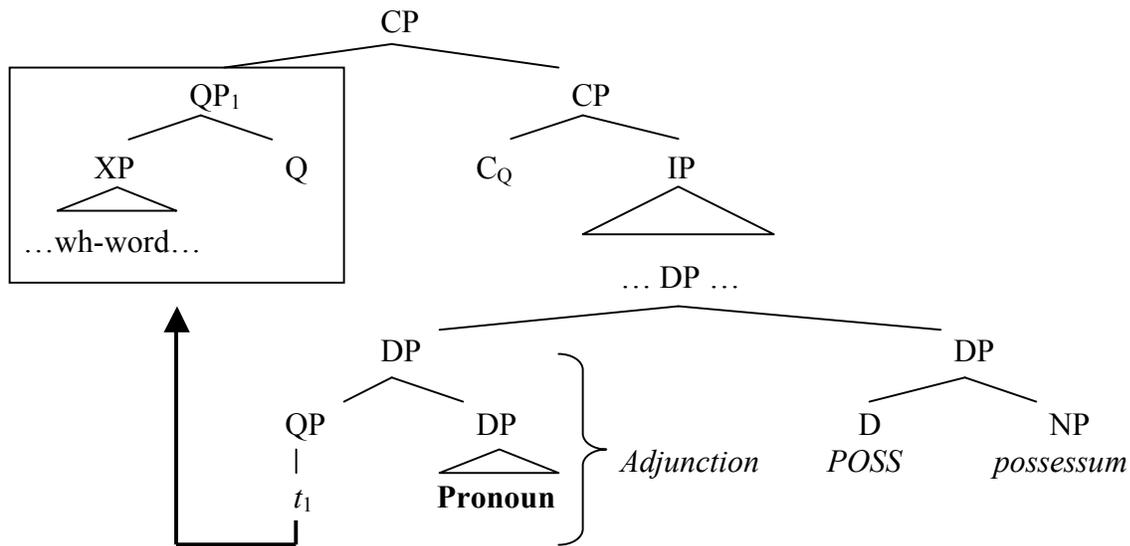
Let us ask, then, how our Q-based theory of the general ill-formedness of such extractions might be made consistent with the existence of languages like Russian and Chol. To begin, recall from Section 6 of Chapter 2 that there is something like possessor-extraction in Tlingit. Although Tlingit does not permit ‘true’ possessor-extraction as in (259), it *does* allow for left-peripheral wh-operators to be interpreted as the possessors of clause-internal NPs, just so long as those NPs are marked with resumptive possessive pronouns.

(280) **Resumptive Possessor-Extraction in Tlingit**

Aa sá a yahaayí tlél yi.oo.
 who Q his picture not you.bought.it
Who didn't you buy any pictures of?

In Chapter 2, we saw that these sorts of sentences have the structure represented below, where the fronted QP begins life adjoined to the resumptive pronoun, which is the true possessive specifier of the clause-internal DP.

(281) **The Structure of Resumptive Possessor-Extraction in Tlingit**



Under this analysis, the resumptive possessor-extraction structures of Tlingit are predicted not to violate the QP-Intervention Condition, since there is no QP intervening between the possessive D and the possessive specifier it selects for. Thus, (281) correctly predicts (280) to be well-formed.

As we saw for the resumptive P-stranding structures, the existence of (281) in Tlingit suggests a potential analysis of the languages where possessor extraction seems to be possible: the apparent ‘possessor-extraction’ structures of the language might actually just be ‘resumptive possessor extraction’, but with null resumptive pronouns. Thus, the proper analysis of Chol possessor-extraction in (279) might be something like the following.

(282) **The ‘Resumptive’ Nature of Chol Possessor-Extraction**

[_{QP} Maxki ∅]_i tyi puli [_{DP} iyotyoty [_{t₁} pro]]
 who Q PERF burn house
Whose house burned?

Under this analysis, the extracted ‘possessor’ in (279) is actually an adjunct of the true possessor of the DP, which is a null resumptive pronominal remaining in SpecDP. Therefore, since the

fronted QP is not truly a possessive specifier, structures like (282) do not violate our QP-Intervention Condition, and are thus predicted to be well-formed.

As an analysis of possessor-extraction, the account just offered is most appropriate for those languages where null pronouns can be independently seen to function as possessors. Under the analysis of Coon (2006), Chol is precisely such a language. That is, Coon (2006) argues that sentences like the following contain phonologically empty possessive pronouns.

(283) Phonologically Null Pronouns as Possessors in Chol

- a. Tyi imele [*pro* iwaj] x'ixik.
 PERF make her tortilla woman
The woman made her tortilla.

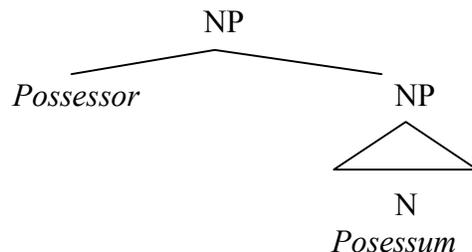
- b. Tyi ichoño [*pro* yotyoty] [*pro* kuskuñ].
 PERF sell his house my older.brother
My older brother sold his house. (Coon 2006; p. 16)

Therefore, we find that the analysis in (282) is indeed consistent with the known pronominal inventory of Chol.

The resumptive analysis in (281) is, however, much more difficult to motivate for languages like Russian, where null pronouns are not independently found to function as possessors. For these languages, however, we can adopt an analysis that is already well-established within the literature on left branch extractions. It has widely been noted that languages permitting possessor-extraction generally permit NPs to appear without overt determiners (Uriagereka 1988, Corver 1992, Bošković 2005b). Many theorists have therefore sought to derive the permissibility of possessor-extraction from the ability for NPs in the language not to be dominated by DP projections (*ibid*; but see Pesetsky (2007) for an opposing view). Interestingly, it is possible within our Q-based account to adopt exactly such an analysis of the well-formedness of possessor-extraction in Slavic languages like Russian.

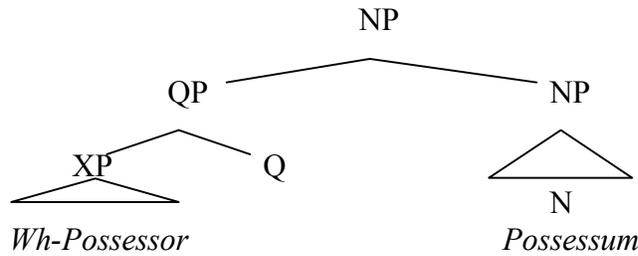
Let us, then, suppose that the characteristic property of languages like Russian (and other Slavic languages) is that NPs needn't be dominated by a DP functional projection. Consequently, we might assume that possessors in Slavic needn't be specifiers to possessive DP projections, but can sometimes simply be located in SpecNP, as illustrated below.

(284) Structure for Possessive Nominals in Slavic Languages (e.g., Russian)



For languages possessing the structure in (284), our Q-based analysis would predict that a Q-particle *could* intervene between a possessor and its NP possessum. After all, within (284), possessors are specifiers of NP – a *lexical* category – and not specifiers of a functional DP projection. Thus, the QP-Intervention Condition would not be violated by structures like the following.

(285) **An Available Base-Structure for Slavic Possessor-Extraction**



Finally, if the structure in (285) were to feed fronting of the QP, we would thereby derive possessor-extraction in the language. Therefore, the structure of Slavic possessor-extraction sentences like (272) may be the following.

(286) **The Structure of Possessor-Extraction in Slavic Languages**

Ja sprosil [[QP **čju** \emptyset]₁ ty cital [NP *t*₁ knigu]]
 I asked whose Q you read book
I asked whose book you read.

On the basis of these considerations, I conclude that the well-formedness of possessor-extraction in languages like Russian and Chol needn't be inconsistent with our Q-based analysis of the general ill-formedness of possessor-extraction. In certain languages (e.g., Chol), such extractions might actually rely upon (covert) pronominal resumption, while in other cases (e.g., the Slavic languages), it may indicate that possessors in the language constitute specifiers of lexical categories (e.g. NP), rather than functional ones.

2.3.3 Languages Where Determiner-Extractions are Possible

Finally, let us consider the well-formedness in certain languages of determiner-extraction. As we saw from the existence of Russian sentences like (273), it seems possible in some languages for determiners to be wh-extracted from DPs, apparently leaving their NP complements behind in base position. Another language of this type is the Slavic language Czech, as described by Kučerová (to appear) and illustrated below.

(287) **Wh-Fronting in Czech Can Extract Determiners**

Koho₁ Petr videl [DP *t*₁ z muzikantu] ?
 who Peter saw from musicians
Which of the musicians did Peter see? (Kučerová (to appear); p. 3)

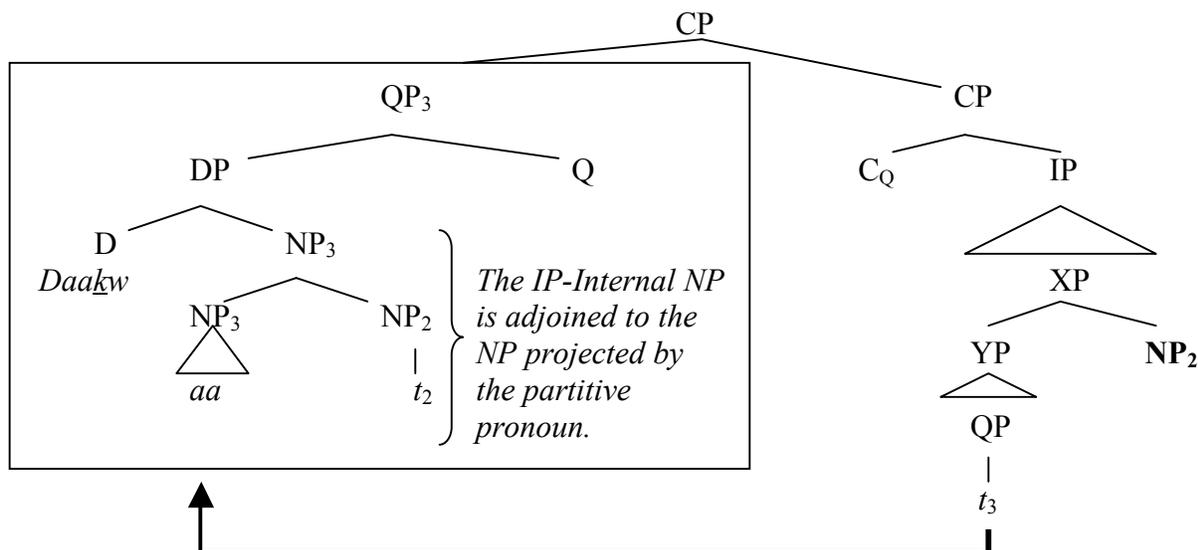
How might our Q-based theory of the widespread impossibility of D-extraction accommodate languages like Russian and Czech? First, let us again recall that Section 6 of Chapter 2 introduced us to something very much like D-extraction in Tlingit. Although Tlingit does not permit actual, full extraction of a wh-determiner as in (260), it *does* apparently allow for a left-peripheral wh-determiner to be interpreted as taking as argument an IP-internal NP, just so long as that wh-determiner is followed by the partitive pronoun *aa*.

(288) **Partitive D-Extraction in Tlingit**

Daakw aa sá xáat i tuwáa sigóo?
 which of.them Q fish your spirit it.is.glad
Which fish do you want?

In Chapter 2, we saw that these sorts of sentences have the structure represented in (289) below.

(289) **The Structure of Partitive D-Extraction in Tlingit**



Under this analysis, the clause-internal NP begins life adjoined to the partitive pronoun, which is the true complement of the wh-determiner in these sentences. This adjoined NP then undergoes clause-internal scrambling to a position above the QP. Finally, the remnant QP is fronted into the left-periphery of the clause, creating a structure where it may appear at first glance as if the wh-determiner has been extracted away from its NP complement.

As we saw with the earlier Tlingit resumption structures, the existence of (289) in Tlingit suggests a potential analysis of the languages where determiner-extraction seems to be possible: the apparent ‘D-extraction’ structures of the language might actually just be ‘partitive D-extraction’, but with null partitive pronouns. Thus, the proper analysis of the Czech sentence in (287) might be something like the following.

(290) **The ‘Partitive’ Nature of Czech Determiner-Extraction**

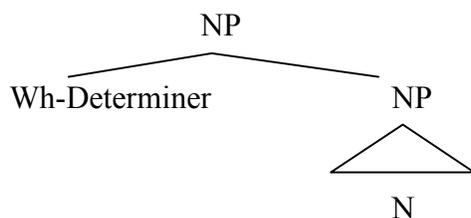
[_{QP} [_{DP} **Koho** [\emptyset t_1]] \emptyset]₁ Petr videl [_{DP} z muzikantu]₁ ?
 who PART Q Peter saw from musicians
Which of the musicians did Peter see?

Under this analysis, the ‘extracted’ determiner in (287) is actually a full DP, containing the trace of the clause internal NP interpreted as its complement. Therefore, since the fronted QP is a full DP – and not a bare determiner head – structures like (290) do not violate our QP-Intervention Condition, and are thus predicted to be well-formed.¹²

This ‘partitive’ analysis of D-extraction is most appropriate for those languages where there is some independent motivation for the existence of partitive elements in D-extraction sentences. Czech potentially provides such a case; Kučerová (to appear) argues that DP-splits in Czech crucially require partitive interpretations, a fact that may receive an account under the analysis in (290).

The partitive analysis above, however, might be much more difficult to motivate for languages besides Czech, like Russian. For those languages, however, we can adopt an analysis similar to that put forth in the previous sub-section. According to that analysis, the crucial property of languages like Russian is that they do not require nominals to be dominated by a DP projection. Consequently, we might assume that the elements we categorize as ‘determiners’ in these languages do not necessarily take their accompanying NPs as complements, but rather appear as adjuncts to those NPs, as illustrated below.

(291) **An Available Structure for Determiner Modification in Russian**



For languages possessing the structure in (291), our Q-based analysis would predict that a Q-particle *could* intervene between a wh-determiner and its NP argument. After all, within (291), wh-determiners are adjuncts to a lexical category; they are not functional heads taking the NP as

¹² Of course, the structure in (290) suffers from the obvious problem that it renders somewhat mysterious the role of the apparently partitive element z ‘from’. Indeed, it would seem more likely that z is the partitive head in (290), rather than there being some null partitive head from which the phrase z *muzikantu* is extracted.

In this context, note that the following structure, though somewhat different from (290), is still licensed by our QP-Intervention Condition

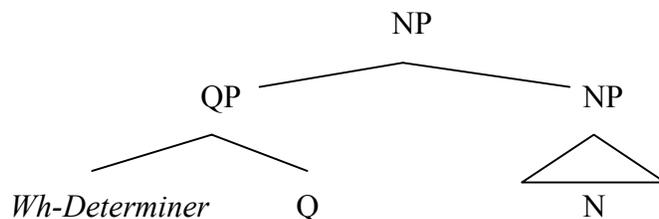
(i) [_{QP} [_{DP} **Koho** t_1] \emptyset]₁ Petr videl [_{DP} z muzikantu]₁ ?
 who Q Peter saw PART musicians

Which of the musicians did Peter see?

Under this analysis, the partitive complement of D undergoes initial scrambling before the remnant DP is fronted into the left-periphery. This analysis, which captures the notion that Czech z in (287) performs the role of Tlingit *aa* in (288), still views the fronted phrase as a full, remnant DP, rather than a bare D-head. Therefore, it would similarly be consistent with our Q-based theory of the impossibility of pure D-extraction across languages.

complement. Thus, the QP-Intervention Condition would not be violated by structures like the following.

(292) **An Available Base-Structure for Russian Determiner-Extraction**



Finally, if the structure in (292) were to feed fronting of the QP, we would thereby derive determiner-extraction in the language. Thus, the structure of Russian determiner-extraction sentences like (273) may be the following.

(293) **The Structure of Determiner-Extraction in Russian**

Ja sprosil [[QP **kakuju** \emptyset]_i ty cital [NP t_1 knigu]]
 I asked what.kind.of Q you read book
I asked whose book you read.

On the basis of these considerations, I conclude that the well-formedness of D-extraction in languages like Russian and Czech needn't be inconsistent with our Q-based analysis of the general ill-formedness of such extractions. In certain languages (e.g., Czech), such extractions might actually rely upon remnant movement of a (partitive) DP, while in other cases (e.g., Russian), it may indicate that determiners in the language constitute adjuncts to lexical categories (e.g. NP), rather than heads of their own functional projections.

2.3.4 Summary

In this section, we saw that it is not possible to both (i) provide a uniform account of the obviously parallel facts in (258) – (263) and (ii) maintain that both (17) and (18) are structures licensed by UG. Given the need for a uniform account of (258) – (263), combined with the evidence that (18) is licensed by UG, we concluded that the ‘classic’ structure in (17) must be abandoned. In its place, we must assume that *all* wh-fronting languages possess the Q-based structure in (18); in this way, a uniform account for the patterns in (258) – (263) can be adopted.

It was quickly noted, however, that the ill-formedness of the extractions in (258) – (263) does not hold in all languages; some languages seem to allow such extractions. We saw that our Q-based analysis of (258) – (263) could nevertheless accommodate the existence of such languages, under the view that they possess certain properties that render the QP-Intervention Condition insufficient to rule out the extractions in question.

We have seen, then, that our ‘universalist position’, which extends the analysis in (18) to all wh-fronting languages, receives independent motivation from the need to provide a uniform account of the ill-formedness of P-stranding and left-branch extractions across languages.

Furthermore, this approach can provide analyses for those (exceptional) cases where P-stranding and left-branch extractions are well-formed.

2.4 Two Potential Problems for the Universalist Position

In Sections 2.1 – 2.3, we were presented with three initial arguments in favor of extending the analysis in (18) to all wh-fronting languages. In this section, we will discuss two *prima facie* problems facing such a project: (i) the absence of wh-indefinites in some languages, and (ii) the absence of Q-particles from the wh-indefinites of some languages.

2.4.1 The Lack of Wh-Indefinites in Some Languages

One of the claimed achievements of our theory of Q-particles is that it captures the role that Q-particles seem to play in both the wh-questions and the wh-indefinites of some languages. Indeed, our theory generally predicts that the Q-element found in wh-questions should be able to freely create indefinites from wh-words.

What can be said, then, of the languages where the Q of the wh-question *doesn't* freely form wh-indefinites? For example, let us consider English. If we wish to apply the analysis in (18) to English, the absence of an overt Q element in English wh-questions would require us to postulate the existence in English of a null Q-particle. Our semantic theory would then predict that this null English Q-particle should freely combine with English wh-words to form bare wh-indefinites. As is well-known, however, bare wh-words in English *cannot* function as indefinites; any attempt to use wh-words as indefinites in English sounds distinctly absurd.

(294) No Bare Wh-Indefinites in English

* Mary bought what at the mall. (≠ Mary bought something at the mall.)

Furthermore, the lack of bare wh-indefinites in English has been claimed by some theoreticians to be crucially connected with the existence of overt wh-fronting in the language (Cole & Hermon 1998). One might rightly worry, then, whether our Q-based analysis in (18) misses an essential property of English and other wh-fronting languages.

In response to this worry, we should first note that the absence of wh-indefinites from English is most likely *not* a 'deep' property of the language. Rather, the presence or absence of wh-indefinites seems to be a rather superficial parameter of variation across languages. After all, the languages most closely related to modern English all possess bare wh-indefinites (e.g. German, Dutch, Frisian), and there even exist certain sub-dialects of English where bare wh-indefinites are found.

(295) Wh-Indefinites in New York English

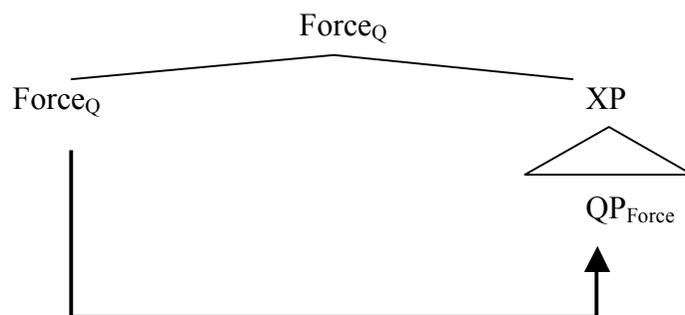
I don't have **what** to eat.
I don't have anything to eat. (Caponigro 2003)

Furthermore, as Bruening (2007) extensively documents, there is no broader typological correlation between overt wh-fronting and the ability for bare wh-words to function as

indefinites. Thus, we should rather consider it an achievement of our Q-based analysis that it does not assert any deep connection between wh-fronting and wh-indefinites, nor predict in any way that English should *lack* bare wh-indefinites.

Of course, the question remains of how we capture in our Q-based account the inability for English wh-words to function as indefinites. Here, however, it seems we can adopt a rather stipulative, technical solution.¹³ Let us suppose that the Q-particle of English wh-questions contains an uninterpretable instance of the ‘Force’ feature born by the interrogative Force_Q head. Given the need for uninterpretable features to be checked and deleted before semantic interpretation, it follows that the Q-particle of English must undergo Agreement with a Force head, or else the derivation crashes. In wh-questions, the interrogative Force_Q – which itself bears an uninterpretable instance of the Q-feature – probes and Agrees with the Q-particle. Consequently, the Force feature of the English Q is checked off in a wh-question, and the resulting structure is well-formed. The following diagram illustrates.

(296) **The Elimination of Uninterpretable ‘Force’ From Q in an English Wh-Question**



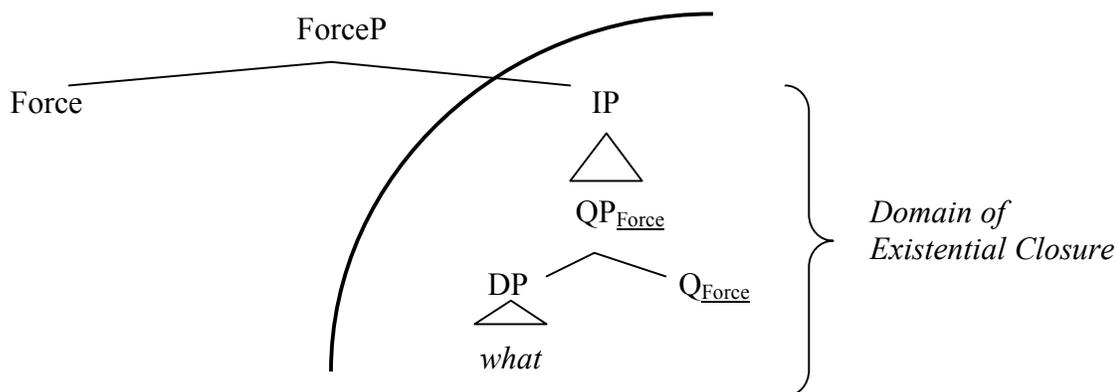
*Force_Q probes for an interpretable instance of its Q-feature;
Agreement between Force_Q and Q_{Force} allows uninterpretable Force to be deleted from Q*

Given the assumption that English Q must undergo Agreement with a Force head, our theory can capture the fact that it cannot ever serve to create a bare wh-indefinite in English. Recall from Section 7 of Chapter 2 that Q can only create a wh-indefinite if it stays within the IP and does not move into the CP projection. By staying within the IP, the Q-particle can be bound by existential closure, creating a wh-indefinite; if the Q-particle moves outside the IP, however, it moves outside the domain of existential closure (cf. (181)), and so cannot be interpreted as a wh-indefinite. Since English Q-particles *must* undergo Agreement with a Force head, they must (under certain assumptions; cf. Footnote 14) move outside the IP, into the projection of the Agreeing Force head.¹⁴ Consequently, no Q-particle in English can be bound by existential closure, and so there can be no bare wh-indefinites in English. The following structure illustrates this point.

¹³ Again, we might actually consider the stipulative nature of this analysis to be ‘a feature, not a bug’, in as much as it indeed seems that the lack of wh-indefinites is a mere superficial property of English.

¹⁴ I assume here that Agreement with Force_Q obligatorily triggers movement into SpecForce. Thus, I take up the view that the *in-situ* wh-words of English multiple wh-questions undergo covert movement.

(297) **The Impossibility of Wh-Indefinites in English**



If the Q-particle remains within the domain of existential closure, then its uninterpretable Force feature has not been checked, resulting in a derivational crash.

We find, then, that by making the single stipulation that English Qs bear uninterpretable Force, our theory derives the inability for bare wh-words in English to function as indefinites. Moreover, this account correctly views the absence of wh-indefinites in English as an unpredictable, independent feature of the language, one that is not in any way tied to any properties of its wh-questions.

I conclude that it is possible within our Q-based account to capture the absence of wh-indefinites from certain languages. Furthermore, the structure of our theory leads us to view such an absence a mere idiosyncratic property of the language in question, a view that is most consonant with the typological findings of Bruening (2007).

2.4.2 The (Apparent) Lack of Q in the Wh-Indefinites of Some Languages

In the previous section, we noted that our Q-based theory generally predicts that the Q-particles found in a language's wh-questions should freely form indefinites from wh-words. Thus, another potential challenge to this theory are those languages where – though they possess wh-indefinites – their wh-indefinites seem *not* to be formed with the Q-element found in wh-questions. Ancash Quechua illustrates this pattern, as shown below.

(298) **The Q-Particle of Ancash Quechua Wh-Questions is Not Found in Wh-Indefinites**

- a. May-man-**taq** José munan María aywanan-ta?
where-to Q Jose wants Maria will.go-ACC
Where does Jose want Maria to go? (Heck 2004; p. 111)
- b. Ima-ta-chi wambra yurapa waqtanchaw riqarqan.
what-ACC-VAL boy tree behind-LOC saw
The boy saw something behind that tree. (Haspelmath 1997; p. 310)
- c. Pi-wan-chi qanyan awtobuschaw parlarquu.
who-COMIT-VAL yesterday bus-LOC talked
I talked to someone on the bus yesterday. (Haspelmath 1997; p. 310)

As the sentences above illustrate, wh-questions in Ancash Quechua obligatorily contain the particle *-taq*, which authors often gloss as ‘Q’ (298a). This particle, however, is obligatorily absent from sentences like (298b,c), where the wh-words function as plain indefinites.

How are we to analyze a pattern such as this, within the contours of our Q-based theory? An initial possibility is that, for some languages, the pattern above is illusory; what has been identified as a ‘Q-particle’ in the wh-question is actually the interrogative C head. Under this analysis, the absence of that element from the language’s wh-indefinites follows trivially. Although such an analysis might be correct for some languages, we shouldn’t necessarily assume that it will work for all cases where this pattern seems to appear.¹⁵ In fact, our Q-based account makes available another analysis of this pattern, one where the element found absent from wh-indefinites is indeed a ‘Q-particle’ in our sense of the term.

To begin, let us recall from Chapter 2 that the Q-particle of the wh-question is not the only element with which wh-words may form wh-indefinites (Chapter 2; Footnotes 38, 87). For example, alongside the wh-indefinites formed from the Q-particle *da*, Sinhala also creates wh-indefinites with the particle *-hari*, as the following sentences illustrate.

(299) **Wh-Indefinites in Sinhala Can Be Formed Without The Q-Particle *Da***

- a. Mokak **da** waetuna.
what Q fell
Something fell. (Hagstrom 1998; p. 23)
- b. Mokak-**hari** waetuna.
what-HARI fell
Something fell.

¹⁵ There is, in fact, a good chance that this is the right analysis for Ancash Quechua. Indeed, prior authors have claimed that *-taq* is an interrogative C head (Cole & Hermon 1994), or an ‘emphatic marker’ (Lefebvre & Muyskens 1988). Some evidence in support of this analysis is the fact that *-taq* is also absent from wh-questions where the wh-word is (optionally) left *in-situ*.

(i) **Ancash Quechua Wh-Questions with *In-Situ* Wh-Words Lack *-Taq***
José munan María may-man aywanan-ta.
Jose wants Maria where-to will.go-ACC
Where does Jose want Maria to go? (Heck 2004; p. 111)

Unlike the particle *da*, however, the particle *-hari* cannot stand as the Q-particle required in a Sinhala wh-question.

(300) **Sinhala *-Hari* Cannot Function as the Q-particle of a Wh-Question**

- a. Mokak **da** waetune?
 what Q fell
What fell? (Hagstrom 1998; p. 23)
- b. * Mokak-**hari** waetune?
 what Q fell
 (*Does not mean "What fell"*)

Given the existence of particles like Sinhala *-hari*, we might adopt the following analysis regarding the wh-indefinites of languages like Ancash Quechua. Suppose that Ancash Quechua contained a phonologically null instance of the Sinhala particle *-hari*. If this were the case, then our Q-based theory would indeed predict that Ancash Quechua wh-indefinites can appear without an overt particle, while its wh-questions cannot.

But, what about the fact that Ancash Quechua wh-indefinites *must* not appear with the Q-particle *-taq* found in its wh-questions? In this context, recall the analysis put forth in the previous section for languages like English, where it seems that bare wh-words cannot function as indefinites. Under that analysis, there are languages where Q-particles must bear an uninterpretable instance of the feature Force. This uninterpretable Force feature has the effect that the Q-particles of the language's wh-questions *cannot* be used to form wh-indefinites. Let us suppose, then, that the Ancash Quechua Q-particle *-taq* shares with the English null Q-particle the property that it must bear uninterpretable Force. By our previous logic, it follows that the particle *-taq* can never be used to create wh-indefinites in Ancash Quechua.

In summary, then, our Q-based theory can adopt the following analysis of Ancash Quechua wh-questions and wh-indefinites. The Q-particle *-taq* can only appear in wh-questions, and never in wh-indefinites, because it carries an uninterpretable Force feature. Moreover, Ancash Quechua contains a phonologically empty version of the Sinhala particle *-hari*, which can appear only in wh-indefinites and never in wh-questions. Consequently, our Q-based theory predicts that the Q-particles of Ancash Quechua wh-questions will never be found in its wh-indefinites, and that its wh-indefinites will look as if they are bare wh-words.¹⁶

As a final step in realizing this analysis of the pattern in (298), we should offer some theory of the nature of 'indefinite particles' like Sinhala *-hari*, which cannot serve as the Q-particle of a wh-question. For our purposes here, let us simply adopt the view that particles like *-hari* lack the Q-feature which the interrogative C of the wh-question must probe for.¹⁷ Since

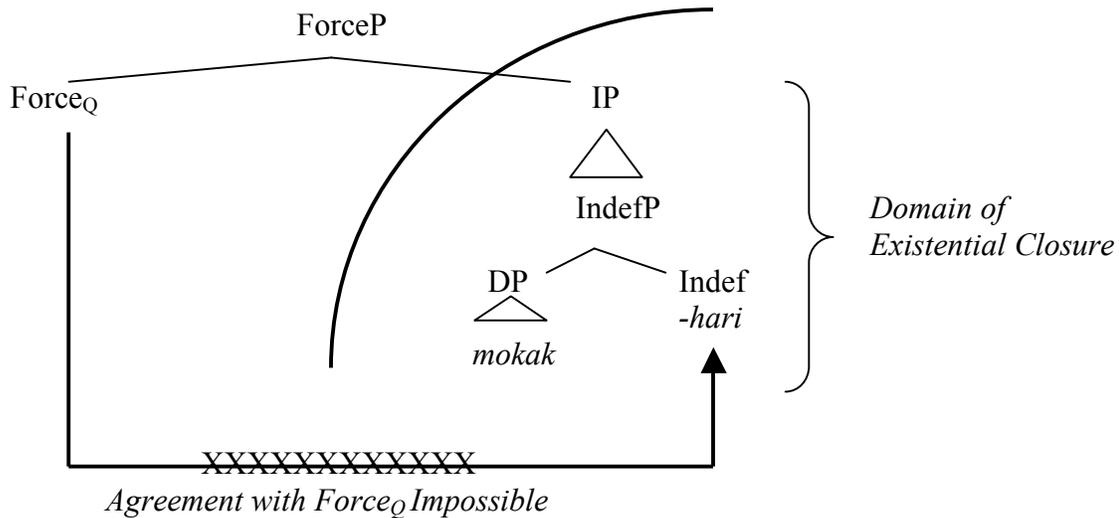
¹⁶ Note that, more abstractly speaking, this analysis predicts languages exhibiting a complementarity between the Q-particles of wh-questions and the particles used in wh-indefinites. Therefore, this account could also hold for languages where, though there are overt particles both in wh-questions and wh-indefinites, the two sets of particles are non-overlapping. Similarly, this account could hold for those languages where, though there are overt particles in wh-indefinites, there are not any in wh-questions.

¹⁷ This proposal is, of course, somewhat incongruous with the notion, put forth in Footnote 87 of Chapter 2, that these particles all count as instances of the category 'Q'.

This incongruity follows from an ambiguity in the label 'Q', which we have been using both as a syntactic category, and as a feature which interrogative C-heads may probe for. In as much as the syntactic category 'Q'

these particles lack Q, they will never undergo Agreement with the interrogative C head of the question; consequently, these particles will never move out of the IP. Finally, because the particles never move out of IP, they are bound via existential closure (cf. (181)), and so the wh-words they appear with are always interpreted as wh-indefinites. The structure below illustrates.

(301) **The Nature of Particles that Only Create Wh-Indefinites**



Since they lack the Q-feature, particles like -hari cannot undergo Agreement with Force. Consequently they cannot move out of IP, and are bound by existential closure.

We therefore find that our theory of Q-particles allows for the existence of both (i) particles that are obligatory in wh-questions, but cannot form wh-indefinites and (ii) particles that are obligatory in wh-indefinites, but cannot form wh-questions. Therefore, our theory can allow for languages where the particles appearing in wh-questions and those appearing with wh-indefinites are complementary, languages that at first blush appear to directly challenge our overall theory of Q-particles and wh-fronting.

2.5 Comparison with Earlier Accounts: Watanabe (1992) and Tanaka (1998, 1999)

Throughout our discussion, explicit comparison has been made between our Q-based analysis of wh-fronting in (18) and the analyses of wh-*in-situ* languages put forth by Hagstrom (1998) and Kishimoto (2005). However, our analysis in (18) also bears a strong similarity to two, earlier analyses of wh-fronting: that in Tanaka (1998, 1999) and that in Watanabe (1992).

seemed always to possess the feature which interrogative C probes for, this ambiguity was an innocent (and perhaps insightful) one. As soon as we divorce these properties, however, our equivocal use of the term ‘Q’ is sure to invite confusion.

To avoid this confusion, I adopt in structures like (301) below the convention of categorizing particles like Sinhala *-hari* as ‘Indef’. This is not, however, to be taken as a retreat from the claim that they are of the same syntactic category as Sinhala *da* and Tlingit *sá*. Rather, it is a retreat from the (implicit) claim that the syntactic category of these particles is the feature which the interrogative C of the wh-question probes for.

The theory of wh-questions put forth by Tanaka (1998, 1999) is strikingly similar to our own Q-based account; indeed, I consider the two accounts to be effectively the same. Tanaka (1998, 1999) proposes that wh-fronting does not directly target the features of the wh-word. Rather, wh-fronting is ultimately movement of a separate phrasal projection dominating the wh-word, which Tanaka labels ‘ ω P’. As with our ‘Q-particle’, the ‘ ω -head’ of Tanaka (1999, 1998) can, in principle, be arbitrarily far away from its associated wh-word. Consequently, Tanaka (1998, 1999) proposes that the ‘ ω P’ is the mechanism underlying pied-piping, that pied-piping structures are simply those where the sister of the ‘ ω -head’ properly contains the wh-word.

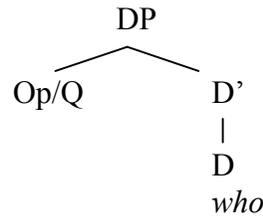
The similarities between the core proposals of Tanaka (1998, 1999) and our own Q-based theory in (18) are rather obvious. Most importantly, Tanaka (1998, 1999) shares with our account the notion that pied-piping structures are all instances of normal phrasal movement of a projection connected with – though distinct from – the wh-word. Where Tanaka (1998, 1999) differs from the account offered here is chiefly in the use to which the analysis is put. Tanaka (1998, 1999) is primarily concerned with the interpretation and linear order of wh-words in the *wh-in-situ* language Japanese. Consequently, in Tanaka (1998, 1999), there is very little development of the ‘QP/ ω P’-analysis for overt wh-fronting languages. Thus, although the overall proposals of this thesis and Tanaka (1998, 1999) are virtually identical, the empirical results obtained are entirely complementary.¹⁸

Another proposal related to our own is that put forth by Watanabe (1992). Although substantially different in its details, Watanabe (1992) shares a certain logical structure with our own account, and we might view the proposals put forth here as one development of these common core ideas. In brief, Watanabe (1992) proposes the following. In both English and Japanese wh-questions, there is overt fronting of an entity that Watanabe labels ‘Op’ (short for ‘operator’). In Japanese, the ‘Op’ element can be moved away from the wh-word, leaving the wh-word *in-situ*. In English, however, the ‘Op’ element cannot be detached from the wh-word; consequently, overt movement of the ‘Op’ in English entails overt movement of the wh-word. Thus, the wh-questions of Japanese and English both involve overt movement of the same formal element, and their surface differences result from a more basic difference in whether that moved element can detach from its associated wh-word.

Our Q-based account is therefore similar to the proposals of Watanabe (1992). Our Q-particle plays much the same role as Watanabe’s ‘Op’-element, and our claims about the underlying differences between Japanese and English wh-questions are in outline the same. There are, however, several details of implementation which render Watanabe (1992) nevertheless quite different from the Q-based analysis advocated here. The chief differences lie in the theory of wh-fronting languages. Unlike the account in (18), which views the Q/Op-element as heading a projection containing the wh-word, Watanabe (1992) proposes that the Q/Op-element is a *specifier* of the wh-word. This is illustrated below.

¹⁸ One of the chief ideas of Tanaka (1998, 1999) is that all the wh-words of a multiple wh-question move into a single ‘ ω P-projection’, which then undergoes fronting to the periphery of the clause. Thus, Tanaka (1998, 1999) more fully develops the analysis of sentence (57) sketched in Footnote 34 of Chapter 2. To recall, sentence (57) seems to indicate that the wh-words of a Tlingit multiple wh-question can ‘congregate’ underneath a single QP, in a manner very similar to what is proposed for Japanese in Tanaka (1998, 1999).

(302) **The Structure of an English Wh-Word, Following Watanabe (1992)**



As a result of this assumption, the movement of the wh-word in an English wh-question must be treated by Watanabe (1992) as an instance of (true) pied-piping, rather than simply as normal phrasal movement, like in our (18). Consequently, Watanabe (1992) cannot adopt the theory of pied-piping structures that we will put forth in Section 3 and Chapter 5, and which follows naturally from our account in (18).

A greater problem for Watanabe (1992), however, concerns the predictions the analysis makes regarding wh-fronting languages. Watanabe (1992) proposes that wh-fronting results from a need for the Op/Q-element to always remain adjacent to the wh-word. Thus, the analysis predicts that no island can ever separate the Op/Q element and the wh-word in a wh-fronting language. Finally, given the assumption that ‘feature percolation’ is constrained by syntactic islands, it follows that there can be no ‘massive pied-piping’ of islands in *any* wh-fronting language. This result is summarized in the following quote.

The prediction of our system is that languages like English which must move an entire wh-phrase at S-structure will never exhibit large-scale pied-piping, while languages like Japanese which move pure wh-operators and allow *wh-in-situ* are potentially able to employ large-scale pied-piping... (Watanabe 1992; p. 65)

Although it is indeed true that English does not permit the large-scale pied-piping of islands (cf. Chapter 5), it is *not* true that *no* wh-fronting language permits such pied-piping. As we have already seen, such pied-piping is readily available in Tlingit.

(303) **Pied-Piping of Relative Clause Islands in Tlingit**

[[**Wáa** kligéiyi _{CP}] xáat _{NP}] **sá** i tuwáa sigóo?
how it.is.big.REL fish Q your spirit it.is.happy
How big a fish do you want? (= A fish that is how big do you want?)

We find, then, that from the single, divergent assumption that the Q/Op element is a specifier to the wh-word, the system in Watanabe (1992) ends up being quite different from the Q-based account proposed here. As a result of that assumption in (302), Watanabe (1992) is unable to derive the results regarding pied-piping which we spotlight below, and incorrectly predicts the non-existence of languages like Tlingit. For this reason, we might view as the chief advance of (18) over Watanabe (1992) the notion that the Q(/Op)-element takes as its sister a phrase containing the wh-word.

Finally, before we leave this discussion, I would like to briefly compare our Q-based account in (18) to a more general idea that has been ‘in the air’ for quite some time. When

traveling through the literature on the typology of wh-questions, one often encounters a view that can (vaguely) be stated as follows: the formal correlate of the Japanese Q-particle *ka* in English wh-questions is the ‘wh-morpheme’ in the wh-word. Thus, for example, Watanabe (1992) suggests that the Op-element in English wh-questions is overtly pronounced as the /wh-/ component of the wh-word, which accounts for the inability of English Op to ever move away from the wh-word. Similarly, Cole & Hermon (1998) propose that, while the wh-questions of wh-*in-situ* languages like Chinese contain ‘question particles’ functioning as semantic operators, the corresponding semantic operators in English wh-questions are incorporated into the wh-words themselves. I might add, as well, that several individuals have suggested to me that the proper analysis of English within our Q-based theory may not be that it contains a *null* Q-particle, but rather that its Q-particle is pronounced as the /wh-/ sub-morpheme in the wh-word.

Although the notion that ‘*ka* is *wh-*’ is an interesting one, in the context of the proposals put forth here, it cannot be made to work. The basic issue is that we have argued that the Q-particle in English plays the same role in ‘pied-piping structures’ that the Q-particle *sá* does in Tlingit. As we will see in the next section, this entails that in English pied-piping structures, the Q-particle sits just above the fronted phrase. Such a position for the Q-particle, however, is clearly inconsistent with the notion that the Q-particle is the wh-morpheme, which is adjacent to the wh-word, buried deep within the pied-piped constituent.

Of course, in response to this argument, a proponent of the ‘Q-is-wh’ view might propose that the wh-morpheme undergoes covert movement to the position just above the pied-piped constituent.¹⁹ Such a proposal, however, immediately invites the following question: what is the mechanism underlying the hypothesized Q-movement? If the mechanism is Agreement with some higher head X, then why not simply view the higher head X as the correlate of Q in English? Interestingly, as we will see in Chapter 5, we will eventually pursue an analysis very similar to this, where the wh-morpheme of an English wh-word *does* undergo syntactic Agreement with the (higher) Q-particle. Under this account, then, there is after all a sense in which the /wh-/ component of an English wh-word *is* an instance of Q: it is an uninterpretable instance of the Q-feature, sitting on the wh-word. Thus, at a certain level, the Q-based theory proposed here both accepts and rejects the hoary old notion that ‘English /wh-/ is Japanese *ka*.’

3. Some Initial Applications to the Theory of Pied-Piping Structures

So far, I have presented three general arguments supporting the application of analysis (18) to all wh-fronting languages: (i) doing so would greatly simplify our typological theory, and hence the hypothesis space learners must consider, (ii) the analysis in (18) can be concretely motivated for a variety of other wh-fronting languages, and (iii) adopting (18) for all wh-fronting languages is the only way to provide a uniform account for the ill-formedness of P-stranding and left-branch extractions across languages.

The remainder of this thesis presents two, more extended arguments for our universalist position. The overall message of these arguments is that the application of (18) to some of the most well-studied wh-fronting languages is not only plausible, but also advances understanding of various phenomena in those languages. The first of these two arguments, which concerns pied-piping, will begin in this section, and will continue into Chapter 5.

¹⁹ Note that such a view necessarily assumes a ‘single-output’ model of syntax, as in Bobaljik (2002).

In this section, I will first argue in Section 3.1 that application of (18) to all wh-fronting languages advances understanding of the *syntax* of pied-piping structures, and allows us to eliminate the concept of ‘pied-piping’ as anything but a superficial, descriptive term. In Section 3.2, I argue that (18) also advances our theory of the *semantics* of pied-piping structures, as it provides an especially simple system for the interpretation of such structures.

3.1 The Elimination of ‘Pied-Piping’ From the Theory of Grammar

As we first observed in Chapter 1, sentences like the following provide a direct challenge to the ‘classic’ account in (17), which views wh-fronting as triggered by features of the wh-word.

(304) Some Pied-Piping Structures

- a. [**Whose** book] did you read?
- b. [To **whom**] did you speak?
- c. [**How** long a book] did he write?

To recall, the characteristic property of these sentences is that the phrase fronted in the wh-question *properly contains* the projection of the wh-word. Thus, if we view such fronting as targeting features of the wh-word, then the question arises of why the sentences in (304) front a phrase that is *not* a projection of that word, and hence doesn’t otherwise possess its features. As we more acutely put it, we can see from sentences like (305) that a possessive DP doesn’t inherit the *number* properties of a wh-possessor. How, then, does such a DP inherit the special ‘wh-word properties’ that trigger the fronting seen in (304a)?

(305) Possessive Phrases Don’t Otherwise Have the Features of their Possessors

[Whose sisters] are / *is interesting?

It was as a solution to this basic tension that the concept of ‘pied-piping’ was introduced into linguistic theory. Throughout this thesis, we understand the term ‘pied-piping’ to refer to cases where an operation that targets the features of a particular lexical item applies to a phrase properly containing the maximal projection of that item.²⁰ Thus, to maintain that pied-piping exists is to maintain that there simply are cases of this sort, that it *is* sometimes possible for an operation to apply to a phrase that properly contains the maximal projection of the word whose features it is targeting. Consequently, we find that the analysis in (17) *must*, in light of the facts in (304), accept that pied-piping exists.

Let us note, however, that our theory of Tlingit wh-questions has no need of the concept of ‘pied-piping’. Like the sentences in (304), the fronted phrase of a Tlingit wh-question *can* properly contain the wh-word; examples of this were collected in Section 4.2 of Chapter 2. In a Tlingit wh-question, however, the particle *sá* always occurs directly to the right of the fronted phrase, as shown below.

²⁰ Again, this is in opposition to the term ‘pied-piping structure’, which is a purely descriptive term, referring to wh-questions where the fronted phrase properly contains the (projection of) wh-word.

(306) **The Projection of Q is Never Properly Contained Inside the Fronted Phrase**

- a. [QP [DP **Aadóo** yaagú] **sá**] ysiteen?
who boat Q you.saw.it
Whose boat did you see?
- b. * [DP [QP **Aadóo** **sá**] yaagú] ysiteen?
who Q boat you.saw.it

Thus, the fronted phrase of a Tlingit wh-question never properly contains the projection of the Q-particle. Furthermore, according to our analysis in (18), it is the features of this Q-particle – and not the wh-word – which trigger the fronting seen in Tlingit wh-questions. Consequently, under our theory of Tlingit wh-questions, the ‘pied-piping structures’ of Tlingit are *not* cases where an operation triggered by the features of a lexical item applies to a phrase properly containing the maximal projection of that item. Therefore, despite the (perhaps confusing) terminology, the pied-piping structures of Tlingit are not instances of (true) pied-piping. Finally, since the Q-particle *sá* is *never* properly contained within the fronted constituent of a Tlingit wh-question, we find that there just *aren’t* any true cases of pied-piping in Tlingit. For this reason, the special concept of ‘pied-piping’ can be eliminated without cost from our theory of Tlingit grammar, thus simplifying the overall theory. By adopting the analysis in (18), then, we needn’t deviate from the null hypothesis that if an operation (in Tlingit) targets the features of a given lexical item, then it applies only to the maximal projection of that item.

Similarly, if we extend the analysis in (18) to *all* wh-fronting languages, we needn’t *ever* deviate from that null hypothesis. The pied-piping structures of all the most well-studied wh-fronting languages could receive an analysis akin to that shown for English below.

(307) **The Pied-Piping Structures of English, Under the Q-Based Theory**

- a. Whose father’s cousin’s uncle did you meet at the party?
- b. [QP [[[**whose**] father’s] cousin’s] uncle] Q] did you meet at the party?

Under this analysis, a pied-piping structure in English is derived exactly like the pied-piping structures of Tlingit. In such sentences, the (null) Q-particle takes as sister a phrase properly containing the wh-word, which entails that the fronted phrase of the wh-question properly contains the wh-word. Thus, we can derive sentences like those in (304) without viewing them as cases where one fronts ‘more’ than the phrase whose features trigger the fronting. Therefore, under our Q-based theory in (18), one needn’t ever accept that pied-piping truly exists.

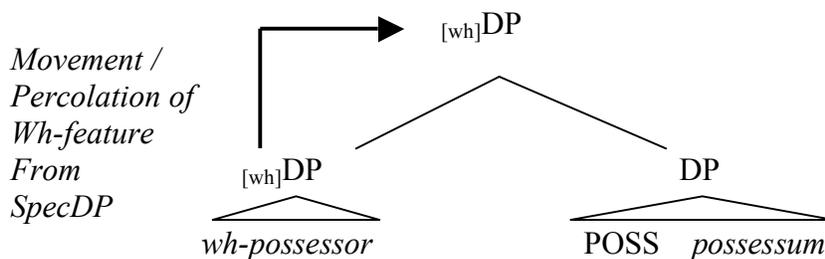
The ability to eliminate pied-piping from our theory of grammar is advantageous in several respects. First, there is the simple fact that the elimination of pied-piping as a real phenomenon reduces the number of phenomena that our theory grammar must explain. More importantly, however, it allows us to eliminate from our theory all those mechanisms whose purpose is to account for pied-piping. Given the wide-spread belief in pied-piping, the issue of what mechanisms underlie this supposed phenomenon has received a good deal of focused attention (Ross 1967, Sells 1985, Webelhuth 1992, Kayne 1994, Grimshaw 2000, Heck 2004, Horvath 2007). Within this literature, there are two main proposals. The first is that pied-piping

structures are derived via special mechanisms of ‘feature percolation’, which transfer the features of a head onto higher nodes outside the projection of the head (Chomsky 1973, Kayne 1983, Gazdar et al. 1985, Sells 1985, Cowper 1987, Webelhuth 1992, Grimshaw 2000, Heck 2004). The second proposal is that the theory of movement be weakened in such a way that it allows for moved phrases to merely *contain somewhere within them* the features triggering the movement (Ross 1967, Heck 2004). Both these approaches, however, encounter serious conceptual problems.

First, several arguments are put forth in Heck (2004) against any theories appealing to a mechanism of ‘feature percolation’. The over-arching problem noted by Heck is that the operation of feature percolation cannot be reduced to any other, more widely encountered syntactic operations. For example, feature percolation cannot (under current assumptions) be an instance of Agreement, since Agreement cannot insert features into projections where they did not previously exist.²¹ Therefore, any account holding that there is (e.g.) wh-Agreement between the wh-word and the possessive D head in (304a) would still have to account for the existence of the wh-feature on the possessive D, the very fact that a theory of feature percolation is intended to explain.

Of course, another possibility worth considering is that ‘feature percolation’ is simply ‘feature movement’. Under this view, pied-piping occurs when the wh-feature of the wh-word itself undergoes movement placing it outside the projection of the wh-word. As Heck (2004) argues in detail, however, such an account faces immediate empirical problems.²² The overall problem is that if ‘feature percolation’ were ‘feature movement’, then that movement would be observed to violate certain well-known movement constraints. Consider, for example, pied-piping by wh-possessors, as in (304a). If we suppose that such structures are generated by ‘feature movement’ of [wh] from the wh-word to the higher DP, it follows that the wh-feature must *move from the possessive specifier of DP*, as illustrated below.

(308) Feature Percolation as Feature Movement, With Wh-Possessors



²¹ Certain earlier work, however, does assume theories of Agreement where such ‘feature transfer’ could take place (e.g. Grimshaw (2000)). Furthermore, Pesetsky & Torrego (2001) put forth an Agreement-based theory of pied-piping that may circumvent this problem.

²² Heck (2004) also notes that such an account faces the conceptual problem that it countenances ‘feature movement’, in the sense of Chomsky (1995). In most current work, the possibility of ‘feature movement’ has been rejected in favor of mechanisms like long-distance Agree.

However, as we saw earlier from data like (262), repeated below, English seems not to permit movement from SpecDP.²³

(262) **No Possessor Extraction in Wh-Fronting Languages (e.g. English)**

- a. [DP **Whose** book] did you read t_1 ?
- b. * [**Whose**] did you read [DP t_1 book] ?

Furthermore, as we will later discuss in Chapter 5, there is a wide-spread tendency for pied-pipers to be specifiers (of functional categories). Therefore, the notion that feature percolation is feature movement would be in conflict with the equally wide-spread tendency, noted in Section 2.3, that wh-extraction is not possible from specifiers (of functional categories).

Thus, the idea that ‘feature percolation reduces to feature movement’ receives rather direct empirical challenge from the observed constraints on movement. In the absence of any other imaginable analyses, we must conclude that any theory appealing to ‘feature percolation’ must admit of an additional, primitive syntactic operation. Most damning of all, however, is the fact that such a primitive ‘feature percolation’ mechanism serves *absolutely no* analytic purpose outside of pied-piping. Therefore, theories of pied-piping that appeal to ‘feature percolation’ are distinctly suspicious.

What, then, of the alternative theories of pied-piping? Under these approaches, the theory of movement is weakened so as to permit structures where the moved phrase does not itself bear the feature triggering the movement (Ross 1967, Heck 2004).²⁴ Thus, according to such an analysis, the sentence in (262a) is permissible because it satisfies the (weak) condition that the moved phrase contain the wh-word somewhere inside it. Unfortunately, a pervasive problem for this form of analysis is the potential for over-generation. That is, it is *not* generally the case that *any* phrase containing a wh-word may be fronted in an English wh-question, as the ill-formedness of sentence (309b) illustrates.

(309) **No Pied-Piping of Finite CPs in English**

- a. [DP Which man]₁ does Mary believe [CP that Dave likes t_1] ?
- b. * [CP that Dave likes which man]₁ does Mary believe t_1 ?

Of course, if appeal is made to feature-percolation, then the observed limits on pied-piping may be encoded into the percolation mechanism itself, by placing limits on ‘how far’ feature-percolation may carry a feature from its lexically associated head. However, without this sort of mechanism, it is difficult to identify the source of anomaly in sentences like (309b), especially

²³ Of course, under our Q-based account, the facts in (262) do not follow from constraints on movement *per se*. However, anyone adopting our Q-based account of (262) would *ipso facto* be rejecting the ‘feature movement’ analysis of pied-piping in (308).

²⁴ To be precise, Heck (2004) proposes a hybrid theory, where the labor of deriving pied-piping structures is divided between a limited mechanism of feature percolation (identified as ‘feature movement’) and a limited degree of ‘non-locality’ between the moved phrase and the feature inside it promoting the movement. Such a theory is able to avoid many of the problems faced by theories that appeal to only one of these two general forms of analysis.

since sentences like (309a) establish that such embedded *wh*-words are in principle accessible to the matrix interrogative *C* head.

In summary, then, we find that the ‘classic’ analysis in (17) is not only saddled with the additional concept of ‘pied piping’, but that the mechanisms required to generate pied-piping structures are of a highly unsatisfactory nature. By comparison, our *Q*-based analysis in (18) offers a far simpler account of pied-piping structures. Under this account, the special concept of ‘pied-piping’ may be entirely dispensed with, there being no real instances of pied-piping in human language. Consequently, one may also dispense with the (rather suspicious) mechanisms used to predict the existence of pied-piping. Under the theory advocated here, all pied-piping structures are simply instances of normal phrasal movement. They have no interesting syntactic (or semantic) properties, and do not stand out as a special taxonomic class. Most importantly, they do not require for their derivation any mechanisms beyond those used for simple *wh*-questions without pied-piping.

Finally, we will later see that our *Q*-based theory also makes a range of further, correct predictions regarding pied-piping structures. In Section 4, we will see that our analysis correctly predicts that ‘pied-pipers’ are universally subject to Intervention Effects within the pied-piped constituent. Moreover, throughout Chapter 5, we will see that the *Q*-based account can advance our understanding of many other properties of pied-piping structures, including the rather severe limits placed on pied-piping by languages like English.

3.2 The Semantics of *Wh*-Questions with Pied-Piping Structures

In this section, we will see that a *Q*-based theory of pied-piping structures not only provides an especially simple account of their syntax, but also greatly simplifies the semantic theory of such structures.

First, let us recall that our semantic theory in Chapter 2 correctly interprets those Tlingit *wh*-questions where the sister of *Q* properly contains the *wh*-word. As we noted in Section 7, this result demonstrates that our semantics is sufficient to interpret the pied-piping structures of Tlingit. It follows, of course, that if we extend our *Q*-based analysis of Tlingit pied-piping to *all* *wh*-fronting languages, then our semantics would be sufficient to interpret the pied-piping structures of *any* *wh*-fronting language. As we will soon see more concretely, under such an analysis, the interpretation of pied-piping structures in (e.g.) English is rather trivial, and relies upon no mechanisms beyond those required for *wh*-questions without pied-piping.

This is indeed a significant advantage of our ‘universalist position’. Unlike the analysis in (18), the analysis in (17) renders the semantics of pied-piping structures something of a puzzle. In order to provide a full appreciation of this result, I will briefly review here the semantic puzzle that pied-piping classically presents.

In outline, pied-piping structures seem to present a problem for the compositional semantics of *wh*-questions. The initial problem, as observed by von Stechow (1996), is that under certain widely-held assumptions about the semantics of *wh*-words, the meaning of a *wh*-question with pied-piping cannot be derived from its surface form.²⁵ In response to this observation, various techniques have been proposed for correctly interpreting *wh*-questions with

²⁵ As recognized by von Stechow (1996), there are other, equally plausible and common approaches where *wh*-questions with pied-piping pose no difficulties (e.g. Groenendijk & Stokhof 1982). These approaches, however, take an opposing view regarding the meaning of *wh*-questions – not just *wh*-words – and thus are put aside for this discussion.

pied-piping. We will see, however, that the methods thus far proposed fail to predict the correct range of meanings for such questions.

To begin, let us introduce the assumptions that ultimately create our semantic puzzle. The first such assumption concerns the quantificational force of *wh*-words. Given the noted tendency for indefinites to be formed from *wh*-words, it is very natural to assume that *wh*-words are existential quantifiers (Katz & Postal 1964, Baker 1970, Karttunen 1977). Thus, the meaning of a *wh*-word like “what” would be equivalent to the meaning of an indefinite like “something”, which is taken to be a generalized quantifier, as represented in (310a) below.

(310) Background Assumptions Creating the Semantic Puzzle, Part 1

Semantically, wh-words are existential quantifiers (Katz & Postal 1964, Baker 1970, Karttunen 1977).

$$a. \quad [[\text{what}]] \quad = \quad [[\text{something}]] \quad = \quad \lambda Q [\exists x. x \notin \text{human} \ \& \ Q(x)]$$

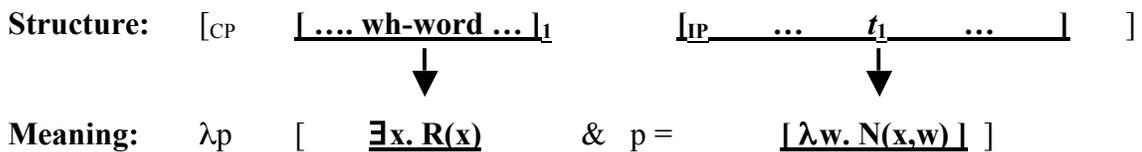
$$b. \quad [[\text{which magazine}]] = [[\text{some magazine}]] = \lambda Q [\exists x. x \in \text{magazine} \ \& \ Q(x)]$$

Similarly, the meaning of a *wh*-phrase like “which magazine” would simply be equivalent to the indefinite phrase “some magazine”, which is taken to be the generalized quantifier in (310b).

The second ‘problematizing’ assumption concerns the semantic contribution of *wh*-words to the meaning of the *wh*-question. Given the semantics in (310), one obvious possibility is that the *wh*-word contributes the existential force found in the restrictor of the *wh*-question. A simple proposal that would capture this idea is the following: in a *wh*-question, the fronted phrase is mapped to the restrictor of the *wh*-question, while the rest of the sentential material is mapped to the propositional nucleus. This proposal is schematically represented below.

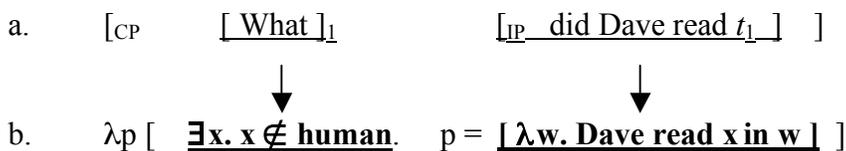
(311) Background Assumptions Creating the Semantic Puzzle, Part 2

In a wh-question, the fronted phrase is interpreted as the restrictor, while the sentential material is interpreted as the propositional nucleus (Karttunen 1977).



Thus, under the assumptions in (310) and (311), a *wh*-question like *What did Dave read* is interpreted as shown under (312).

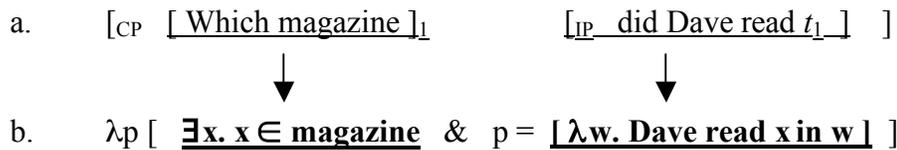
(312) Illustration of the Semantics



Following the proposal in (310), the wh-word *what* is interpreted as a generalized quantifier, whose existential force is then mapped to the restrictor of the wh-question, following the proposal in (311). Finally, by interpreting the remaining sentential material as the propositional nucleus (311), we derive as the meaning of the wh-question the lambda expression in (312b). Following our method for informally reading these lambda expressions (cf. Chapter 2, section 7.6.1), we derive as the meaning of (312a) the question “Which *x*, *x* a non-human, is such that Dave read *x*”, which does intuitively capture the meaning of that question.

As a final illustration of this semantics, let us examine the meaning that it assigns to the wh-question under (313a).

(313) **Illustration of the Semantics**



Again, following the proposals in (310) and (311), the fronted wh-phrase is interpreted as the generalized quantifier under (310b), whose existential force is then mapped to the restrictor of the wh-question. Assuming that the remaining sentential material is mapped to the propositional nucleus, we derive as the meaning of the wh-question the lambda expression in (313b). Following our method for informally reading these lambda expressions, we derive as the meaning of (313a) the question “Which *x*, *x* a *magazine*, is such that Dave read *x*”, which does intuitively paraphrase the meaning of (313a).

We find, then, that the proposals under (310) and (311) are sufficient to correctly interpret a wide range of wh-questions. It should be noted, moreover, that these proposals lend some indirect support to the ‘classic’ analysis in (17). Under that analysis, of course, the fronting seen in a wh-question specifically targets the *wh-word*. Interestingly, the proposals in (310) and (311) provide some semantic motivation for such fronting. Note that the existential quantifier in the restrictor of the wh-question has scope over the propositional nucleus of the wh-question. Consequently, if the wh-word contributes that existential quantifier, then it must be interpreted in a position where it will have scope over the material contributing the propositional nucleus. Under the semantics in (310) and (311), then, there must be some syntactic mechanism that places the wh-word of a wh-question in a position where it c-commands the rest of the wh-question. That mechanism, though, could simply be identified with wh-movement as in (17). Therefore, the semantic assumptions in (310) and (311) cohere best with the ‘classic’ syntax in (17), and *vice versa*.

It is revealing, then, that pied-piping structures present problems for the semantics in (310) and (311) that are analogous to the problems they raise for the syntax in (17). The overall problem is the following: without the addition of special mechanisms, the semantics in (310) and (311) fails to correctly interpret wh-questions with pied-piping.²⁶ To see this, let us first recall what the meaning of a wh-question with pied-piping actually is. As we first saw under (199) and

²⁶ To my knowledge, the following issue was first extensively discussed by von Stechow (1996), though Hagstrom (1998) cites Ohno (1989) as an earlier source. von Stechow (1996) himself cites a comment that Nishigauchi (1990) attributes to Barbara Partee.

(201), the meaning of a wh-question like *Whose book did Dave read*, is the set of propositions ‘Dave read x’ for some human x. This is repeated under (314), below.

(314) The Meaning of Wh-Questions with Pied-Piping

- a. Question: Whose book did Dave read?
- b. Meaning (Set Notation):
 $\{ [\lambda w. \text{Dave read Lou's book in } w], [\lambda w. \text{Dave read Ian's book in } w], [\lambda w. \text{Dave read Phil's book in } w], [\lambda w. \text{Dave read Ty's book in } w], \dots \}$
- c. Meaning (Lambda Notation):
 $\lambda p [\exists x. x \in \text{human. } p = [\lambda w. \text{Dave read } [x\text{'s book}] \text{ in } w]]$
‘Which x, x a human, is such that Dave read x’s book?’

To spell this out further, the wh-question *Whose book did Dave read?* is answered by propositions like *Dave read Lou’s book*, *Dave read Ian’s book*, etc. Generally speaking, one answers the question with a proposition naming a particular person x who is such that Dave read x’s book. For this reason, we represent the meaning of the wh-question via the lambda expression in (314c). Finally, given our informal method for reading such lambda expressions, a paraphrase of this formal expression is ‘which x, x a human, is such that Dave read x’s book’, which indeed seems to accurately paraphrase the English wh-question in (314a).

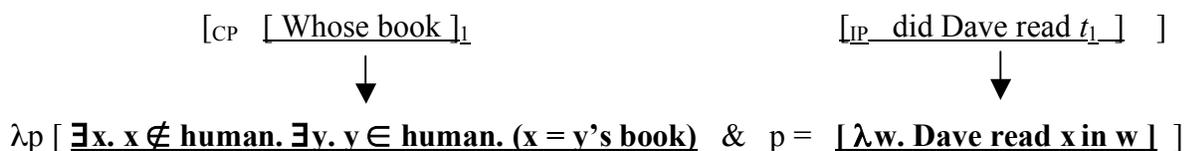
Having seen what the meaning of (314a) actually *is*, let us now see what the semantics in (310) and (311) predicts it *should* be. First, given the assumption in (310), the fronted phrase *whose book* is interpreted as the generalized quantifier in (315) below.

(315) The Meaning of the Pied-Piped Phrase

$$[[\text{whose book}]] = [[\text{someone's book}]] = \lambda Q [\exists x. x \notin \text{human. } \exists y. y \in \text{human. } (x = y\text{'s book}) \ \& \ Q(x)]$$

That is, assuming that wh-words are existential quantifiers, the phrase ‘whose book’ is semantically equivalent to the indefinite phrase ‘someone’s book’, which is interpreted as the generalized quantifier denoting properties of *books owned by people*. Furthermore, under the mapping hypothesis in (311), this indefinite expression is interpreted as the restrictor of the wh-question, as illustrated below.

(316) Computing the Meaning of (314a)



As a result of this mapping procedure, then, our semantic derives as the meaning of (314a) the lambda expression indicated under (317b), below.

(317) **The Predicted Meaning of (314a)**

- a. Question:
Whose book did Dave read?
- b. Meaning (Lambda Notation):
 $\lambda p [\exists x. x \notin \text{human}. \exists y. y \in \text{human}. (x = y\text{'s book}) \ \& \ p = [\lambda w. \text{Dave read } x \text{ in } w]]$
'Which x , x is someone's book, is such that Dave read x ?'
- c. Meaning (Set Notation):
{ $[\lambda w. \text{Dave read the Bible in } w]$, $[\lambda w. \text{Dave read the phonebook in } w]$,
 $[\lambda w. \text{Dave read } \textit{The Stranger} \text{ in } w]$, $[\lambda w. \text{Dave read } \textit{No Exit} \text{ in } w]$, ... }

The lambda expression in (317b), however, does not represent the true meaning of (314a)/(317a). This can first be grasped at an intuitive level by considering the informal reading of (317b), which is '*Which x , x is someone's book, is such that Dave read x ?*'; intuitively, this expression does not paraphrase the meaning of (317a). More seriously, however, let us consider the set of propositions defined by the formula in (317b). These are the set of propositions p such that p is of the form 'Dave read x ', where x is *some book owned by some person*. Therefore, this set includes all those propositions listed under (317c), where 'the Bible', 'the phonebook', 'The Stranger', and 'No Exit' are all books owned by people.

Unfortunately, *none* of these propositions can stand as a possible answer to the question in (317a). Even in a context where the Bible is owned by someone, a speaker of English cannot answer the question 'whose book did Dave read' with 'Dave read the Bible'. Rather, one can only ever answer (317a) with a proposition having the abstract form in (314b,c). To adopt the terminology that some authors employ, the problem is that the question in (317a) is about *people* and one answers it by naming *people*, while our semantics predicts that it is about *books* and answered by naming *books*.

At this point, let us step back for a moment and consider the chief difference between the correct interpretation in (314c) and the incorrectly predicted (317b). When we compare these two formulae, we note that they ultimately differ only in where one has interpreted the 'pied-piped material' of the wh-question (i.e., the material in the fronted phrase lying outside the projection of the wh-word). As illustrated below, in the correct (314c), the pied-piped material is interpreted as part of the *propositional nucleus* of the question, while under the incorrect (317b), the pied-piped material is interpreted as part of the *restrictor*.

(318) **The Semantics in (310), (311) Interprets Pied-Piped Material in the Wrong Place**

- a. Correct Meaning:
 $\lambda p [\exists x. x \in \text{human}. p = [\lambda w. \text{Dave read } [x\text{'s book}] \text{ in } w]]$
'Which x , x a human, is such that Dave read x 's **book**?'
- b. Incorrect (Predicted) Meaning:
 $\lambda p [\exists x. x \notin \text{human}. \exists y. y \in \text{human}. (x = y\text{'s book}) \ \& \ p = [\lambda w. \text{Dave read } x \text{ in } w]]$
'Which x , x is **someone's book**, is such that Dave read x ?'

We therefore find that the chief problem with the semantics in (310) and (311) is that it interprets the pied-piped material in the ‘wrong location’, as part of the restrictor of the wh-question rather than as part of the propositional nucleus.

To sum up our discussion thus far, we have found that the following three semantic assumptions – which constitute the simplest theory possible under the syntax in (17) – together yield the incorrect interpretation for wh-questions with pied-piping.

(319) The Core Assumptions of Our Incorrect Semantic Theory

- a. The meaning of a wh-word is (uniformly) an indefinite (cf. (310)).
- b. The fronted phrase of a wh-question is (uniformly) interpreted as the Restrictor (cf. (311)).
- c. The surface structure of a wh-question is (uniformly) the input to semantic interpretation.²⁷

When these three assumptions are combined, the pied-piped material of the wh-question is interpreted as part of the restrictor of the wh-question, which yields the incorrect meaning.

Given this result, linguists assuming the syntax in (17) have proposed that the simple theory in (319) receive some minor adjustment, one that would yield the correct interpretation for pied-piping structures without greatly complicating the semantics needed for (17). Naturally, such adjustment would entail the elimination and replacement of one of the three hypotheses in (319). As we will see, however, neither of the two major proposals made thus far for revising the theory in (319) are sufficient for correctly interpreting pied-piping structures. Although these two proposals do predict the correct interpretation in (314c), they fail to rule out the incorrect interpretation in (317b).

Historically, the first hypothesis in (319) to be given up was (319c), whose abandonment was proposed by von Stechow (1996). In response to the empirical failures of (319), von Stechow (1996) proposes, in essence, that pied-piping is ‘undone’ by the time the wh-question is semantically interpreted. A popular variant of von Stechow’s (1996) technical proposal is that, by the level of LF, the pied-material is ‘moved down’ – or *reconstructed* – into a semantically appropriate IP-internal position.²⁸ The overall analysis is illustrated below.

(320) The Reconstruction Solution to The Semantics of Pied-Piping

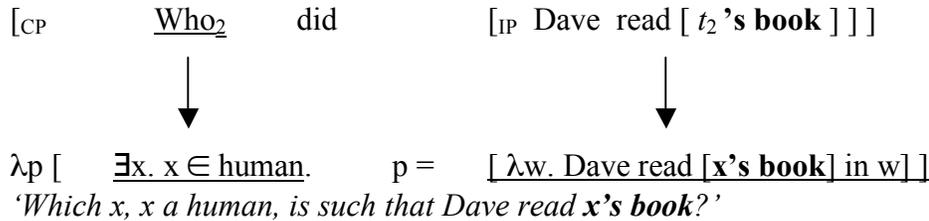
- a. Pronounced Structure:
[_{CP} [Whose **book**]₁ did [_{IP} Dave read *t*₁]]
- b. Interpreted Structure (Post-Reconstruction):
[_{CP} Who₂ did [_{IP} Dave read [*t*₂ ’s **book**]]]

²⁷ That is, what we see as the ‘fronted phrase’ in the surface structure of the wh-question is *also* the ‘fronted phrase’ for the purposes of interpreting the wh-question.

²⁸ von Stechow’s (1996) original proposal was that there is covert movement of the *wh-word* to a position *above* the pied-piped phrase. Though it is for all intents and purposes identical to the reconstruction account in (320), von Stechow’s original proposal is more difficult to implement in current syntactic theory.

If we interpret the ‘post-reconstruction’ structure in (320b) according to (310) and (311), then we assign the correct interpretation to the wh-question. The following illustrates.

(321) **The Interpretation of Pied-Piping Structures After Reconstruction**



Given our assumption in (311), the material within the IP of the wh-question is interpreted as the propositional nucleus of the wh-question. Therefore, if we reconstruct the pied-piped material into the IP of the wh-question, (311) correctly predicts that the pied-piped material will be interpreted as part of the propositional nucleus. Thus, by giving up assumption (319c), von Stechow (1996) provides a semantics for the syntactic theory in (17) that correctly interprets wh-questions with pied-piping.

Note, however, that von Stechow (1996) only achieves this semantic result via a significant complication of the surrounding syntactic theory. More acutely, under the analysis of von Stechow (1996), wh-questions with pied-piping require for their interpretation syntactic mechanisms that go beyond what is required for wh-questions without pied-piping. After all, wh-questions without pied-piping raise no problems for the simple theory in (319); thus, mechanisms of syntactic reconstruction are not required for their interpretation. Indeed, if any reconstruction *did* occur in simple wh-questions like (312), then the semantic hypotheses in (310) and (311) would fail to interpret such a structure. Consequently, von Stechow (1996) paints a picture of pied-piping structures wherein they are ‘exceptional’ cases, ones requiring use of special mechanisms beyond those generally required for wh-questions. Such a picture is at odds with the overwhelming prevalence of pied-piping phenomena across human language.²⁹

This picture also stands in stark contrast to the Q-based account in (18). As already noted, given our semantics in Chapter 2, our Q-based analysis of pied-piping structures allows such structures to be interpreted *without* appeal to any mechanisms or principles beyond those introduced for wh-questions without pied-piping. Consequently, our Q-based account provides a uniform semantic theory of wh-questions, which does not in any way distinguish between ‘plain’

²⁹ It should also be noted that the combination of the ‘classic’ analysis in (17) with the reconstruction account in (320) and (321) paints an even stranger picture of pied-piping. Under this picture, pied-piping structures are a deviation from a simpler ‘universe’ where operations triggered by a feature F of a head H only apply to projections of H. The effect of this deviation, however, has to be undone by LF in order for the structures in question to be correctly interpreted. Therefore, according to this combined analysis – which, I believe, represents the prevailing wisdom regarding pied-piping – pied-piping structures (i) require special mechanisms for their syntactic derivation, and (ii) require special mechanisms for their semantic derivation, which only serve to negate the effect of the mechanisms that derived them in the first place (!). Under such a view, the very existence of pied-piping structures seems utterly pathological. They represent a deviation from a far simpler syntactic and semantic ‘universe’, one that, moreover, has no discernable payoff.

We should note that this clearly does not at all hold for our Q-based analysis in (18). Under that analysis, pied-piping structures do *not* represent a deviation from the simpler syntactic ‘universe’, and thus their interpretation does not require the undoing of such a deviation.

wh-questions and those containing pied-piping structures. Not only is such a semantics conceptually simpler, but it also does not make distinctions that human languages appear oblivious to.

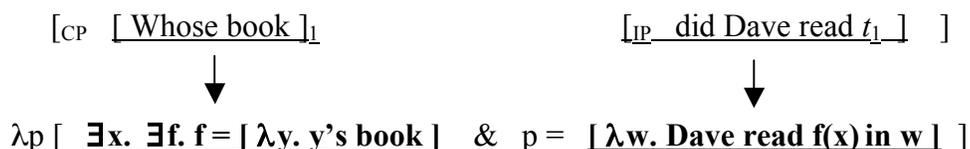
The reconstruction account in (310) and (311) also suffers from a more serious failing: it cannot on its own predict the correct *range* of meanings available to wh-questions with pied-piping. First, let us observe that the reconstruction account only provides a means by which the correct reading in (314c) *can* be derived; it does not predict that (314c) is the *only* reading of the wh-question in (314a). Indeed, nothing in the account entails that the reconstruction in (320) *must* take place. If such reconstruction did not take place, however, then we would again predict the incorrect meaning in (317b), as we saw earlier in (316). Thus, the mere possibility of reconstruction as in (320) is not sufficient to rule out the incorrect reading in (317b). The only way in which this can be (correctly) ruled out as a meaning to (317a) is if the reconstruction in (320) were *obligatory*. It has never been made clear, however, why such reconstruction should be obligatory, and it therefore remains an additional, unprincipled stipulation of the von Stechow-type analysis.

We find, then, that the reconstruction accounts based on von Stechow (1996) suffer from the following two problems: (a) they require for the interpretation of pied-piping structures mechanisms that are not required for the interpretation of wh-questions without pied-piping; (b) without the addition of an extra stipulation, they incorrectly predict that (317b) is one possible reading of wh-questions with pied-piping. These are not, however, problems faced by our Q-based theory of pied-piping. It has already been noted that our Q-based theory does not suffer from problem (a). It also does not suffer from problem (b): there is no way in which our semantics in Chapter 2 can assign the meaning in (317b) to the pied-piping structure in (317a).³⁰

The two serious criticisms raised against von Stechow (1996) above can also be raised against the proponents of Sharvit (1998), the second of the two major proposals for revising the ‘simple’ theory in (319). Because the details of Sharvit (1998) can be rather complicated, my discussion here will be comparatively brief. The interested reader is referred to Sharvit (1998) for more information regarding her analysis.

Whereas von Stechow (1996) rejects (319c), Sharvit (1998) proposes that we give up assumption (319a), the view that wh-words are always interpreted as in (310). In its place, Sharvit (1998) proposes that wh-words be optionally interpreted as entities of a more complex type, involving quantification over functions. The resulting theory interprets wh-questions with pied-piping as illustrated under (322) below.

(322) The Interpretation of Pied-Piping Structures, According to Sharvit (1998)



According to this analysis, the fronted wh-phrase is interpreted as a complex quantificational expression, ranging over both entities and $\langle e, e \rangle$ functions. With this alternative interpretation, the correct meaning for the wh-question can be obtained by mapping the entire pied-piped phrase

³⁰ This is ultimately because, as we will soon see, our semantic system uniformly maps the meaning of the fronted phrase in a wh-question (including all the pied-piped material) into the *propositional nucleus* of the question.

into the restrictor of the wh-question, in a manner consistent with assumptions (319b) and (319c). Thus, by giving up only assumption (319a), Sharvit (1998) can provide a semantics for the syntax in (17) that correctly interprets wh-questions with pied-piping.

Like von Stechow (1996), however, the theory in Sharvit (1998) treats pied-piping structures as exceptional. Under her analysis, wh-questions with pied-piping *still* require for their analysis mechanisms beyond those needed for wh-questions without pied-piping. After all, in a wh-question without pied-piping, the special interpretation of the wh-word seen in (322) is never required.³¹ Indeed, as the reader of Sharvit (1998) is invited to confirm, if the wh-word *did* receive the special interpretation seen in (322), the result would be a semantic type mismatch. Thus, Sharvit (1998) can only interpret pied-piping structures at the cost of making such structures appear ‘exceptional’, which seems to fly in the face of their wide-spread prevalence.

Furthermore, Sharvit (1998) shares with the earlier reconstruction account the inability to rule out the incorrect reading in (317b). Again, the special interpretation of wh-words seen in (322) only provides a means by which the correct reading in (314c) *can* be derived; nothing in the account entails that it’s the *only* reading of (314a). If ‘pied-piping’ wh-words were permitted to be interpreted like wh-words in simple wh-questions, then the theory would again predict the incorrect meaning in (317b), just as we saw under (316). Thus, the mere possibility of the special reading in (322) is not sufficient to rule out (317b) as a reading of the wh-question. The only way in which Sharvit (1998) can rule this reading out is if the special interpretation for wh-words were *obligatory* when they pied-pipe. Unfortunately, it is unclear why such an interpretation should be obligatory in such contexts, and it therefore remains an additional stipulation of the analysis.³²

As we have already observed, the combination of our Q-based syntax in (18) with our semantic theory from Chapter 2 is able to avoid both the problems noted above for von Stechow (1996) and Sharvit (1998). Before we leave this section, I would like to briefly discuss *why* our account is able to avoid these problems, as such a discussion will highlight its differences from and similarities to the two earlier accounts.

Let us begin here by considering how our account ultimately differs from that in (319). To recall, the simple account in (319) is unable to correctly interpret wh-questions with pied-piping, and both von Stechow (1996) and Sharvit (1998) are attempts to minimally adjust (319) by giving up one of its three hypotheses. Our own account here also differs from (319) only in one hypothesis. Note that, as in (319), our Q-based account assumes that (i) the fronted phrases in wh-questions are (always) interpreted as indefinites, and (ii) the surface form of a pied-piping structure undergoes no structural changes before semantic interpretation. Where it crucially differs from (319), however, is in hypothesis (319b). As is clear from the derivations in Section 7.6 of Chapter 2, our theory *never* interprets the fronted phrase of the wh-question as part of the question’s restrictor; rather, it *always* interprets the fronted phrase as part of the propositional

³¹ Although Sharvit (1998) likens the interpretation of pied-piping structures in her theory to the ‘functional readings’ of wh-words in sentences like (i) below, the special interpretation she gives to ‘pied-piping’ wh-words in (322) seems to go well beyond the machinery needed to capture such functional readings.

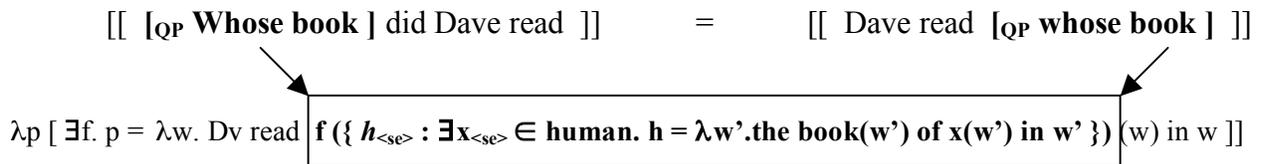
- (i) **Functional Readings of Wh-Questions**
 a. Who does every man love? (His wife!)
 b. $\lambda p [\exists f . p = \forall x . \text{man}(x) \rightarrow \text{loves}(x, f(x))]$

³² It should also be noted that, unlike the obligatory reconstruction required by von Stechow (1996), it is unclear what mechanisms could formally implement this stipulation.

nucleus. Thus, while von Stechow (1996) rejects (319c) and Sharvit (1998) rejects (319a), our own theory rejects (319b).

Ultimately, this property of our system follows from the way in which it interprets wh-words. Although we concur with (319a) that the fronted phrase in a wh-question is an indefinite, our theory holds to a non-quantificational analysis of these indefinites. Under such an analysis, these phrases do not inherently bear quantificational force; rather, such indefinites stand as variables, which can be bound by higher semantic operators. Because these indefinites do not inherently bear any quantificational force, their fronting in a wh-question is *semantically vacuous* (cf. Groenendijk & Stokhof 1982). Finally, because the movement of QPs within our theory is semantically vacuous, *the semantic effect of an operation like reconstruction always obtains*. The content of the fronted phrase is always interpreted as if it had never moved; thus, it is always interpreted in its base position, inside the IP.³³ Given that the IP of the wh-question is uniformly interpreted as the propositional nucleus of the question, it follows that under our account, the fronted phrase in a wh-question is *always* interpreted as part of the propositional nucleus. The following diagram schematically illustrates this result.

(323) **The Q-Based Account’s Rejection of Assumption (319b)**



It is this abandonment of (319b) that also allows our theory to avoid the problems inherent in von Stechow (1996) and Sharvit (1998). The main tension in both von Stechow (1996) and Sharvit (1998) is that, although they wish ‘pied-piped material’ to be interpreted as

³³ Note that this result is directly related to the result, established earlier in Section 7.4 of Chapter 2, that varying the position of the Q-particle in a wh-question has no effect on its meaning. Thus, the pied-piping structure in (ia) below receives the same interpretation as would the structure in (ib), where there is sub-extraction of the wh-possessor from within the DP.

- (i) **The Semantic Vacuity of Pied-Piping**
 - a. [QP [DP **Whose book**] Q]_i did Dave read t_1 ?
 - b. [QP **Who** Q]_i did Dave read [DP t_1 's book] ?

Note that this semantic equivalence was observed earlier with respect to clausal pied-piping in Tlingit. As noted under Footnote 50 of Chapter 2, there seems to be no difference in meaning between Tlingit sentences with clausal pied-piping and those with sub-extraction of the wh-word.

- (ii) **The Semantic Vacuity of Pied-Piping**
 - a. [[**Goodéi** **sá**]_i [has uwajée [t_1 woogootx] i shagóonich]]?
 - where.to Q they.think he.went your parents.erg
 - Where do your parents think he went?*
 - b. [[**Goodéi** woogootx **sá**]_i [has uwajée t_1 i shagóonich]]?
 - where.to he.went Q they.think your parents.erg
 - Where do your parents think he went?*

That this predicted equivalence is indeed an advantage of our theory is supported by Arregi (2003b). The chief empirical claim of Arregi (2003b) is that clausal pied-piping in Basque is semantically identical to long-distance movement of the wh-word; this is unlike (e.g.) the ‘scope marking’ constructions of Hindi and German. Thus, our semantic theory correctly predicts this property of clausal pied-piping, a result that Arregi (2003b) can only derive by assigning clausal pied-piping an exceptional syntax.

part of the propositional nucleus, they also want to retain the notion that *non*-pied-piped material is mapped to the restrictor of the question.³⁴ Consequently, the mechanisms they use to map the pied-piped material into the propositional nucleus must be prevented from applying to non-pied-piped material. Obviously, though, such mechanisms would therefore only appear in wh-questions with pied-piping, and so would constitute additions to the theory beyond what is needed for wh-questions without pied-piping. On the other hand, our own account maps *everything* in the fronted phrase of a wh-question into the propositional nucleus. Therefore, all the mechanisms appealed to in the interpretation of pied-piping structures are also required for the interpretation of wh-questions without pied-piping. Consequently, our Q-based account does not create the impression that pied-piping structures are ‘exceptional’, in the way implied by von Stechow (1996) and Sharvit (1998).

Similarly, because our Q-based account always maps the fronted phrase of a wh-question into the propositional nucleus, it faces no problems in ruling out the incorrect interpretation in (317b). Again, because both von Stechow (1996) and Sharvit (1998) wish to map *some* material in the fronted phrase to the restrictor of the question, their systems in principle allow that *all* the material of the fronted phrase could receive such mapping. Thus, they must introduce external stipulations so that only *non*-pied-piped material may be mapped into the restrictor. Under our own account, however, nothing in the fronted phrase is ever interpreted as part of the question’s restrictor, and so no issues arise regarding why pied-piped material is never so interpreted.

We therefore find that the successes of our Q-based account in avoiding the problems faced by (319), von Stechow (1996) and Sharvit (1998) all flow from its abandonment of assumption (319b). Via our assumption that the fronted QPs in a wh-question are of a non-quantificational type, we obtain a rather simple semantic theory for pied-piping structures, one where the interpretation of wh-questions with pied-piping relies on no mechanisms beyond those required for wh-questions without pied-piping. We may conclude, then, that the extension of our Q-based theory in (18) to all wh-fronting languages would advance the semantic theory of pied-piping structures.

3.3 Summary

In this section, it was shown that the extension of the Q-based theory in (18) to all wh-fronting languages would advance our general understanding of pied-piping structures. In Section 3.1, we saw that (18) provides a parsimonious syntax for pied-piping structures, one in which the very concept of ‘pied-piping’ is eliminated from the theory of grammar, as well as any special mechanisms whose purpose is to derive it. Moreover, in Section 3.2, we saw that the combination of (18) with our semantics from Chapter 2 provides a rather simple semantic theory for pied-piping structures, one where they present no *prima facie* semantic puzzle, and wh-questions with pied-piping can be assigned the correct range of interpretations without appeal to any mechanisms beyond those required for wh-questions without pied-piping.

³⁴ In turn, they wish to retain this latter notion principally because they view wh-words as contributing the existential force of the restrictor. In our system, where the existential force of the restrictor is contributed by the interrogative Force_Q head, we thus eliminate any need for non-pied-piped material to ever be interpreted as part of the restrictor.

Finally, let us observe that the primary empirical motivation for mapping the content of the wh-word into the restrictor of the question is the so-called ‘Donald Duck Problem’ (Reinhart 1997) and related issues. However, as Reinhart (1997) amply demonstrates, the use of choice-functions in our analysis provides a solution to those puzzles that does not require mapping the content of the wh-word into the restrictor.

This temporarily concludes our discussion of pied-piping. We will return to this subject in Chapter 5, where we will see that our Q-based theory can also advance understanding of the special constraints on pied-piping found in languages like English.

4. Intervention Effects and Superiority Effects in Wh-Fronting Languages

In this section, I will show that extending the analysis in (18) to all wh-fronting languages can provide an account of the variation in Intervention Effects and Superiority Effects observed across such languages. Inasmuch as the account offered here seems like a promising direction, the analysis in (18) receives support as the universal structure of all wh-fronting.

I will begin by describing the phenomena that I seek to provide an account of. We saw earlier in Chapter 3 that in many languages, an *in-situ* wh-word cannot appear in the scope of any of a set of ‘offending operators’. Although we originally discussed such ‘(LF/Focus) Intervention Effects’ in the context of wh-*in-situ* languages, they can also be observed in some wh-fronting languages. Following the first systematic study of these effects by Beck (1996), German has been the paradigmatic example of a wh-fronting language exhibiting Intervention Effects with its *in-situ* wh-words. As illustrated below, the well-formed German multiple wh-question in (324a) becomes ill-formed if the *in-situ* wh-word is placed in the scope of the offending operator *niemanden* ‘nobody’, as in (324b).

(324) Intervention Effects with *In-Situ* Wh-words in German

- a. Wer hat Hans wo angetroffen?
 who has Hans where met
Who met Hans where?
- b. ?? Wer hat niemanden wo angetroffen?
 who has nobody where met
Who met nobody where?

Interestingly, although the *in-situ* wh-words of German are widely subject to Intervention Effects, this is not so for other wh-fronting languages. Famously, English wh-words seem generally impervious to Intervention Effects.³⁵ Unlike German, *in-situ* wh-words in English can appear within the scope of such typically ‘offending operators’ as *nobody* and *not*. This is illustrated below.

(325) No Intervention Effects with *In-Situ* Wh-words in English

- a. Who didn't read **what**?
- b. Which children wanted to show nobody **which pictures**?

As has been noted by earlier researchers (Beck 1996, Pesetsky 2000), this striking contrast between English and German cries out for some principled account, one that would tie

³⁵ As we will discuss later in Sections 4.2.1 and 4.2.2, there are some environments in English where *in-situ* wh-words *are* subject to Intervention Effects. For our current purposes, however, we put such cases aside, returning to them in Section 4.2.

the variation observed above to some other, independent difference between the two languages. Throughout this section, I will develop my own, Q-based analysis that accomplishes exactly this. We will see that, when combined with the theory of Intervention Effects from Chapter 3, our Q-based syntax in (18) suggests a new account of the contrast between (324) and (325). Furthermore, it will be shown that our Q-based account links this contrast in Intervention Effects to another well-known contrast between English and German: the absence/presence of Superiority Effects in multiple wh-questions. As shown by data like that below, multiple wh-questions in English typically require that the structurally highest wh-word undergo overt wh-fronting, and that subsequent, covert wh-fronting apply only to structurally lower wh-words.³⁶

(326) Superiority Effects in English Multiple Wh-Questions

- a. Who₁ bought what₂?
- b. * What₂ did who₁ buy?

Adopting terminology based upon Pesetsky (2000), we may say that English wh-questions like those above exhibit ‘Superiority Effects’. This is in contrast to the multiple wh-questions of German, as seen below.

(327) No Superiority Effects in German Multiple Wh-Questions

- a. Wer₁ hat was₂ gekauft?
 who has what bought?
Who bought what?
- b. Was₂ hat wer₁ gekauft?
 what has who bought
Who bought what?

Unlike the English pattern in (326), the German data above show that its multiple wh-questions permit overt fronting of the structurally *lower* wh-word. Thus, it may be said that German does not exhibit the Superiority Effects seen in (326) for English.³⁷

³⁶ As we will also later discuss in Sections 4.2.1 and 4.2.2, there are some environments in English where multiple wh-questions seem *not* to be subject to Superiority Effects. For our current purposes, however, we again put such cases aside, returning to them in Section 4.2.

³⁷ I should note here, however, that the empirical status of Superiority Effects in German remains controversial. For example, as first argued by Fanselow (1991, 1997), Superiority Effects do seem to surface in German if the structurally lower wh-word undergoes long-distance movement from a subordinate clause. That is, sentences like (ib) below are decidedly ill-formed in comparison to sentences like (ia), a fact that is quite reminiscent of the English facts in (326).

- (i) **Possible Superiority Effects in German Long-Distance Movement**
 - a. Wer₁ glaubte, [dass Peter ihr wen₂ vorstellte]?
 who-NOM believed that Peter her who-ACC introduced
Who believed that Peter introduced her to whom?
 - b. * Wen₂ glaubte wer₁, [dass Peter ihr t₂ vorstellte]?
 who-ACC believed who-NOM that Peter her introduced

However, Pesetsky (2000; pp. 76 – 83) argues that structures like (ib) are ill-formed for independent reasons, and so they do not truly witness the existence of Superiority Effects in German. Consequently, Pesetsky (2000) concludes

Taken together, then, we find that English exhibits Superiority Effects but fails to exhibit Intervention Effects, while German exhibits Intervention Effects but fails to exhibit Superiority Effects. According to the Q-based account I develop here, this is no accident. The account predicts that the presence of Superiority Effects in multiple wh-questions entails the absence of Intervention Effects with *in-situ* wh-words, and *vice versa*.³⁸

Besides this correlation between Superiority and Intervention Effects, the Q-based analysis proposed here makes a further prediction regarding pied-piping structures. We will see that, when combined with our theory of pied-piping structures (cf. Section 3), our Q-based account of (324) – (327) predicts the generalization stated under (328) below.

(328) Intervention Effects in Pied-Piping Structures

In all languages, an Intervention Effect will arise if a ‘pied-piping’ wh-word is c-commanded by an ‘offending operator’ inside the pied-piped constituent.

In other words, our account predicts that within the fronted constituent of pied-piping structure, a wh-word is *always* subject to Intervention Effects. As it happens, earlier work on pied-piping and Intervention Effects by Sauerland & Heck (2003) demonstrates that (328) is indeed true for German. The following data illustrate.

(329) Intervention Effects in German Pied-Piping (Sauerland & Heck 2003)

- a. Fritz möchte wissen [ein wie schnelles Motorrad] du fahren darfst.
 Fritz wants to.know a how fast motorbike you drive may
Fritz would like to know how fast a motorbike you are allowed to drive.
- b. * Fritz möchte wissen [kein wie schnelles Motorrad] du fahren darfst.
 Fritz wants to.know no how fast motorbike you drive may

that German multiple wh-questions *never* exhibit Superiority Effects, a conclusion that I assume throughout my discussion here.

On the other hand, Featherston (2005) reports that speakers of German do detect a slight contrast between the structures of (327), with the Superiority-satisfying structure in (327a) seeming slightly better to speakers than the Superiority-violating structure in (327b). I assume here that such preferences indicate that Superiority-violating structures are slightly more difficult to process than those satisfying Superiority, as independently argued by Sag *et al.* (2006). Such differences in processing ease, however, I assume are a distinct phenomenon from the categorical grammaticality judgements in (326), which indicate that Superiority-violating structures violate certain principles of English grammar.

³⁸ Note that Pesetsky (2000) also explicitly ties the English/German variation in Intervention Effects to the English/German variation in Superiority Effects.

Furthermore, the theory proposed by Beck (1996) for the English/German variation in Intervention Effects might also make a similar prediction regarding Superiority Effects. Note that Beck (1996) ties the absence/presence of Intervention Effects in a language to the absence/presence (respectively) of (overt) A-scrambling. Interestingly, the absence/presence of A-scrambling in a given language has been proposed as the underlying root of the presence/absence (respectively) of Superiority Effects in the language (Fanselow 1991, 1997). Thus, accepting these latter analyses of Superiority Effects, Beck (1996) shares with Pesetsky (2000) and myself the prediction that absence/presence of Intervention Effects with *in-situ* wh-words should correlate with the presence/absence of Superiority Effects in multiple wh-questions.

Furthermore, we will see that this generalization also holds for pied-piping in English, as shown by data like the following.

(330) **Intervention Effects in English Pied-Piping**

- a. (?) [A picture of **which** president] does Jim own?
- b. * [No picture of **which** president] does Jim own?

Finally, let us note that the Intervention Effects associated with ‘pied-piping’ wh-words are found in *both* German *and* English. This is quite unlike the Intervention Effects associated with *in-situ* wh-words, which we have seen do not obtain in English. As I will show, our Q-based account of (324) – (327) uniquely predicts this contrast between these two types of Intervention Effect-triggering environments.

Our discussion begins in Section 4.1, with the analysis of multiple wh-questions in English. I put forth a compositional semantics for English multiple wh-questions which predicts that such questions contain multiple instances of the Q-particle. I then show that this result in turn predicts both (i) that English multiple wh-questions should be subject to Superiority Effects, and (ii) that *in-situ* wh-words in English multiple wh-questions should *not* be subject to Intervention Effects. In addition, I show that the proposed theory of multiple wh-questions resolves certain outstanding issues for the Beck (2006) theory of Intervention Effects.

In Section 4.2, I then turn to the multiple wh-questions of German. I propose a distinct compositional semantics for German multiple wh-questions, one that predicts them to contain *only one* instance of the Q-particle. I then show that this result predicts both (i) that German multiple wh-questions should *not* be subject to Superiority Effects, and (ii) that *in-situ* wh-words in German multiple wh-questions *are* subject to Intervention Effects. Following this result, I briefly discuss D-linked and ternary wh-questions in English, which curiously exhibit the properties predicted for all German multiple wh-questions. I then conclude Section 4.2 with a brief discussion of the Intervention Effects found in German ‘separation structures’.

Finally, Section 4.3 concerns the predictions of our Q-based analysis for pied-piping structures. I first show that the analysis predicts the generalization in (328), and then subsequently show that (328) is indeed true of pied-piping in both German and English. Section 4.4 summarizes the overall results of our discussion.

4.1 Intervention Effects and Superiority in English

In this section, I will put forth a syntactic and semantic analysis of multiple wh-questions in English. We will then see that this analysis correctly predicts that (i) English multiple wh-questions exhibit Superiority Effects (cf. (326)), and (ii) *in-situ* wh-words in English multiple wh-questions are (generally) immune to Intervention Effects (cf. (325)).

To begin, let us observe a failing of the semantics for wh-questions that we have been employing thus far. Recall that a crucial component in our compositional semantics for wh-questions is the interrogative Force_Q head in (204), repeated below.

(204) **Special Composition Rule for Force_Q**

$$[[\text{Force}_{Q_i} \text{XP}]]^g = \lambda p [\exists f . p = [[\text{XP}]]^g(i/f)]$$

According to the semantics above, this Force_Q head contributes the restrictor portion of the meaning of the wh-question. Note, however, that under this semantics, the Force_Q contributes *exactly one* existential quantifier to the question's restrictor. As we've seen, this is indeed correct for the semantics of plain, single wh-questions. For multiple wh-questions, however, this will be insufficient. In order to be interpreted correctly, a *multiple* wh-question must be assigned *multiple* existential quantifiers in its restrictor.

To see this, let us consider the meaning of a multiple wh-question like '*Who saw what?*'. Intuitively, this question is answered by propositions like *Dave saw the table*, *Frank saw the picture*, *Jim saw Fenway Park*, etc. That is, the answer to such a question must name a particular person x and a particular thing y such that x saw y . This means, of course, that the proposition set we take to be the meaning of '*Who saw what?*' must be the set of propositions p such that there is some human x and some non-human y such that p is the proposition ' x saw y '. These facts are summarized under (331), below.

(331) **The Semantics of Multiple Wh-Questions**

- a. Question:
Who saw what?
- b. Meaning (Set Notation)
{ $[\lambda w.$ Dave saw the table in $w]$, $[\lambda w.$ Frank saw the picture in $w]$,
 $[\lambda w.$ Jim saw Fenway Park in $w]$, $[\lambda w.$ Phil saw the Bible in $w]$, ... }
- c. Meaning (Lambda Notation):
 $\lambda p [\exists x. x \in \text{human}. \exists y. y \notin \text{human}. \& p = [\lambda w. x \text{ saw } y \text{ in } w]]$
'Which x , x a human and which y , y a non-human are such that x saw y ?'

Therefore, we see that in the meaning of a multiple wh-question, the restrictor contains multiple existential quantifiers, one for each 'questioned' element in the proposition. Consequently, the Force_Q head in (204), which introduces only one existential quantifier into the restrictor of the question, will not be sufficient for multiple wh-questions.³⁹

How are we to remedy this problem? Here, I will pursue an approach similar to that employed by Dayal (1996) and Pesetsky (2000): I assume that multiple wh-questions require for their interpretation a special interrogative Force head, which I label ' Force_{Q2} '. That is, I assume that in addition to the ' Force_Q ' of (204), the lexicon on English contains a distinct head ' Force_{Q2} ', which has the following characteristic semantics.

(332) **The Head Force_{Q2} in the Semantics of English Multiple Wh-Questions**

$$[[\text{Force}_{Q2} \text{ }_{ij} \text{ XP }]]^g = \lambda p [\exists f, f' . p = [[\text{XP}]]^{g(i/f)(j/f')}]$$

³⁹ However, as we will later see, the one existential quantifier in (204) *could* be sufficient for a multiple wh-question, if the single choice function variable it binds were able to take scope over multiple wh-words. As we will discuss more thoroughly in Chapter 5, however, independent conditions on the position of Q-particles (i.e., the QP- and LP-Intervention Conditions) prevent Q-particles in English from taking more than one wh-word within their scope.

Thus, the interrogative Force_{Q2} head differs from the head Force_Q in that it contributes *two* existential quantifiers to the restrictor of the wh-question. As we will see, such a semantics will allow our system to assign the correct interpretation to sentences like (331a).

Before we begin extolling the virtues of Force_{Q2}, however, let us first address two criticisms that can be immediately raised against it. The first is that it fails to provide a uniform semantic theory for English wh-questions. Under this approach, multiple wh-questions in English are treated as some kind of ‘special monsters’, which require for their interpretation specific mechanisms beyond those required for simple, single wh-questions. This criticism, of course, mirrors our own earlier criticism against prior approaches to the semantics of pied-piping structures. In the case of multiple wh-questions, however, this ‘exceptionalizing’ of the structure in question may actually be a virtue of the analysis, rather than a failing. First, it is well-known that multiple wh-questions are not a universal feature of human language. There are languages that don’t seem to have multiple wh-questions, despite their having single wh-questions: Italian (Rizzi 1982) and Passamaquoddy (Bruening 2001) are two examples. Under the approach adopted here, the lack of multiple wh-questions in such languages could follow from an absence of the Force_{Q2} head from their lexicon. Furthermore, Dayal (1996) provides an interesting semantic argument against a uniform treatment of single and multiple wh-questions. As Dayal demonstrates, such a uniform account would fail to capture important differences between the ‘answerhood’ conditions of single and multiple wh-questions. Consequently, Dayal (1996) advocates a system akin to our own, where multiple wh-questions require a special interrogative C head for their interpretation.

A second, more serious criticism that could be raised against our ‘Force_{Q2}’ head is that it is sufficient only for *binary* multiple wh-questions. Given the semantics in (332), this head introduces only *two* existential quantifiers into the restrictor of the question. Consequently, this head will not be sufficient to interpret (e.g.) *ternary* multiple wh-questions, where the question contains three wh-words. As illustrated below, the meanings of such questions contain *three* existential quantifiers within their restrictors.

(333) The Semantics of Ternary Multiple Wh-Questions

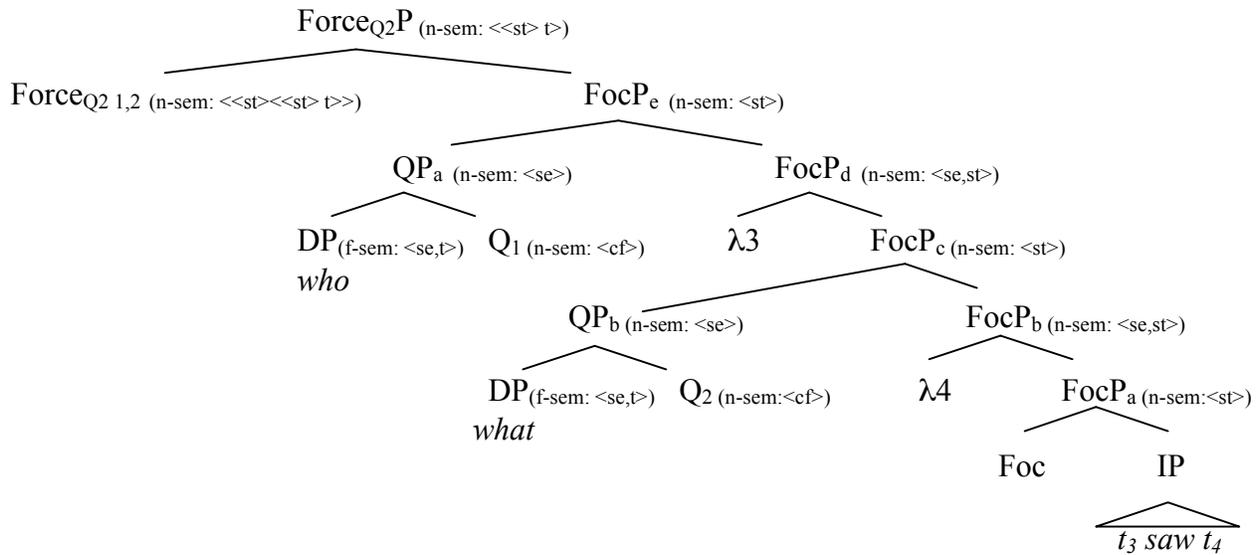
- a. Question:
Who gave what to whom?
- b. Meaning (Set Notation)
{ [λw . Dave gave the cat to Sue in w], [λw . Frank gave the tie to Joe in w],
[λw . Jim gave the car to Tom in w], [λw . Phil gave the dog to Ann in w], ... }
- c. Meaning (Lambda Notation):
 $\lambda p [\exists x. x \in \text{human}. \exists y. y \notin \text{human}. \exists z. z \in \text{human} \ \& \ p = [\lambda w. x \text{ gave } y \text{ to } z \text{ in } w]]$
‘Which x , x a human, which y , y a non-human and which z , z a human are such that x gave y to z ?’

At this point in our discussion, I will not directly engage with this criticism. It is, indeed, a serious one, which we will eventually have to answer. However, I will put off discussion of ternary wh-questions until Section 4.2.2, where we will see that a slight augmentation to the

account proposed here can not only interpret such questions, but also predicts certain curious properties they exhibit.

Having answered these initial criticisms against our Force_{Q2} head, let us now confirm that it indeed performs the job it was intended to. We assume that in English (binary) multiple wh-questions, the ForceP is headed by Force_{Q2}, rather than Force_Q. Thus, an English multiple wh-question like ‘*Who saw what?*’ possesses (at LF) the structure illustrated under (334), below.⁴⁰

(334) **The Syntax and Semantics of Sentence (331a)**



$$[[\text{Force}_{Q2}P]]^g = \lambda p [\exists f, f'. p = [\lambda w [f(\{x : x \in \text{human}\})](w) \text{ saw } [f'(\{x : x \notin \text{human}\})](w) \text{ in } w]]$$

As the reader is invited to confirm, the lexical entry for Force_{Q2} in (332) entails that our semantic system assigns as the meaning of (331a) the set of propositions indicated above. This is the set of propositions p of the form ‘x saw y’, where (i) x is the value obtained by applying *some* choice function to the set of humans, and (ii) y is the value obtained by applying *some* choice function to the set of non-humans. Given the nature of choice-functions, however, this is simply the set of propositions p of the form ‘x saw y’, where x is some human and y is some non-human. Therefore, the set of propositions our system derives as the meaning of (331a) is identical to the set of propositions defined by (331c), ‘ $\lambda p [\exists x. x \in \text{human}. \exists y. y \notin \text{human}. \& p = [\lambda w. x \text{ saw } y \text{ in } w]]$ ’.⁴¹ Given that (331c) is the correct, observed interpretation of (331a), we find that our semantics can correctly interpret the (binary) multiple wh-questions of English.

⁴⁰ Note that the structure in (334) assumes, as is commonly done, that all the wh-words of an English multiple wh-question move into the left-periphery by LF. Indeed, given our assumptions regarding existential closure (cf. (181)), such movement is semantically necessary in our system. As we noted earlier in Section 2.4.2, any QP left within the IP at LF will necessarily be interpreted by our system as a wh-indefinite. Thus, in order to be interpreted as a ‘wh-operator’, a QP must move outside the IP by LF.

⁴¹ Note that this equivalence also follows from the more general equivalence, proven earlier under (189).

We have just seen that the addition of the Force_{Q2} head in (332) renders our system sufficient to interpret (binary) English multiple wh-questions. Furthermore, this minor augmentation of our system can also provide an account of the crucial data in (325) and (326). That is, given the broader assumptions of our theory, the addition of Force_{Q2} to English predicts that (i) English multiple wh-questions should exhibit Superiority Effects, and (ii) *in-situ* wh-words in English should (generally) be immune to Intervention Effects.

How does our system obtain these results? Ultimately, they follow from the following, more abstract prediction of our system: in an English (binary) multiple wh-question, there are multiple Q-particles, one for each wh-word. Note that, under the semantics in (332), the Force_{Q2} head existentially quantifies over two choice-function variables. Thus, the complement of the Force_{Q2}P must contain two Q-particles, or else the structure will contain vacuous quantification. It follows that in English (binary) multiple wh-questions, each wh-word must be associated with its own, separate Q-particle, as seen in (334) above. This result, in turn, can predict the English facts illustrated under (325) and (326).

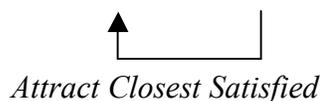
Let us first consider how this result predicts that English multiple wh-questions exhibit Superiority Effects. Under our Q-based account in (18), the fronting of a wh-word in a wh-question is ultimately fronting of a QP projection dominating that wh-word. Such QP-fronting is, of course, assumed to follow such universal principles as ‘Attract-Closest’ (Richards 1997) or the ‘Minimal Link Condition (MLC)’ (Chomsky 1995), whose effect is to require movement of a given type to apply to structurally higher phrases first. Thus, if there are multiple QPs within a sentence, such principles require that only the highest QP undergo initial, overt Q-movement, while all lower QPs must undergo subsequent, covert Q-movement. Furthermore, the result that every wh-word in an English multiple wh-question comes with its own Q-particle entails that every such wh-word is contained within a QP projection. Given the independent properties of Q-particles (cf. Chapter 2, Section 7.5), it clearly follows that the structurally highest wh-word in the sentence will be dominated by the structurally highest QP-projection. Finally, since Attract-Closest/MLC entails that only the structurally highest QP undergoes initial, overt fronting, it follows that only the structurally highest wh-word will overtly appear in the left periphery of the clause, as we saw in (326). The diagrams below illustrate this result.

(335) Multiple QPs Predicts Superiority Effects

Since all the wh-words are associated with QPs, the usual logic of ‘Attract Closest’ will predict the appearance of Superiority Effects in multiple wh-questions.

Superiority-Satisfying Structure:

[[QP Who Q]₁ [t₁ bought [QP what Q]]



Superiority-Violating Structure

* [[QP What Q]₁ [did [QP who Q] buy t₁]



We see, then, that the addition of the Force_{Q2} head to our theory of English predicts that (binary) multiple wh-questions in the language are subject to Superiority Effects. Furthermore, it also predicts that the *in-situ* wh-words of such questions will *not* be subject to Intervention

Effects. First, note that our theory assumes that all the QPs in a wh-question are moved into the left-periphery by LF (cf. Footnote 40). Consequently, by the time an English multiple wh-question is interpreted, all the overtly *in-situ* wh-words have been moved into the left-periphery, above any ‘offending operators’ that might c-command them on the surface. Therefore, by the time they are interpreted, sentences like those in (325) do not contain any wh-words within the scope of any ‘offending operators’, and so they are predicted to be well-formed.

Thus, under the assumption that all QPs undergo (possibly covert) movement in English, our semantics for Force_{Q2} derives the well-formedness of (325). Importantly, this result *still* follows if we give up the assumption that *in-situ* QPs covertly front. To see this, let us suppose – contrary to our assumptions – that the *in-situ* QPs in an English multiple wh-question remain *in-situ* at LF. Under such a view, the LF-structure of sentence like (325a) would be that represented in (336), below.

(336) The LF-Structure of (325a), Assuming the *In-Situ* QP Doesn’t Covertly Move

[[QP Who Q]₁ [didn’t t₁ read [QP what Q]]]

Recall, however, that Intervention Effects are only triggered when sentences contain structures of the form in (248), repeated below.

(248) Configuration Resulting in an Intervention Effect

[... Q [... Offending Operator [... [wh-word] ...]]]
└──────────────────┘
no Q-particle

That is, Intervention Effects result when the first focus-sensitive operator c-commanding a wh-word is *not* the Q-particle. Such a structure, however, does not occur in (336). Because the *in-situ* wh-word is paired with its own Q-particle, the first focus-sensitive operator c-commanding it needn’t be the offending operator *didn’t*. Consequently, these structures are predicted *not* to trigger Intervention Effects. The following diagram illustrates.

(337) Multiple QPs Predicts *In-Situ* Wh-Words are Immune from Intervention Effects

Since even the in-situ wh-word is associated with its own local Q-particle, the Intervention Effect configuration of (248) does not obtain.

[[QP Who Q]₁ [didn’t t₁ read [**what Q**]]]

*The first operator c-commanding wh-word is a Q-particle!
 No Intervention Effect Configuration!!*

Thus, we see that our system’s prediction of the data in (325) is rather robust; it rests entirely upon the semantics assigned to Force_{Q2}, and persists through minor alternations in the surrounding syntactic theory.

In summary, we have seen that the addition of Force_{Q2} to the lexicon of English has the following advantageous consequences: (i) it provides a compositional semantics for (binary) multiple wh-questions in English; (ii) it predicts that English (binary) multiple wh-questions should exhibit Superiority Effects; (iii) it predicts that the *in-situ* wh-words of (binary) multiple wh-questions should be immune to Intervention Effects. Thus, it is possible in our Q-based account to construct a theory of multiple wh-questions that derives the English data in both (325) and (326) from a single, core property of the language. In Section 4.2, we will see that a similarly unified account can be provided for the German data in (324) and (327).

4.1.1 A Potential Improvement to the Theory of Beck (2006)

Before we begin our discussion of German wh-questions, I wish to briefly outline a way in which the Q-based account offered here might resolve a difficulty faced by the original theory of Beck (2006).

The main problem that I wish to discuss here is introduced in Section 5 of Beck (2006), and concerns the theory of focus that Beck (2006) must assume. Throughout this thesis, I adopt the theory of focus semantics originally developed by Rooth (1985) (cf. Chapter 2, Section 7.1.1). In the original proposals of Beck (2006), however, a different system for the interpretation of focus is used, that developed by Wold (1996). Within this latter system, focused elements are interpreted not as ‘sets of alternatives’, but as variables of a special type, and focus-sensitive operators are those operators that can bind these special ‘focus-semantic variables’ (Wold 1996). As explained in Section 5 of Beck (2006), her adoption of the Wold (1996) system is not an arbitrary one. Rather, within the surrounding theory Beck develops, certain facts from English demand adoption of the Wold (1996) system.

There are two chief facts that force Beck (2006) to adopt the Wold (1996) semantics for focus. The first are the so-called ‘Baker Ambiguities’, illustrated under (338) below.

(338) Baker Ambiguities

Who knows where we bought what?

- a. *Which person knows the answer to the question “Where did we buy what?”*
- b. *Which person x and which thing y is such that x knows where we bought y ?*

As illustrated above, a sentence like ‘*Who knows where we bought what?*’ has two interpretations. The first is as a single wh-question, paraphrasable as (338a); the second is as a multiple wh-question paraphrasable as (338b). For reasons I will explain in a moment, the system in Beck (2006) can only derive this ambiguity by adopting the Wold (1996) semantics. The second fact requiring Beck (2006) to assume Wold (1996) is the ability for a focused phrase *inside* of a question to semantically associate with a focus-sensitive operator *outside* of the question. Such a case is illustrated below.

(339) Focus Associating Out of a Wh-Question

I only wonder who BILL invited.

= *I wonder who Bill invited, but I don’t wonder who anyone else invited.*

Again, for reasons I will explain presently, the system in Beck (2006) can only derive facts like (339) if it assumes the theory of Wold (1996).

Ultimately, Beck (2006) is forced by the facts above to assume Wold (1996) because of independent assumptions she makes regarding the syntactic nature of ‘question particles’. Following most prior work, Beck (2006) identifies the focus-sensitive ‘Q’ element of a wh-question with the *interrogative complementizer* of the question. That is, in the theory of Beck (2006), it is the interrogative C heads that are the focus-sensitive operators in a wh-question, whose failure to be interpreted leads to Intervention Effects. Thus, according to Beck (2006), the structure of a wh-question is that represented in (340a), not the structure which our own theory assumes, in (340b).

(340) The Beck (2006) Theory That ‘Question Particles’ are Interrogative Cs

- a. Beck’s Structure:
[_{ForceP} Q [_{CP} Who did you see]]?
- b. Our Structure:
[_{ForceP} Force_{Q1} [_{CP} [_{QP} Who Q]₁ did you see]] ?

Under Beck’s (2006) assumption that focus-sensitive Q is in the head of ForceP, the data in (338) and (339) are indeed problematic for a system that employs the focus semantics of Rooth (1985). Under Beck’s assumptions, the focus-sensitive Q c-commands *all* the material within the wh-question. Consequently, any foci within a wh-question are within the scope of the Q-particle. Thus, in sentences like (338) and (339), there are foci *within* the scope of focus-sensitive Q which associate with focus-sensitive operators *outside* the scope of Q. The following structures illustrate.

(341) Association With Higher Focus-Sensitive Operators, In Beck (2006)

- a. The Reading in (338b)
[Q [who knows [Q [where we bought what]]] = *multiple wh-question reading*

Association with Higher Q, Outside the Scope of Lower Q

- b. The Interpretation of (339):
[Only [I wonder [Q [who BILL invited]]]]]

Association with Higher Focus-Sensitive Op, Outside the Scope of Lower Q

However, in the theory of Rooth (1985), a focus-sensitive operator *cannot* associate with foci that are in the scope of a lower focus-sensitive operator. That is, the associations shown in (341) are predicted by Rooth (1985) to be impossible. Thus, if one assumes that focus-sensitive Q is a

complementizer head, then the data in (338) and (339) rule out the Rooth (1985) theory of focus semantics.

Since she cannot adopt the theory of Rooth (1985), Beck (2006) employs the system for focus semantics developed by Wold (1996). In this system, associations of the kind seen in (341) are indeed possible, as focus sensitive operators can selectively bind focus-semantic variables within their scope. Without getting into the specifics, Beck (2006) assumes that the structures of (338) and (339) are as below.

(342) **Beck's (2006) Structures for (338) and (339)**

a. The Reading in (338b)

[Q_{1,3} [who₁ knows [Q₂ [where₂ we bought what₃]]]]

b. The Interpretation of (339)

[**Only** [I wonder [Q₁ [who₁ BILL invited]]]]]

In both these structures, the Q elements sitting in C selectively bind specific focus-semantic variables, creating structures that can be successfully assigned the reported readings.

However, Beck's move to a Wold-style system for interpreting focus is not unproblematic for her analysis. Indeed, such a move leads immediately to a significant weakening of her theory of Intervention Effects. Recall that Beck's (2006) account rests on the notion that Intervention Effects occur when (non-Q) focus-sensitive operators must compute the normal-semantic value of wh-words. As Beck (2006) herself notes, however, such circumstances need never occur in a system where *any* focus-sensitive operator can selectively bind *any* focus-semantic variable. In such a system, there needn't be anything wrong with configurations like (248), where the first focus-sensitive operator c-commanding the wh-word is not a Q-particle. As the structure below illustrates, so long as the focus-sensitive operator in question doesn't selectively bind the wh-word, such structures are predicted to be interpretable.⁴²

(343) **The Well-Formedness of Intervention Effect Configurations in the Wold System**

[Q₁ [**Only**₂ [Dave₂ [ate what₁]]]]]



Association with Higher Q, Outside the Scope of Lower Focus-Sensitive Operator

Consequently, in order to retain her theory of Intervention Effects, Beck (2006) must stipulate that Q-particles are the *only* focus-sensitive operators that can selectively bind specific focus-semantic variables. All other focus-sensitive operators are stipulated to bind unselectively, as in Rooth (1985). Given this stipulation, the structure in (343) could only receive the indexing shown below, which is predicted to yield an uninterpretable structure.

⁴² For a clearer understanding of how the structure in (343) is interpreted, I refer the reader to Wold (1996) and Beck (2006).

(344) **The Structure of Intervention Effects in the Full Beck (2006) System**

[Q₁ [Only [Dave [ate what_i]]]]



Association with higher Q is impossible;

Wh-word is unselectively bound by 'only', leading to semantic crash.

In summary, because Beck (2006) views the focus-sensitive Q elements as interrogative C heads, the facts in (338) and (339) ultimately force her to introduce an additional stipulation into her theory, one stating that Q is the only operator that can selectively bind focus-semantic variables. Such a stipulation, however, seems entirely unrelated to the other ‘core’ properties stipulated to hold of Q (e.g., the fact that Q only takes focus-semantic values as arguments). More acutely, the defining insight of the Beck (2006) system is that Intervention Effects arise when wh-words are forced to associate with (non-Q) focus-sensitive operators. However, as soon as one admits the possibility of *selective association* between foci and focus-sensitive operators, then the question immediately rises of why *any* foci should ever *have* to associate with any particular focus-sensitive operator. In as much as Beck’s stipulation does not address this wider question, her adoption of Wold’s (1996) system significantly undermines the founding insight behind her approach.

We find, then, that further development of the Beck (2006) theory of Intervention Effects must find some means for capturing the data in (338) and (339) *without* introducing the notion that Q can selectively bind focus-semantic values. The overall Q-based account offered here provides exactly such a system. Recall that Beck’s (2006) adoption of the Wold (1996) semantics ultimately stems from her assumption that the focus-sensitive Q elements are interrogative C heads. Within our Q-based analysis in (18), however, focus-sensitive Q is *not* a C head. Instead, a Q-particle is the head of the fronted phrase of the wh-question. Similarly, our theory does not treat interrogative C heads as focus-sensitive operators. Rather, they are quantificational operators of the regular sort, binding normal-semantic variables within the IP. As a result of these differing assumptions, the data in (338) and (339) do not force us to adopt the Wold (1996) theory of focus-semantics. First, let us note that our account faces no problems from the Baker Ambiguities in (338), as it can generate the reading in (338b). Since binding by the interrogative Force_{Q2} head is binding of the normal sort, we predict that selective binding by Force_{Q2} should be possible. Thus, the reading in (338b) would be assigned to the following, licit structure.⁴³

⁴³ This claim, however, could be countered with the following observation. Given our assumptions regarding existential closure (cf. (181)), the interpretation indicated in (345) would require covert movement of ‘[what Q]’ into the projection of the matrix Force_{Q2}. However, appealing to such movement could on its own resolve the problem that (338b) raises for Beck (2006), without necessarily deviating from Beck’s original assumptions regarding the syntactic status of Q. Thus, it seems the solution offered by our Q-based theory subsumes a simpler solution that a proponent of Beck (2006) could adopt.

On the other hand, it should be noted that our Q-based theory only requires covert movement in (345) because of its assumptions regarding existential closure. Just as we saw earlier for Intervention Effects in English, giving up these assumptions does not undermine our predictions regarding (345). Even if the phrase ‘[what Q]’ were left *in-situ*, our theory would correctly interpret (345), as long as the assumptions regarding existential closure were revised. Thus, we find that our Q-based account does not rely upon movement to correctly interpret (345). Consequently, our Q-based account does make available an analysis of (338b) which (i) does not appeal to covert

(345) **Baker Ambiguities Within Our Own Q-Based Account**

[Force_{Q₂1,3} [[who Q₁] knows [Force_{Q₂} [[where Q₂] we bought [what Q₃]]]]]

Secondly, let us note that our account faces no problems from sentences like (339), where focus within a question associates with an operator outside of the question. According to our system, focus-sensitive Q (in English) *never* c-commands the IP-internal material in the question. Thus, structures like the following can be interpreted, since there is no focus-sensitive operator intervening between ‘only’ and the focused DP ‘Bill’.

(346) **Focus-Association Outside of a Question, Under Our Own Q-based Account**

[**Only** [I wonder [Force_{Q₁} [[QP who Q₁] BILL invited]]]]



No focus-sensitive operator associates with any foci inside the scope of another focus-sensitive operator.

From these facts, I conclude that our own development of the Beck (2006) system succeeds in eliminating the necessity of the Wold (1996) semantics. By employing the Rooth (1985) system for focus interpretation, our own Q-based account can retain undiminished the original insight of Beck (2006). Furthermore, the overall account is simpler, in that it eliminates the additional stipulation, required by Beck (2006), that only Q-particles can selectively bind focus-semantic variables. Thus, we see that the particular syntactic hypotheses of our Q-based approach in (18) can advance the semantic theory of Intervention Effects begun by Beck (2006).

4.2 Intervention Effects and Superiority in German

In the previous section, we saw how a particular syntax and semantics for English multiple wh-questions could predict the distribution of Superiority Effects and Intervention Effects in that language. In this section, we shall attempt a similar demonstration for German. I will first put forth an analysis of German multiple wh-questions. Following this, I will demonstrate that this analysis correctly predicts that (i) German multiple wh-questions do not exhibit Superiority Effects (cf. (327)), and (ii) *in-situ* wh-words in German multiple wh-questions are subject to Intervention Effects (cf. (324)).

To begin, let us first reflect upon an important property of our analysis of English in Section 4.1. Ultimately, our account derives the facts in (325) and (326) from the assumption that multiple wh-questions in English contain multiple Q-particles, one for each wh-word. That such an assumption is *prima facie* plausible is supported by languages like Tlingit, where one overtly sees multiple Q-particles in multiple wh-questions, as illustrated below.

movement of the lower wh-word, and (ii) does not appeal to the Wold (1996) system for interpreting focus. In this sense, then, our Q-based approach performs better than the original in Beck (2006).

(347) **Multiple Q-Particles in Tlingit Multiple Wh-Questions**

- a. Aa **sá** daa **sá** aawaxáa?
who Q what Q they.ate.it
Who ate what?
- b. Aa **sá** goodéi **sá** woogoot?
who Q where.to Q they.went
Who went where?
- c. Aa **sá** waa **sá** kuyawsikaa?
who Q how Q they.said.to.someone
Who said what?

Data like the following suggest that Sinhala might also constitute such a language.⁴⁴

(348) **Multiple Q-Particles in Sinhala Multiple Wh-Questions**

Kau **da** monawa **da** kiewuwe.
who Q what Q read
Who read what?

(Kishimoto 1997)

Not all languages, however, allow multiple wh-questions to contain multiple instances of Q. In Navajo, for example, a multiple wh-question must contain only a *single* instance of the Q-particle *lá*. The following data illustrate.

(349) **Single Q-Particles in Navajo Multiple Wh-questions**

- a. Háí-**lá** ha'át'íí nayiisnii'?'
who-Q what bought
Who bought what?
- b. * Háí-**lá** ha'át'íí-**lá** nayiisnii'?'
who-Q what-Q bought

(Barss *et al.* 1991)

⁴⁴ It should be noted that linguists studying Sinhala disagree over whether examples like (348) constitute 'true' multiple wh-questions, or whether they involve an elliptical co-ordination of sentences. I refer the reader to Kariyakarawana (1998; Chapter 5) for background and discussion. In this context, we should also note that there is no disagreement over whether sentences like the following, which contain only a single Q-particle, constitute multiple wh-questions; all linguists agree that they do.

- (i) **Single Q-Particle in Sinhala Multiple Wh-Question**
Kau monawa **da** kiewuwe.
who what Q read
Who read what?

We might in passing note the similarity between the sentence above and the Tlingit sentence in (57). Both sentences may involve some kind of movement of the lower wh-word into the QP projection dominating the higher one, as suggested in Footnote 34 of Chapter 2.

Thus, we independently observe that one parameter of variation across languages is whether multiple wh-questions can contain multiple Q-particles. Given the important role played by multiple Q-particles in our analysis of English multiple wh-questions, the variation seen above invites the following hypothesis regarding German. Perhaps the variation between English and German seen in (324) – (327) is ultimately that observed between Tlingit and Navajo in (347) and (349). That is, perhaps German is like Navajo in that it does not permit multiple wh-questions to have multiple instances of Q.

As we will see, such an analysis of German multiple wh-questions will indeed predict the data in (324) and (327). First, however, let us determine how our Q-based theory is to analyze languages where multiple Qs are not possible. Recall that the English Force_{Q_2} head in (332) *requires* a wh-question to contain multiple instances of Q. It follows, of course, that this Force_{Q_2} head must be absent from those languages where multiple wh-questions *cannot* have multiple Qs. For these latter languages, then, let us assume that their lexicons contain a separate Force head, one that is, in turn, absent from languages like English and Tlingit. This Force head, which we will label ‘ Force_{Q^+} ’ is employed in their multiple wh-questions, and possesses the following semantics.

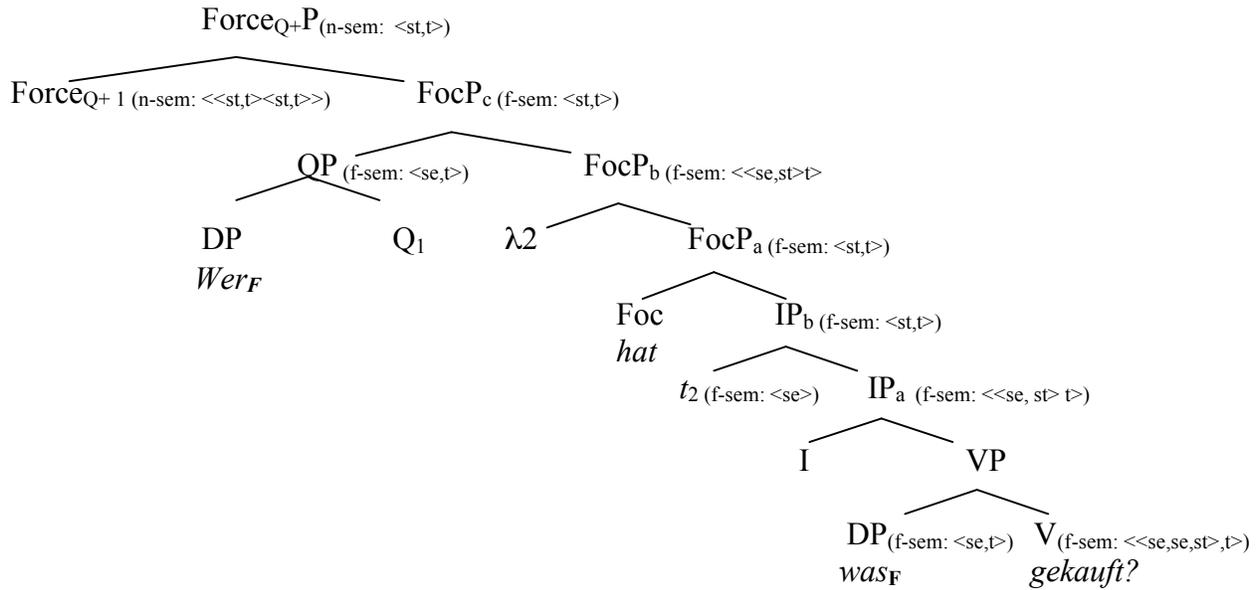
(350) **The Head Force_{Q^+} in the Semantics of German Multiple Wh-Questions**

$$[[\text{Force}_{Q^+} \text{ XP }]]^g = \lambda p [\exists f, f'. p = f'([[\text{XP}]]^{f^{g(i/f)}})]$$

According to this semantics, Force_{Q^+} shares with Force_{Q_2} the property that it introduces multiple existential quantifiers into the restrictor of the wh-question. Unlike Force_{Q_2} , however, the meaning of Force_{Q^+} already contains the choice function variable bound by one of these quantifiers. Consequently, the Force_{Q^+} head can bind only *one* Q-particle. Therefore, via Force_{Q^+} ’s incorporation of a ‘phantom Q-particle’, only one of the wh-operators in its complement can be dominated by a QP; any additional QPs will necessarily be interpreted as wh-indefinites.

Before we see how the presence of Force_{Q^+} in the lexicon of German would account for the data in (324) and (327), let us first establish that it is indeed sufficient for interpreting the multiple wh-questions of German. We assume that in German multiple wh-questions, the ForceP is headed by Force_{Q^+} , rather than Force_{Q_2} . Thus, German multiple wh-question like (327a) *Wer hat was gekauft?* ‘Who bought what?’ possess the structure illustrated under (351).

(351) The Syntax and Semantics of Sentence (327a)



$$[[\text{Force}_{Q+}P]]^g = \lambda p [\exists f, f' . p = f'(\{ q : \exists y. y \notin \text{human} \ \& \ q = [\lambda w. [f(\{x: x \text{ is human}\})](w) \text{ bought } y(w) \text{ in } w] \})]$$

The lexical entry for Force_{Q+} in (350) entails that our semantic system assigns as the meaning of (327a) the set of propositions indicated in (351) above. This is the set of propositions p which are the value obtained by applying *some* choice function to the following set of propositions: those propositions q such that they are of the form ‘ x bought y ’, where y is some non-human and x is the value obtained by applying *some* choice function to the set of humans. Given the nature of choice functions, however, this is simply the set of propositions p which are of the form ‘ x bought y ’, where x is some human and y is some non-human. Therefore, the set of propositions our system derives as the meaning of (327) is identical to the set of propositions defined by the formula ‘ $\lambda p [\exists x. x \in \text{human}. \exists y. y \notin \text{human}. \ \& \ p = [\lambda w. x \text{ bought } y \text{ in } w]]$ ’.⁴⁵ Finally, following our discussion in Section 4.1 of the semantics of multiple wh-questions, we see that this latter set is indeed the correct meaning for the multiple wh-question *Wer hat was gekauft?* ‘Who bought what?’. We may conclude, then, that our semantics for Force_{Q+} in (350) is sufficient for correctly interpreting the multiple wh-questions of German.

We have just seen that the addition of the Force_{Q+} head in (350) renders our system capable of interpreting German multiple wh-questions.⁴⁶ We will now see that such an analysis furthermore predicts that (i) German multiple wh-questions should *not* exhibit Superiority Effects, and (ii) *in-situ* wh-words in German should be subject to Intervention Effects. Ultimately, our system derives both these results from the following, more general prediction: in any German multiple wh-question, only *one* wh-operator will be dominated by a QP. This more

⁴⁵ Note that this equivalence also follows from the more general equivalence, proven earlier under (189).

⁴⁶ Moreover, the reader may note that the German Force_{Q+} head is sufficient to interpret wh-questions containing *any* number of wh-words. Thus, unlike English Force_{Q2} , German Force_{Q+} is sufficient to interpret *ternary* wh-questions, and generally any wh-question containing more than two wh-words.

general prediction, of course, follows from our assumption that German possesses only the Force_{Q+} head. As we saw earlier, our semantics in (350) entails that any language possessing only Force_{Q+} will be a language where multiple wh-questions cannot contain multiple instances of Q.

Let us first consider how this result predicts that German multiple wh-questions fail to exhibit Superiority Effects. The following diagram, explicated below, summarizes how our system derives this fact.

(352) Single QP in Multiple Wh-Question Predicts No Superiority Effects

In cases where the highest wh-word is not dominated by the single QP, our system derives the ‘Superiority-violating’ order.

- a. Superiority-Satisfying Order: Highest Wh-Word Dominated by the QP
[Force_{Q+} ₁ [wer Q₁]₂ hat [t₂ was gekauft]]
- b. Superiority-Violating Order: Lower Wh-Word Dominated by the QP
[Force_{Q+} ₁ [was Q₁]₂ hat [wer t₂ gekauft]]

Recall that under our Q-based account in (18), the fronting of a wh-word in a wh-question is ultimately fronting of a QP projection dominating that wh-word. It follows, of course, that if a wh-word is *not* dominated by a QP projection, then that wh-word will not undergo any such fronting. More concretely, if a wh-word is not dominated by a QP projection, then the position of that wh-word will fail to contain a ‘goal’ for probing of Q by the interrogative Force head.

As we have just noted, our theory of German multiple wh-questions entails that they contain only a single QP. Under the simplest assumptions, there are no constraints governing *which* of the wh-words in the question this single QP dominates. Thus, the single QP could dominate either the structurally highest wh-word, *or any of the structurally lower ones*. Clearly, if the QP dominates the structurally highest wh-word, then the structurally highest wh-word will be overtly fronted, deriving the ‘Superiority-Satisfying’ order, as shown in (352a). Importantly, however, if the single QP dominates any of the structurally lower wh-words, then a structurally lower wh-word will be overtly fronted; this will derive the ‘Superiority-Violating’ order, as shown in (352b).

Under our analysis, then, the word order in (352b) needn’t involve any violation of Attract-Closest/MLC, since wh-words do not themselves constitute the ‘goal’ for wh-fronting. Thus, sentences like (352b) can be derived by positioning the true goal of wh-fronting – the QP-projection – over structurally lower wh-words. Since the highest wh-word in such structures is not dominated by a QP, its position does not contain a goal for probing of Q by the interrogative Force head. Consequently, overt fronting of the lower wh-word does not entail that a higher goal was skipped, and so the structures are licensed by Attract-Closest/MLC. Our account therefore views the absence of Superiority Effects in German multiple wh-questions as due to an underlying structural difference between the multiple wh-questions of German and English, rather than an ‘inactivity’ of Attract-Closest/MLC in German.⁴⁷

⁴⁷ Our account is therefore in the tradition of Fanselow (1991, 1997), who views the contrast between (326) and (327) as following from the absence of A-scrambling in English, rather than a general inactivity in German of Attract-Closest/MLC.

We have just seen that our addition of the Force_{Q+} head to the German lexicon predicts that German multiple wh-questions will not be subject to Superiority Effects. Moreover, our account further predicts that the *in-situ* wh-words of such questions *will* be subject to Intervention Effects.

To see this, let us first recall that, under our analysis, German multiple wh-questions contain a single QP, which undergoes overt fronting into the left-periphery. Under our account, then, the *in-situ* wh-words in a German multiple wh-question are *not* dominated by QPs; this fact can already be seen in structures like (351) above. Since these *in-situ* wh-words are not dominated by QPs, it trivially follows that they are not c-commanded by Q-particles. Therefore, if such wh-words were ever c-commanded by any (non-Q) focus-sensitive operator, such an operator would be the *first* focus-sensitive operator to c-command the wh-word. Consequently, an instance of the configuration in (248) would result, triggering an Intervention Effect. The diagram below illustrates this argument.

(353) Single QPs in Multiple Wh-Questions Predicts Intervention Effects

| | | | | | | | |
|---------------------|---|----------------|--------|------------------|----------------|----|--------------|
| [_{QP} Wer | ∅ |] ₁ | hat | <u>niemanden</u> | t ₁ | wo | angetroffen? |
| who | Q | has | nobody | where | met | | |

Intervention Effect Configuration (cf. (248))

In short, the semantics of Force_{Q+} entails that the only QP in a German multiple wh-question dominates the fronted wh-word. Since the *in-situ* wh-words are thus not dominated by QPs, any c-commanding focus-sensitive operator is predicted to trigger an Intervention Effect, exactly as we saw in (324).

In summary, we have seen that the addition of Force_{Q+} (rather than Force_{Q2}) to the lexicon of German has the following advantageous consequences: (i) it provides a compositional semantics for German multiple wh-questions; (ii) it predicts that German multiple wh-questions should not exhibit Superiority Effects; (iii) it predicts that the *in-situ* wh-words of German multiple wh-questions should be subject to Intervention Effects. Thus, it is possible in our Q-based account to construct a theory of multiple wh-questions that derives the German data in both (324) and (327) from a single, core property of the language.

Furthermore, when we combine our analysis of German with our earlier analysis of English in Section 4.1, an interesting picture emerges of the cross-linguistic variation observed in (324) – (327). Under this account, the core, underlying difference between English and German lies in their inventory of interrogative Force heads.⁴⁸ English possesses the head Force_{Q2} and not Force_{Q+}, which results in its wh-questions exhibiting Superiority Effects but not Intervention Effects. German, however, possesses the head Force_{Q+} and not Force_{Q2}, which entails that its wh-questions exhibit Intervention Effects, but not Superiority Effects. We therefore see that the Q-based account renders possible a unified theory of the data in (324) – (327), one that successfully ties the differences between German and English with respect to Intervention Effects to the independent differences between them with respect to Superiority Effects. In as

⁴⁸ In this way, the account we offer here is akin to that proposed by Pesetsky (2000), which similarly derives the variation in (324) – (327) from a hypothesized difference in the range of interrogative C heads that German and English possess (though Pesetsky (2000) claims that the various Cs differ not in their semantics, but in the number of specifiers they are permitted to have).

much as the Q-based analysis put forth here seems like a promising approach, our overall theory of wh-fronting receives additional empirical support.

4.2.1 Intervention Effects and Superiority in D-Linked Wh-Questions

Before we turn to the final subject of this section, Intervention Effects in pied-piping structures, I wish to discuss several issues that arise for the analyses in Sections 4.1 and 4.2. The first concerns the special behavior of ‘D-linked’ wh-questions in English.

As we have observed, our analyses of German and English wh-questions correctly predict the distribution of Intervention Effects and Superiority Effects in these two languages. We should note, however, that the predictions of our system go well beyond German and English alone. Indeed, the logic of our account generalizes to all human languages, resulting in the prediction stated below.

(354) The Complementarity of Superiority Effects and Intervention Effects

For any human language L, the *in-situ* wh-words of a multiple wh-question of L are subject to Intervention effects *if and only if* the multiple wh-questions of L are *not* subject to Superiority Effects.

As first noted by Pesetsky (2000), the predicted generalization in (354) receives support from the behavior of so-called ‘D-linked’ wh-questions in English. For our purposes here, a D-linked wh-question is one whose answers make reference only to a conversationally given set of entities. Thus, a question like *Which of these books did you read?* is D-linked, since its answers must name one of a conversationally given set of books.⁴⁹ As first systemically studied by Pesetsky (1982), such wh-questions in English present apparent counterexamples to the claim that English multiple wh-questions must satisfy Superiority. As has since become widely known, Superiority Effects seem to disappear when an English wh-question is D-linked. The following data illustrate.

(355) D-Linked Multiple Wh-Questions in English Can Violate Superiority

- a. [Which book]₂ did [which boy]₁ read?
- b. * What₂ did who₁ read?

⁴⁹ For a more complete explanation of the term ‘D-linked’, I refer the reader to Pesetsky (1982, 1987, 2000).

Note that Pesetsky (1982, 1987, 2000) assumes that ‘D-linkedness’ is a property of wh-words, while I assume here that it is a property of wh-questions. Some evidence in favor of the latter notion is the fact, first observed by Comorovski (1996), that violations of Superiority like those in (355) are again impossible if one of the two wh-phrases is replaced with a simple wh-word.

- (i) a. [Which book]₂ did [which boy]₁ read?
- b. * [Which book]₂ did [who]₁ read?
- c. * [What]₂ did [which boy]₁ read?

These facts cohere best with the account offered here, where D-linkedness is a global property of the wh-question, while they are more difficult to capture under the account in Pesetsky (2000), where D-linking is a local property of wh-words.

Moreover, following earlier work by other researchers, Pesetsky (2000) observes that D-linked wh-questions in English also possess another exceptional property. When such questions violate Superiority, they are also suddenly subject to Intervention Effects. That is, if a D-linked multiple wh-question in English fronts a structurally lower wh-word, as in (355a), then the *in-situ* wh-word is subject to Intervention Effects. The following data illustrate.

(356) **D-Linked Multiple Wh-Questions in English Are Subject to Intervention Effects**

- a. * Which book didn't **which** boy read?
- b. Which boy didn't read **which** book?

In summary, then, we see that it is *precisely* when English wh-questions (exceptionally) violate Superiority that Intervention Effects arise for the *in-situ* wh-words. Thus, the general pattern in (354) finds reflection in a ‘dim and dusty’ corner of English.

Given the facts above, we could claim that the behavior of D-linked wh-questions in English supports our general theory of the relation between Superiority and Intervention Effects. In order to truly substantiate such a claim, however, we should provide some inkling of how our theory of English multiple wh-questions in Section 4.1 could account for the features of D-linked wh-questions seen in (355) and (356). In the remainder of this subsection, I will sketch such an account.

Recall that we have postulated for English the existence of two interrogative Force heads: Force_Q and Force_{Q2}. Let us furthermore suppose that English has an additional interrogative Force head, Force_{Q-Dlink}. The characteristic properties of Force_{Q-Dlink} are the following: (i) it has exactly the same interpretation as Force_{Q+} in (350), and (ii) it can only appear in D-linked wh-questions.⁵⁰ To make this proposal more concrete, let us assume that Force_{Q-Dlink} has the semantics in (357), below.

(357) **The Head Force_{Q-Dlink} in the Semantics of English D-linked Wh-Questions**

$$[[\text{Force}_{Q-Dlink} \text{ } i \text{ } XP]]^g = \lambda p [\exists f, f'. p = f'([[XP]]^F g(i/f))]$$

if: all the propositions in
 $\lambda p [\exists f, f'. p = f'([[XP]]^F g(i/f))]$ are ‘familiar’

undefined otherwise

⁵⁰ Note that we do not state that Force_{Q-Dlink} appears in *all* D-linked wh-questions, only that Force_{Q-Dlink} cannot appear in a question unless the question is D-linked.

This subtle distinction is crucial for predicting the data in (356). Since, as described above, the presence of Force_{Q-Dlink} is the only means by which a (binary) wh-question in English can violate Superiority, that head *must* be present in sentences like (356a), where Superiority is violated. Consequently, in such sentences, *in-situ* wh-words will be subject to Intervention Effects. However, for D-linked wh-questions where Superiority is respected, like (356b), nothing in the structure of these sentences entails that they contain Force_{Q-Dlink}. Thus, such questions could instead contain Force_{Q2}, and we correctly predict that their *in-situ* wh-words aren't subject to Intervention Effects.

If our system required instead that *all* D-linked wh-questions contained the head Force_{Q-Dlink}, then the difference between (356a) and (356b) could not be captured.

According to this semantics, $\text{Force}_{\text{Q-Dlink}}$ possesses the normal-semantics of $\text{Force}_{\text{Q+}}$, but introduces the presupposition that all the propositions in the answer set to the question are ‘familiar’ in the discourse, where ‘familiar’ is understood to mean that they make reference only to discourse-given entities. Assuming that such a presupposition amounts to the wh-question being D-linked, the semantics in (357) ensures that the head $\text{Force}_{\text{Q-Dlink}}$ only appears in D-linked wh-questions. Furthermore, given our discussion from Section 4.2, its interpretation as $\lambda p[\exists f, f'. p = f'(\llbracket \text{XP} \rrbracket^{\text{fg}(i/f)})]$ entails that any wh-questions where it appears will (i) be free to violate Superiority, and (ii) exhibit Intervention Effects with their *in-situ* wh-words. Thus, the addition of $\text{Force}_{\text{Q-Dlink}}$ to the English lexicon would predict that D-linked – and only D-linked – wh-questions in English can exhibit these two properties.

We find, then, that the special properties of D-linked wh-questions in English are indeed consistent with our Q-based theory from Section 4.1. More importantly, however, we have seen that our Q-based account can provide a theory of D-linked wh-questions that accurately predicts their range of exceptional properties. Furthermore, we have seen that D-linked wh-questions in English provide another example of the predicted correlation between sensitivity to Intervention Effects and *insensitivity* to Superiority Effects, and thus provide further empirical support for our overall Q-based theory.

4.2.2 Intervention Effects and Superiority in Ternary English Wh-Questions

In the previous subsection, we examined the way in which D-linked English wh-questions support the predicted correlation in (354). Interestingly, as discussed in Pesetsky (2000) and first observed by Kayne (1983), there is another corner of English where the correlation in (354) can be observed: non-binary multiple wh-questions.

First, data like that below demonstrate that multiple wh-questions in English can freely violate Superiority, just so long as they contain more than *two* wh-words.

(358) Non-Binary Multiple Wh-Questions in English Can Violate Superiority

- a. Who₁ gave what₂ to whom₃ ?
- b. What₂ did who₁ give to whom₃ ?
- c. To whom₃ did who₁ give what₂ ?

Furthermore, just as we saw above for D-linked wh-questions, whenever Superiority is violated in non-binary wh-questions, the *in-situ* wh-words are subject to Intervention Effects. Pesetsky (2000) observes the following data.

(359) Non-Binary Multiple Wh-Questions in English Are Subject to Intervention Effects

- a. Who₁ didn't give **what**₂ to **whom**₃ ?
- b. * What₂ didn't **who**₁ give to **whom**₃ ?
- c. * To whom₃ didn't **who**₁ give **what**₂ ?

We again see that it is *precisely* when English wh-questions (exceptionally) violate Superiority that Intervention Effects arise for the *in-situ* wh-words. Thus, the general pattern in (354) finds reflection in another corner of English.

As with D-linked wh-questions, then, the behavior of non-binary multiple wh-questions in English seems to support our general theory of the relation between Superiority and Intervention Effects. However, before we can truly claim this as an achievement of our analysis, we must provide some more concrete indication of *how* our particular Q-based theory can capture the facts above. In the remainder of this subsection, I will put forth such an account. However, the account that I offer below will be even more sketchy and programmatic than the analysis offered above for D-linked wh-questions. Nevertheless, it may point the way to a fuller treatment of these facts.

First, let us observe that our theory of English wh-questions does not yet provide us a means for interpreting non-D-linked wh-questions with more than two wh-words. The only Force heads we currently have at our disposal for English are Force_Q, Force_{Q2} and Force_{Q-Dlink}. As none of these will be sufficient for non-D-linked, non-binary multiple wh-questions, we must assume that such questions in English contain a fourth, distinct interrogative Force head. What could this Force head be?

Let us suppose for the moment that it is none other than the Force_{Q+} head of German. That is, let us assume that non-binary multiple wh-questions in English can contain an instance of the head Force_{Q+}.⁵¹ Given the results from Section 4.2, such a hypothesis would make the following predictions: (i) non-binary English multiple wh-questions can freely violate Superiority, and (ii) *in-situ* wh-words in such questions will be subject to Intervention Effects. Such an account, then, would clearly capture (most of) the data in (358) and (359).⁵²

On the other hand, such an account would seem to make dramatically incorrect predictions regarding *binary* multiple wh-questions in English. After all, we've seen in Section 4.2 that Force_{Q+} appears in the binary multiple wh-questions of German, and that its presence there leads such wh-questions not to exhibit Superiority Effects. Similarly, if we were to suppose that the lexicon of English contained Force_{Q+} nothing would obviously rule out its appearance in English binary multiple wh-questions, and our theory would subsequently fail to predict that such wh-questions exhibit Superiority Effects.

Therefore, if we wish to introduce Force_{Q+} into our theory of English, we must also introduce some principle that would prevent Force_{Q+} from appearing in English binary multiple wh-questions, but also allow it to appear in German binary multiple wh-questions. In this context, let us note the following, distinguishing property of English: it possesses the Force_{Q2} head, while German does not. Furthermore, let us note the following, striking property of Force_{Q2}: it can *only* appear in binary multiple wh-questions. As we noted in Section 4.1, any wh-question containing Force_{Q2} will contain exactly *two* wh-operators. We therefore find that, unlike German, English possesses a Force head that is tailored *specifically* for binary multiple wh-questions.

This observation invites the following hypothesis. Suppose that the inability for Force_{Q+} to appear in English binary multiple wh-questions were due to its presence being 'blocked' by the existence of Force_{Q2}, in a manner akin to morpho-syntactic 'blocking' (Aronoff 1976). The logic of such an account would run as follows. Although a binary English multiple wh-question

⁵¹ As noted earlier in Footnote 46, Force_{Q+} is sufficient to correctly interpret multiple wh-questions containing any number of wh-words.

⁵² Note, however, that it would fail to predict the data in (359a). Crucially, it is only when non-binary wh-questions violate Superiority that their *in-situ* wh-words are subject to Intervention Effects. The account proposed here, however, wrongly predicts that the *in-situ* wh-words of *any* non-binary multiple wh-question will be subject to Intervention Effects, and so it wrongly predicts that (359a) should be uninterpretable.

containing Force_{Q+} would be interpretable, it would have the same interpretation as a nearly identical structure containing Force_{Q2}. The head Force_{Q2}, however, is specific to binary wh-questions, while the head Force_{Q+} may appear in multiple wh-questions of any ‘arity’. For this reason, a general ‘blocking principle’ that “more specific forms must be used, when they are possible”, would rule out use of Force_{Q+} in English binary multiple wh-questions. Such a principle, though, would not rule out the appearance of Force_{Q+} in non-binary multiple wh-questions, as there is no other Force head in English that is specific for such questions. Similarly, such a principle would not rule out the appearance of Force_{Q+} in German binary multiple wh-questions, as German is assumed to lack the ‘more specific’ Force_{Q2} head.

Although the technical details of this ‘blocking’ analysis remain to be worked out in full,⁵³ we can nevertheless see that such an account could provide a means for our admitting Force_{Q+} into our theory of English, without upsetting our earlier results in Section 4.1. As we’ve seen, such an analysis would correctly predict the exceptional properties of non-binary multiple wh-questions in English, observed in (358) and (359). We find, then, that the special properties of non-binary multiple wh-questions in English are indeed consistent with our Q-based theory from Section 4.1. More importantly, however, we have seen that our Q-based account can provide a theory of such wh-questions that accurately predicts their range of exceptional properties. Finally, we’ve seen that non-binary multiple wh-questions in English provide yet another witness of the predicted correlation between sensitivity to Intervention Effects and *insensitivity* to Superiority Effects, and thus provide further empirical support for our overall Q-based theory.

4.2.3 Intervention Effects in German ‘Separation Structures’

In this final portion of Section 4.2, I would like to briefly discuss a potential failing of our theory of Intervention Effects in German.

Throughout our discussion, we have focused on Intervention Effects in German multiple wh-questions. Traditionally, however, the term ‘Intervention Effect’ has also been applied to similar phenomena observed in German ‘separation structures’ (Beck 1996). As the data below illustrate, it is possible in German for the wh-word of a German wh-phrase to be ‘separated’ from the remainder of the phrase, leaving the non-wh material within the matrix clause (360a,c). Importantly, if such separations occur, then the IP-internal non-wh ‘remainder’ cannot be c-commanded by any operator from the set of ‘offending operators’ (360b).

⁵³ Indeed, the analysis trades on a rather vague statement of the assumed ‘blocking principle’, one that must be further clarified before the analysis can be considered fully-formed.

(360) **Intervention Effects in German Separation Structures**

- a. Wen₁ hat Hans [___₁ von den Musikern] getroffen?
who has Hans of the musicians met
Which of the musicians has Hans met?
- b. * Wen₁ haben keine Studenten [___₁ von den Musikern] getroffen?
who have no students of the musicians met
- c. [Wen von den Musikern] haben keine Studenten getroffen?
who of the musicians have no students met
Which of the musicians has no student met?

The similarity of the facts above to the facts in (324) have lead most linguists to consider them instances of the same general phenomenon, i.e. Intervention Effects.

However, the theory of Intervention Effects we assume here offers no obvious explanation for the facts in (360), a property that it inherits from its progenitor, Beck (2006).⁵⁴ After all, Intervention Effects are assumed to result from the uninterpretability of structures having the form in (248), and there is no obvious instance of such a structure in (360b). Therefore, unlike earlier theories of Intervention Effects (e.g. Beck (1996), Pesetsky (2000)), the theory employed here does not straightforwardly extend to the data in (360). If the facts in (360) are indeed another instance of the general phenomenon observed in (324), then our inability to account for the former sheds serious doubt upon our approach to the latter.

However, our theory's inability to predict the data in (360) may in fact be a virtue of the analysis, rather a failing. That is, contrary to what is commonly thought, there is some indication that the facts in (360) represent a *distinct* phenomenon from that seen in (324). To ease our discussion here, let us introduce the term 'SC-Intervention Effects' to refer to the phenomenon observed for separation structures in (360), and let us use the term 'IS-Intervention Effects' to refer to the phenomenon observed for *in-situ* wh-words in (324).

Examination of German reveals that the set of 'offending operators' triggering SC-Intervention Effects is *distinct* from the set of 'offending operators' triggering IS-Intervention Effects. First, as originally reported in Pesetsky (2000), wh-words in German count as 'offending operators' for SC-Intervention Effects. That is, the IP-internal non-wh 'remainder' of a German separation structure cannot be c-commanded by a wh-word, as illustrated below.

⁵⁴ To be precise, Beck (2006) does put forth an account of the data in (360). Beck (2006) captures these data by stipulating that in such separation structures, the wh-word is interpreted as part of the IP-internal DP remnant. Such a lower interpretation of the wh-word would indeed allow the Beck (2006) theory to derive these data as a subcase of the phenomena in (324).

Unfortunately, this solution suffers from the following problems: (a) it relies upon a special stipulation regarding the interpretation of separation constructions, (b) the stipulation it relies upon goes against the wider generalization, necessary for the account of (324), that an XP's surface position is its interpreted position in German, (c) it assumes a syntax for separation constructions that is inconsistent with the more likely 'remnant movement' analysis of such structures.

For these reasons, I conclude that the facts in (360) do not receive a satisfying account within Beck (2006).

(361) ***In-Situ Wh-Words are Interveners for the German Separation Structures***

“Guenther Grewendorf (personal communication) points out that wh-*in-situ* appears to generate an intervention effect in German separation constructions...” (Pesetsky 2000; p. 117)

- a. Was₁ hat der Professor den Studenten [___₁ **alles**] geraten?
what has the professor the students all advised
What all did the professor advise to the students?
(Pesetsky 2000; p. 117)
- b. * Was₁ hat wer den Studenten [___₁ **alles**] geraten?
what has who the students all advised
(Pesetsky 2000; p. 117)
- c. * Wen₁ hat wer [___₁ **von den Musikern**] getroffen?
who-ACC has who-NOM of the musicians met
(Kai von Fintel, p.c.)

Crucially, however, the existence of non-binary wh-questions in German demonstrates that wh-words do *not* count as ‘offending operators’ for IS-Intervention Effects. That is, an *in-situ* wh-word in German can freely be c-commanded by other (*in-situ*) wh-words.

(362) ***In-Situ Wh-Words are Not Interveners for Other In-Situ Wh-Words***

Wer hat wem was gegeben?
who-NOM has whom-DAT what given
Who gave what to who? (Kai von Fintel, p.c.)

From the data in (361) and (362), we see that the set of ‘offending operators’ triggering SC-Intervention Effects in German is different from the set which triggers IS-Intervention Effects. Furthermore, we should note that our theory of IS-Intervention Effects correctly predicts that wh-words should not count as ‘offending operators’ for *in-situ* wh-words. Since our theory does not treat wh-words as focus-sensitive operators, sentences like (362) would not contain an instance of the structure in (248), and so they are correctly predicted to be well formed. Consequently, our theory of Intervention Effects has no means of predicting the data in (361). Wh-words simply *aren’t* the kinds of things that should qualify as ‘interveners’ in our sense, and so the pattern in (361) is wholly unexpected. Therefore, it is a relatively deep property of our theory of IS-Intervention Effects that it cannot be extended to the SC-Intervention Effects observed in German.

In summary, we have found that set of things counting as ‘offending operators’ for IS-Intervention Effects is distinct from the set of ‘offending operators’ for SC-Intervention Effects. This fact lends credence to the view that the two phenomena are ultimately distinct, despite their superficial similarity. Furthermore, we find that our assumed theory of IS-Intervention Effects correctly ‘carves nature at its joints’, in that (i) it correctly predicts that *in-situ* wh-words are not

‘offending operators’ for IS-Intervention effects, and (ii) it is in principle unable to be applied to the distinct phenomenon of SC-Intervention Effects.

We may therefore conclude that, rather than present a challenge to our proposed theory, the phenomenon of ‘Intervention Effects’ with German separation structures might provide further evidence in support of it.

4.3 Intervention Effects in Pied-Piping Structures

In the previous sections, we have seen that our Q-based theory of wh-fronting makes available a new account of the differences between English and German with respect to Superiority and Intervention Effects. In this section, we will see that some additional evidence supporting this new account is found in the relationship between Intervention Effects and pied-piping structures. As we will see, this additional evidence also provides support to the theory of pied-piping structures we put forth in Section 3 of this chapter.

To begin, let us recall our general theory of pied-piping structures in wh-fronting languages. In Section 3, I argued that all such structures possess a form akin to the pied-piping structures of Tlingit. That is, in all languages, pied-piping structures are simply cases where the Q-particle of the wh-question takes as its sister a phrase properly containing the wh-word. This analysis is illustrated below.

(363) Pied-Piping as Non-Adjacency to Q

a. Whose father’s cousin’s uncle did you meet at the party?

b. [QP [[[**whose**] father’s] cousin’s] uncle] Q] did you meet at the party?

According to our analysis, then, in the fronted phrase of a pied-piping structure, phrasal material intervenes between the focused wh-word and the focus-sensitive Q-particle that it ‘associates’ with. It follows, therefore, that if the wh-word in such structures were to appear within the scope of a focus-sensitive operator *within the pied-piped phrase*, then a structure of the type in (248) would result. The following diagram illustrates.

(364) Intervention Effects in Pied-Piping Structures

$$\left[\left[\text{QP} \left[\dots \underline{\text{Offending Operator}} \dots \left[\mathbf{\text{wh-word}} \right] \dots \right] \mathbf{Q} \right]_I \right] \left[\dots t_I \dots \right]$$

Intervention Effect Configuration (cf. (248))!!

Of course, given our theory of Intervention Effects, we predict that structures like that in (364) will be uninterpretable, and thus ill-formed. Therefore, we find that the combination of our theory of Intervention Effects with our theory of pied-piping structures makes the following, general prediction.

(365) Intervention Effects in Pied-Piping Structures

In all languages, if a pied-piping wh-word appears within the scope of an ‘offending operator’ within the pied-piped constituent, then an Intervention Effect will be triggered.

But is the prediction in (365) true? The work of Sauerland & Heck (2003) independently shows that the prediction is indeed born out for German. In fact, the principal goal of Sauerland & Heck (2003) is to establish the truth of (365) for German, as it is a prediction of their own assumptions regarding Intervention Effects and pied-piping. Sauerland and Heck show that, for every ‘offending operator’ triggering an Intervention Effect with *in-situ* wh-words, placement of that operator in configurations like (364) results in ill-formedness. For example, we can see below that it is generally possible for a ‘pied-piping’ wh-word in German to be c-commanded by a determiner in the pied-piped constituent (366a). If that determiner, however, is the offending operator *kein* ‘no’, the sentence becomes ill-formed (366b).

(366) Intervention Effects in German Pied-Piping Structures (Sauerland & Heck 2003)

- a. Fritz möchte wissen [ein wie schnelles Motorrad] du fahren darfst.
Fritz wants to.know a how fast motorbike you drive may
Fritz would like to know how fast a motorbike you are allowed to drive.
- b. * Fritz möchte wissen [kein wie schnelles Motorrad] du fahren darfst.
Fritz wants to.know no how fast motorbike you drive may

Sauerland & Heck (2003) then go on to show that the same effect occurs if the determiner in the pied-piping structure is any from the set of ‘offending operators’ in German.

Therefore, the independent work of Sauerland & Heck (2003) demonstrates that (365) is indeed true of German. Furthermore, we can also detect evidence for (365) in the pied-piping structures of English. Such evidence, however, is somewhat more subtle than the striking contrasts observed above for German. This is due to the fact that independent features of English render (365) somewhat difficult to test. The overall issue that, unlike pied-piping in German, the only way that one can pack an offending operator into a pied-piping structure of English is if the fronted phrase undergoes so-called ‘Massive Pied-Piping’ (Heck 2004). The phenomenon of ‘Massive Pied-Piping’ will receive a proper introduction and discussion in Chapter 5. For our purposes here, however, all we need know that such pied-piping, illustrated by structures like (367), is already independently ‘marginal’ and ‘unnatural’ in English.

(367) Massive Pied-Piping in English

- a. (?) A picture of which president does Jim own?
- b. [DP A [NP picture of **which president**]] does Jim own?

Although sentences like (367) are independently marginal in English, they become distinctly worse if the ‘massively pied-piping’ wh-word is in the scope of an ‘offending operator’. The sentences below illustrate.

(368) **Intervention Effects in English Massive Pied-Piping Structures** ⁵⁵

- a. (?) [DP A [NP picture of **which president**]] does Jim own?
- b. * [DP NO [NP picture of **which president**]] does Jim own?
- c. * [DP Only [NP PICTURES of **which president**]] does Jim own?

Furthermore, as pointed out by David Pesetsky (p.c.), Massive Pied-Piping in English generally becomes less marginal, and more well-formed, if it targets a subject, as in (369) below, rather than an object, as in (367) above.

(369) **Massive Pied-Piping of Subjects in English**

[DP A [NP picture of **which president**]] hangs in Jim's office?

Importantly, varying the grammatical function of the pied-piped phrase does nothing to lessen the contrasts in (368). Rather, the contrasts are made even sharper. ⁵⁶

(370) **Intervention Effects in English Massive Pied-Piping Structures** ⁵⁷

- a. [DP A [NP picture of **which president**]] hangs in Jim's office?
- b. * [DP NO [NP picture of **which president**]] hangs in Jim's office?
- c. * [DP Only [NP PICTURES of **which president**]] hang in Jim's office?

In this context, it is important to note that the ill-formedness of sentences (368b,c) and (370b,c) is not due simply to the mere presence of an offending operator within the massively pied-piped constituent. As the well-formedness of the sentences below demonstrates, the ill-formedness of (368b,c) and (370b,c) is crucially tied to the position of the *wh*-word *within* the scope of the offending operator.

(371) **No Intervention Effect if Wh-Word is Not Within the Scope of Offending Operator**

- a. [**Which picture** [only of presidents]] does Jim own?
- b. [**Which picture** [only of presidents]] hangs behind Jim's desk?

⁵⁵ The judgments reported below summarize those collected from five native speakers of English, four of whom agreed in the judgment reported. One individual found all three sentences equally impossible.

⁵⁶ The reader may wonder, then, why we did not begin our argument with the data in (370). I chose to begin with the data in (368) because it is less controversial whether such sentences contain pied-piping structures. Since the sentences in (370) are all 'subject questions', it is more controversial whether they contain any *wh*-fronting at all, let alone Massive Pied-Piping. We might note, then, that the data in (370) provide further evidence that subject questions in English do contain *wh*-fronting.

⁵⁷ The judgments reported below reflect those of myself and one other English speaker.

(372) **No Intervention Effect if Wh-Word is Not Within the Scope of Offending Operator**

- a. [**Which picture** [containing no presidents]] does Jim own?
- b. [**Which picture** [containing no presidents]] hangs behind Jim's desk?

Similarly, we should note that the ill-formedness of (368b,c) and (370b,c) is not due to any 'pragmatic unnaturalness' of the questions themselves. As the sentences below demonstrate, such questions are well-formed and natural, *just so long as there is no pied-piping of the offending operator*.

(373) **The Well-Formedness of (368) and (370) Without Pied-Piping of the Operator**

- a. [**Which president**]₁ does Jim own [no picture of t_1] ? (cf. (368b))
- b. [**Which president**]₁ does Jim own [only PICTURES of t_1] ? (cf. (368c))
- c. [_{NP} Pictures of **which president**]] don't hang in Jim's office? (cf. (370b))

We find, then, that the best explanation of all the data above is that the generalization in (365) holds of English. That is, the sentences in (368b,c) and (370b,c) are ill-formed precisely because they contain structures of the form in (364), which our theory of Intervention Effects predicts to be uninterpretable. We may conclude, then, that the distribution of Intervention Effects in English Massive Pied-Piping structures provides further support for our theory of pied-piping structures and our theory of Intervention Effects. To put the matter more directly, given our theory of Intervention Effects from Chapter 3, the truth of (365) *entails* that a focus-sensitive Q-particle must sit directly above any pied-piped constituent. Thus, in a real sense, the facts in (368) and (370) provide direct 'proof' for the existence in English of the QP structure in (18).

The facts above also make several additional points concerning the nature of Intervention Effects. First, recall that English does not (generally) exhibit Intervention Effects with its *in-situ* wh-words. Thus, despite the ill-formedness of (368b,c), the following multiple wh-questions are perfectly acceptable.

(374) **English *In-Situ* Wh-Words are Immune to Intervention Effects**

- a. Who owns [_{DP} no [_{NP} picture of **which president**]] ? (cf. (368b))
- b. Who owns [_{DP} only [_{NP} PICTURES of **which president**]] ? (cf. (368c))

Of course, our theory of English multiple wh-questions provides a ready account of the well-formedness of these sentences. Each can be parsed in such a way that the focus-sensitive Q-particle that the *in-situ* wh-word associates with does *not* appear outside the scope of the offending operator. The following structures illustrate.

(375) **English *In-Situ* Wh-Words are Immune to Intervention Effects**

- a. [QP Who Q] owns [DP no [NP picture of [QP **which president Q**]]] ?
- b. [QP Who Q] owns [DP only [NP PICTURES of [QP **which president Q**]]] ?

Our Q-based theory of wh-fronting, however, rules out such a local placement of Q for the sentences in (368). Because the Q-particle takes as complement the fronted phrase of the question, it must be located *outside* the scope of the offending operators in (368) and (370), resulting in ill-formedness. Thus, our theory correctly predicts the observed contrast between the sentences of (374) and those of (368).

This is a unique prediction of the overall account offered here. These data cannot, for example, be captured under the syntactic theory of Intervention Effects put forth in Beck (1996). In brief, Beck (1996) proposes that Intervention Effects follow from a syntactic constraint preventing covert movement from crossing the offending operators. However, for such an account to capture the contrast between (368) and (374), it must be assumed that (i) pied-piping wh-words in English are covertly extracted from within the pied-piped phrase, and (ii) *in-situ* wh-words in English undergo no covert movement. As we noted earlier in Footnote 28, however, such covert extraction of ‘pied-pipers’ is difficult to motivate or implement in current syntactic theory. Moreover, it is quite unclear why there should be this difference between pied-pipers and *in-situ* wh-words; if the one must undergo covert movement, it seems that the other should also be subject to such a requirement. Thus, the pattern of data in (368) and (374) is a unique prediction of the theory of wh-fronting and Intervention Effects proposed here.

More generally, the contrast between (368) and (374) demonstrates that, contrary to what is commonly assumed, Intervention Effects do not simply result from a *wh-word* being inside the scope of an offending operator. After all, in both (368) and (374), the wh-word is inside the scope of such an operator. Rather, the real issue is whether a *Q-particle* is inside the scope of the offending operator, intervening between it and the wh-word. In ill-formed sentences like those in (368), the Q-particle cannot be in the scope of the operator, and so the sentences are resultantly uninterpretable. However, sentences like those in (374) can be parsed as having a Q-particle in the scope of the offending operator, and so the sentences are resultantly well-formed.

Finally, let us note the following, related property of our theory of Intervention Effects in pied-piping structures. Our prediction of the generalization in (365) in no way rests upon any assumptions regarding multiple wh-questions. That is, our derivation of (365) in no way appeals to whether a given language possesses Force_{Q2} or not. Thus, our theory predicts that the generalization in (365) will hold across all languages, *regardless of whether or not their in-situ wh-words are subject to Intervention Effects*. As we have seen, this is indeed a correct prediction, as the generalization in (365) holds both of English and of German, two languages which differ in whether *in-situ* wh-words are subject to Intervention Effects. We find, then, that our proposed account of (365) rightly (and uniquely) predicts this difference between the Intervention Effects triggered in pied-piping structures and those triggered by *in-situ* wh-words.⁵⁸

⁵⁸ Our account of (365) thus contrasts with the one offered by Sauerland & Heck (2003). Sauerland and Heck assume the Beck (1996) syntactic theory of Intervention Effects. As we’ve already seen, such a theory predicts no difference in any given language between the Intervention Effects associated with pied-piping structures and those associated with *in-situ* wh-words. Thus, such a theory is unable to capture the fact that variation in the former type of Intervention Effect is independent of variation in the latter type.

4.4 Summary

In this section, we have seen that the distribution of Intervention Effects and Superiority Effects across languages provides additional support for our ‘universalist position’ that the structure in (18) underlies the wh-questions of *all* wh-fronting languages.

In Sections 4.1 and 4.2, we saw that the Q-based theory in (18) can provide an account of the observed complementarity between Superiority Effects and Intervention Effects across languages. Under this theory, English-type languages and German-type languages ultimately differ in the inventory of Force heads that their lexicons possess. Languages possessing Force_{Q2} are predicted to be English-like, and exhibit the following properties: (i) multiple wh-questions are subject to Superiority Effects, (ii) *in-situ* wh-words are immune to Intervention Effects. On the other hand, languages possessing (only) Force_{Q+} are predicted to be German-like, and exhibit the following properties: (i) multiple wh-questions are *not* subject to Superiority Effects, (ii) *in-situ* wh-words are subject to Intervention Effects. In as much as this Q-based account seems to be a promising new direction, our ‘universalist position’ receives some additional support.

Further evidence for this account was put forth in Section 4.3, where we saw that our Q-based theory accurately predicts the generalization in (365), that pied-piping wh-words will be always subject to Intervention Effects. Furthermore, our proposed account is presently the only to predict the observed differences between Intervention Effects triggered in pied-piping structures and those triggered by *in-situ* wh-words.

5. Conclusion

This chapter discussed the application of the proposals made in Chapter 2 to the general theory of wh-fronting languages. The principal claim of the chapter was that the Q-based theory of wh-fronting in (18) should be applied to the wh-questions of *all* wh-fronting languages.

There were five chief arguments in support of this principal claim:

(376) **Typological / Learning Theoretic Argument**

Given the evidence that (18) is a possible structure, it is theoretically most parsimonious to reject the possibility of structure (17). Similarly, given the evidence that (18) is licensed by UG, it greatly simplifies the ‘learning problem’ to assume that (17) is not within the learner’s hypothesis space of possible languages.

(377) **The Existence of Overt QP Structure in Other Wh-Fronting Languages**

The QP structure in (18) can be overtly found in wh-fronting languages besides Tlingit. This lends credence to the claim that (18) is a structure licensed by UG, and so is the proper analysis of Tlingit wh-questions. Moreover, it renders more likely the possibility that *all* wh-fronting languages possess this structure.

(378) The General Ill-Formedness of Adposition Stranding and Left Branch Extractions

In order to have a unified account of the ill-formedness of adposition stranding and left-branch extractions across wh-fronting languages, one must either (i) abandon the Q-based analysis of these phenomena in Tlingit, or (ii) extend the analysis in (18) to all wh-fronting languages. Given the evidence supporting the Q-based analysis of these phenomena in Tlingit, one must adopt option (ii).

(379) A Theory of Pied-Piping Structures

By extending the Q-based analysis in (18) to all wh-fronting languages, progress can be made in our understanding of the syntax and semantics of pied-piping structures. On the one hand, such structures receive a ‘trivial’ syntactic analysis, where the very concept of ‘pied-piping’ is eliminated from the theory of grammar. Furthermore, our Q-based account can provide an especially simple semantics for such structures, one that dissolves certain puzzles faced by earlier semantic accounts assuming the structure in (17).

(380) The Distribution of Superiority and Intervention Effects Across Languages

By extending the Q-based analysis in (18) to all wh-fronting languages, progress can be made in our understanding of the distribution of Superiority Effects and Intervention Effects across languages. One can treat such variation as ultimately deriving from variation in how many Q-particles a language permits in their multiple wh-questions. Furthermore, such an account (uniquely) predicts that there will be no variation in whether pied-piping wh-words are subject to Intervention Effects.

The five arguments above constitute the first of a two-part case in support of the principal claim of this chapter, that (18) represents the universal structure of wh-fronting. Further argumentation in support of this claim will be presented in the following chapter. There we will see that the theory of pied-piping structures introduced in Section 3 can advance our understanding of various properties that such structures are observed to exhibit, including the rather stringent constraints on such structures observed in languages like English.

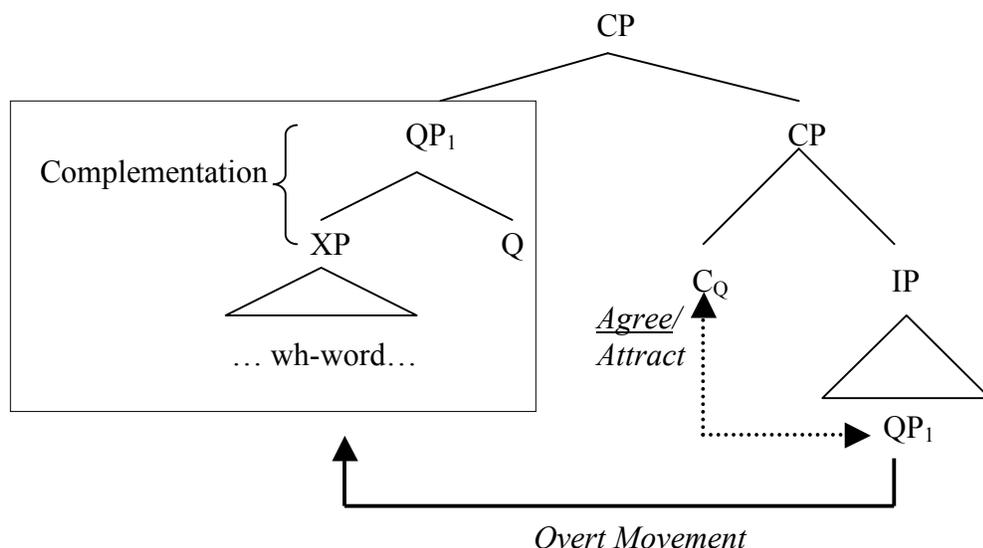
Chapter 5

Applications to the Theory of Wh-Fronting Languages, Part 2: *Constraints on Pied-Piping and Secondary Wh-Fronting*

1. Introduction and Chapter Outline

This chapter continues our argument that the Q-based analysis in (18) underlies the structure of wh-questions in all wh-fronting languages.

(18) Wh-Fronting as a Secondary Effect of Q-Movement



In the previous chapter, we presented a variety of facts in support of this ‘universalist position’, one of the most prominent being that it provides a rather parsimonious syntax and semantics for pied-piping structures. In this chapter, we will explore pied-piping structures in further detail, examining in particular the ways in which (18) can advance understanding of subtler aspects of their syntax.

Overall, the primary phenomena of study throughout this chapter are the comparatively stringent restrictions on pied-piping found in languages like English. Such restricted pied-piping I will refer to as ‘limited pied-piping’. In languages exhibiting limited pied-piping, a variety of structures are not permitted to dominate the wh-word within the fronted phrase of a wh-question. We will see that our Q-based theory of pied-piping from Chapter 4 can provide an account of this phenomenon, one where it ultimately derives from a requirement that the Q-particle undergo Agreement with the wh-word inside its complement. We will also see that this Q-based account

of limited pied-piping lays the groundwork for treatments of two related phenomena: secondary wh-fronting (Heck 2004) and massive pied-piping (Heck 2004).

The chapter begins, in Section 2, with an introduction to the phenomenon of limited pied-piping, as well as the questions it raises for our Q-based account. Following this introduction, Section 3 presents our proposed theory of limited pied-piping. Fundamental background to our account is provided in Section 3.1, where I review the theory of Q/Wh-Agreement found in Kratzer & Shimoyama (2002). In Section 3.2, I introduce the central claim of our analysis: *languages exhibiting limited-pied piping are languages where the Q-particle must Agree with the wh-word inside its complement*. Section 3.3 then demonstrates how the restricted nature of pied-piping in the limited pied-piping languages follows from the necessity of Q/Wh-Agreement in those languages. This account rests upon the introduction of a special constraint governing Agreement with Q, which we will dub ‘the LP-Intervention Condition’. This condition is immediately called into question in Section 3.4, where we sketch an alternative Q-based theory of limited pied-piping, one that disposes of the LP-Intervention Condition, and instead appeals to the concept of a ‘phase’ (Chomsky 2000). Although this alternative account is promising, and thus bears mentioning, we will see that certain issues ultimately lead us to put it aside in favor of the LP-Intervention Condition.

Having shown in Section 3 how our account derives the major features of limited pied-piping, I will turn in Section 4 to various additional predictions our account makes. Section 4.1 demonstrates that our Q-based account is able to derive the ‘Transitivity Generalization’ of Heck (2004), which states that the relation ‘X can pied-pipe Y’ is a transitive one. Section 4.2 shows that our account predicts the inability for matrix predicates to be pied-piped. In Section 4.3, I discuss the relationship between pied-piping and left-peripherality. Many researchers have observed that the wh-word of a pied-piping structure generally occupies a specifier position within the fronted phrase. I demonstrate that our Q-based account correctly predicts this tendency for ‘pied-pipers’ to be specifiers, without incorrectly predicting that *only* specifiers can ‘pied-pipe’. Next, in Section 4.4, I show that our Q-based account correctly predicts that pied-piping should generally be in free variation with sub-extraction of the wh-word. Finally, Section 4.5 demonstrates how our Q-based account can capture the fact that limited pied-piping is subject to the Coordinate Structure Constraint.

In Sections 5 and 6, we turn our attention from pied-piping *per se* to two related phenomena. First, Section 5 examines cases where a wh-word undergoes movement *within* the fronted phrase of a pied-piping structure, a phenomenon dubbed ‘secondary wh-fronting’ by Heck (2004). Section 5.1 presents the basic Q-based theory of secondary wh-fronting, according to which such fronting occurs so that the wh-word appears in a position where it will be accessible for Agreement with Q. Section 5.2 then introduces a slight augmentation to this basic account, one that is necessary for cases where the phrase internal fronting occurs only with wh-words. Finally, Sections 5.3 and 5.4 provide crucial evidence in support of our Q-based theory of secondary wh-fronting. In Section 5.3, we see how our Q-based theory can provide a principled account of possessor pied-piping in the Mayan languages Chol and Tzotzil. Section 5.4 then shows how P(reposition)-inversion in these Mayan languages provides additional support for our proposed system.

Section 6 is devoted to the final topic of this chapter, ‘massive pied-piping’. Following Heck (2004), ‘massive pied-piping’ describes cases in limited pied-piping languages where their more stringent constraints on pied-piping structures are somewhat weakened. Section 6.1 introduces the basic phenomenon of massive pied-piping, as well as a possible Q-based approach

to it. We see that this Q-based approach can correctly predict a number of properties that massive pied-piping has been observed to exhibit. Finally, in Section 6.2, we discuss some properties of massive pied-piping that *don't* easily follow from our Q-based approach. Though they remain an outstanding challenge to our account, a characterization of these phenomena within our Q-based theory is proposed.

2. Variation in the Constraints on Pied-Piping

In Chapter 4, we argued that our Q-based analysis in (18) provides a rather parsimonious theory of the syntax of pied-piping structures. Under this account, pied-piping structures are nothing more than structures where the Q-particle takes as its sister a phrase strictly containing the wh-word that it binds. Thus even complex pied-piping structures like (381a) can be analyzed as in (381b), as simple cases of normal phrasal movement of the QP projection.

(381) The Pied-Piping Structures of English, Under the Q-Based Theory

- a. Whose father's cousin's uncle did you meet at the party?
- b. [QP [[[**whose**] father's] cousin's] uncle] Q] did you meet at the party?

This general theory of pied-piping structures was, of course, based upon the surface form of the pied-piping structures in Tlingit. To recall, Tlingit pied-piping structures transparently motivate our Q-based analysis, given that the Q-particle *sá* always appears directly to the right of the fronted phrase in a Tlingit wh-question (382). Thus, given the evidence that Tlingit wh-fronting targets the Q-feature of the QP projection, the pied-piping structures of the language are derived as regular cases of phrasal movement.

(382) The Pied-Piping Structures of Tlingit

- a. [QP [DP **Aadóo** yaagú] **sá**] ysiteen?
 who boat Q you.saw.it
 Whose boat did you see?
- b. * [DP [QP **Aadóo** **sá**] yaagú] ysiteen?
 who Q boat you.saw.it

We find, then, that our Q-based theory of pied-piping structures views *all* such structures as homologous to the Tlingit phenomenon in (382). However, when we compare the pied-piping structures of languages like English to their putative correlates in Tlingit, we discover that there are a significant number of differences between them. Generally speaking, the differences lie in the 'size' of the phrase dominating the wh-word in the fronted constituent. Tlingit permits the wh-word in the fronted phrase to be dominated by structures that English and other well-studied languages never allow.

We have already encountered one rather prominent example of this disparity. A centerpiece of our argument that Tlingit wh-questions possess the structure in (18) was the ability for the wh-word of a Tlingit wh-question to be contained *inside an island* within the

fronted phrase. I will refer to such structures, exemplified by (383) below, by the purely descriptive label ‘*pied-piping past islands*’.

(383) **Pied-Piping Past Islands in Tlingit**

[[**Wáa** kligéiyi_{CP}] xáat_{NP}] **sá** i tuwáa sigóo?
 how it.is.big.REL fish Q your spirit it.is.happy
How big a fish do you want?
(A fish that is how big do you want?)

Curiously, although Tlingit allows pied-piping past islands, the most well-studied wh-fronting languages do not. As we see in (384) below, the putative correlates of (383) in English are ill-formed.

(384) **No Pied-Piping Past Islands in English**

- a. * [DP A fish [CP that is **how** big]] do you want?
- b. * [DP A book [CP that **who** wrote]] did you buy?

Furthermore, as reported in Heck (2004), such structures are similarly ill-formed in all the most well-studied wh-fronting languages.

But, it is not merely pied-piping of islands that separates Tlingit from the most commonly known wh-fronting languages. To facilitate our discussion here, let us adopt some special terminology. Throughout this thesis, we will use the descriptive term ‘*pied-piping past X*’ to refer to structures where a wh-operator is dominated by a constituent satisfying the description X within the fronted phrase of the wh-question. With this terminology in place, let us note that several authors have offered the generalization that English and other well-known languages do not permit pied-piping past lexical categories (Cowper 1987, Webelhuth 1992, Grimshaw 2000).¹ That is, in the most well-studied wh-fronting languages, no wh-operator can be dominated by a lexical category within the fronted phrase of the wh-question. The ill-formed English structures in (385) demonstrate.

¹ Properly speaking, it is only Grimshaw (2000) that explicitly states this generalization. Webelhuth (1992) states, rather, that there is no pied-piping past *theta-assigners*, while Cowper (1987) states the there is no pied-piping past categories whose members can be lexically specified as being ‘[+Wh]’. Note, however, that in the context of their respective theories, these latter two generalizations are equivalent to the generalization that there is no pied-piping past the categories N, V, A, i.e., no pied-piping past any lexical category.

(385) **No Pied-Piping Past Lexical Categories in English**

- a. I wonder [[DP **whose** [NP pictures]] John bought] ?
- b. * I wonder [[NP Pictures of **whom**] John bought] ?²
- c. * I wonder [[AP proud of **whom**] John was] ?
- d. * I wonder [[VP eaten **what**] John has] ?

Although pied-piping past lexical categories is ill-formed in many languages, it does not appear to be problematic in Tlingit. Indeed, under the plausible assumption that Tlingit relative clauses are adjuncts to NP, such pied-piping is widely exemplified by sentences like (383), repeated below, where the wh-operator is buried within a relative clause.³

(386) **Pied-Piping Past Lexical Categories in Tlingit**

[[**Wáa** kligéiyi CP] xáat NP] **sá** i tuwáa sigóo?
how it.is.big.REL fish Q your spirit it.is.happy
How big a fish do you want?
(A fish that is how big do you want?)

We find, then, that our Q-based theory of pied-piping is presented with the following *prima facie* challenge. While we propose that all pied-piping structures be reduced to the Tlingit structures in (382), we find that those Tlingit structures exhibit properties that the most well-studied cases of pied-piping do not exhibit. It follows, of course, that the Tlingit structures in (382) are not *perfectly* homologous to the more widely studied cases of pied-piping. From this fact, one could certainly conclude that the two structures are not homologous at all, and that our Q-based theory of pied-piping is simply not tenable for languages like English. Throughout the following sections, however, I will argue that such a reaction would be too extreme. Indeed, we will see that it is possible within our overall Q-based theory to develop an account of the observed differences between the pied-piping structures of English and Tlingit.

To again facilitate our discussion here, let us introduce another new piece of terminology. Throughout this thesis, I will use the term ‘limited pied-piping’ to refer to pied-piping structures

² Interestingly, the ill-formedness of subordinate questions like that (385b) becomes weakened if they are used instead as matrix questions. We will carefully explore this phenomenon later, in Section 6. Throughout this thesis, however, we adopt the common position that the pied-piping in seen in (385b) is indeed ill-formed in English, and that there is something special about matrix environments that (marginally) improves their acceptability (cf. Heck 2004).

³ It is difficult to find more direct evidence that Tlingit permits pied-piping past lexical categories. As mentioned in Chapter 2, the syntactic class ‘Adjective’ is rather underrepresented in Tlingit, and the elements of this class do not seem to take arguments. Furthermore, nominal arguments of Ns in Tlingit do not appear to ever remain within the NP projection.

On the other hand, clausal arguments of Ns like *neek* ‘rumor, news’ *do* appear to remain within the NP projection. Thus, one could examine whether Tlingit permits pied-piping past *neek* by a wh-word within its CP complement. If this is indeed the case, it would provide additional evidence that Tlingit permits pied-piping past lexical categories. As of yet, I have not been able to conduct this test with speakers.

subject to the constraints seen only in languages like English, where both pied-piping past islands and pied-piping past lexical categories are disallowed. Similarly, I will use the term ‘limited pied-piping language’ to refer to languages where all pied-piping structures are instances of limited pied-piping. Thus, all the most widely studied wh-fronting languages appear to be limited pied-piping languages.

Let us now return to the observed differences between the pied-piping structures of Tlingit and those of the limited pied-piping languages. In order for our Q-based theory to be applied to the limited pied-piping languages, some account must be offered for *why* those languages do not permit pied-piping past islands or lexical categories. It is the goal of the following section to provide such an account. In subsequent sections, we will then see that our proposed account makes many further correct predictions regarding pied-piping and other related phenomena.

3. The Theory of Q/Wh-Agreement

This section argues for a Q-based analysis of the limited pied-piping languages. Section 3.1 provides some crucial background to our proposed account, as it introduces the concept of Q/Wh-Agreement employed by Kratzer & Shimoyama (2002). In Section 3.2, I present our Q-based theory of limited pied-piping languages, and in Section 3.3, we see how this account captures the core properties of such languages. Finally, in Section 3.4, we sketch a second potential Q-based theory of limited pied-piping, one that is in some ways simpler than our proposed account. Critical problems with this alternative Q-based account, however, will ultimately force us to abandon it in favor of our original proposal.

3.1 Background: Q/Wh-Agreement in Kratzer & Shimoyama (2002)

As we will soon see, the leading idea behind our theory of limited pied-piping assumes that wh-words in some languages must undergo Agreement with a Q-particle. Although we could certainly posit such Agreement as a bald axiom of our theory, it is important to note that there is independent precedent in the literature for appealing to such Q/Wh-Agreement. Indeed, this concept plays a critical role in the work of Kratzer & Shimoyama (2002; Section 9), where it is used to capture differences in the behavior of German and Japanese indefinites. As our own theory of limited pied-piping languages makes use of some specific proposals from Kratzer & Shimoyama (2002), we will review here the relevant aspects of their analysis.

As part of their discussion of the differing behavior of German and Japanese indefinites, Kratzer and Shimoyama (2002) observe the following difference between the wh-words of these two languages: the wh-words of German possess a “distinctive look” (Kratzer & Shimoyama 2002; p. 26), while those of Japanese do not. That is, the wh-words of German all share a common morpho-phonological ‘feature’, while the wh-words of Japanese don’t. To see this, let us examine the paradigm of wh-words in German and Japanese, listed below.

(387) **The Wh-Words of Japanese and The Wh-Words of German**

| <u>Wh-Words of Japanese</u> | | <u>Wh-Words of German</u> | |
|-----------------------------|---------|---------------------------|---------|
| <i>Dare</i> | ‘who’ | <i>Wer</i> | ‘who’ |
| <i>Nani</i> | ‘what’ | <i>Was</i> | ‘what’ |
| <i>Doko</i> | ‘where’ | <i>Wo</i> | ‘where’ |
| <i>Itu</i> | ‘when’ | <i>Wenn</i> | ‘when’ |
| <i>Naze</i> | ‘why’ | <i>Warum</i> | ‘why’ |

A mere glance at the wh-words of German reveals the following commonality: they all begin with the sound represented by “w”. When we turn to the wh-words of Japanese, however, it is far more difficult to find any morpho-phonological feature that they share. Although they do share some rather abstract properties⁴, it can be reasonably said that the wh-words of Japanese lack the ‘unified appearance’ of the German wh-words. In this sense, we will speak of the wh-words of German as possessing a ‘distinctive morpho-phonological feature’, while the wh-words of Japanese lack any distinctive morpho-phonological feature.⁵

Importantly, Kratzer and Shimoyama (2002) propose that the ‘unified appearance’ of German wh-words is no mere historical accident. That is, the similar appearance of these words reflects a similar morphological structure. Specifically, Kratzer & Shimoyama (2002) propose that German crucially differs from Japanese in that German wh-words must all bear uninterpretable instances of the feature [Q]. This uninterpretable [Q] feature is in turn overtly pronounced in German as the “w” sub-morpheme, providing all the wh-words of German with their ‘distinctive look’. Furthermore, since the wh-words of Japanese are assumed *not* to bear uninterpretable instances of [Q], they are correctly predicted *not* to have any distinctive morpho-phonological feature.

The ultimate interest of these morphological hypotheses to Kratzer and Shimoyama’s broader discussion is, of course, that they can provide a potential tool for explaining certain further differences between German and Japanese. There are, after all, important syntactic consequences of the presence of uninterpretable [Q] on the wh-words of German. As Kratzer & Shimoyama (2002) note, because the [Q] feature on German wh-words is uninterpretable, they *must* undergo Agreement with a phrase bearing an interpretable instance of Q. Therefore, the wh-words of German must undergo Agreement with the Q-operator(/particle). On the other hand, the lack of any Q-feature on the wh-words of Japanese entails that Japanese wh-words need not undergo such Agreement. Kratzer & Shimoyama (2002) subsequently employ this underlying difference in the necessity of such ‘Q/Wh-Agreement’ to account for certain differing properties of German and Japanese indefinites.

In summary, then, Kratzer & Shimoyama (2002) put forth the following proposals regarding the properties of wh-words and indefinites across languages.

⁴ For example, all the Japanese wh-words above are disyllabic. Furthermore, David Pesetsky (p.c.) notes that the first consonant in each word is coronal.

⁵ One might object, then, that we lack any objective criteria for determining whether the wh-words of a language possess such ‘distinctive morpho-phonological features’. Indeed, the lack of such objective criteria will complicate some of our ensuing discussion. Nevertheless, in most cases, it is rather clear-cut whether such a distinctive feature exists, and one would expect no serious inter-subjective disagreement.

(388) **The Theory of Q/Wh-Agreement Languages (Kratzer & Shimoyama 2002)**

- (i) In some languages (e.g. German), all wh-words bear an uninterpretable instance of the feature [Q]. In other languages (e.g. Japanese), wh-words do not bear any instance of the Q-feature.
- (ii) In languages where all the wh-words share a distinctive morpho-phonological feature, all the wh-words bear uninterpretable [Q], the pronunciation of which provides the distinctive morpho-phonological feature.⁶
- (iii) In languages where wh-words bear uninterpretable [Q], the wh-words must undergo Agreement with the c-commanding Q-operator(/particle). In languages where wh-words do not bear uninterpretable [Q], the wh-words needn't undergo such Agreement.
- (iv) The presence vs. absence of this 'Q/Wh-Agreement' in a language provides a tool for explaining certain other distinguishing properties of that language.

As we will see in the following section, these hypotheses will also form the core of our own Q-based theory of limited pied-piping languages. However, in order to incorporate these proposals into our broader syntactic theory, we will have to provide them with our own unique formal implementation.⁷ In the remainder of this section, I will lay out my chosen method for implementing the proposals above in the context of our overarching Q-based theory.⁸

Thus far, our syntactic system has been relatively agnostic regarding the exact nature of feature valuation under Agree, our proposals being compatible with either the original Minimalist proposals in Chomsky (2000) or the competing proposals of Pesetsky & Torrego (2007). Throughout this chapter, however, I will specifically adopt the theory of feature valuation developed by Pesetsky & Torrego (2007) (and based upon prior work by Brody (1997)). The characteristic property of this system is that the properties of valuation and interpretability are independent of one another. Consequently, there are four 'states' that a given feature may be in: (i) valued and interpretable, (ii) valued and uninterpretable, (iii) unvalued and interpretable, and (iv) unvalued and uninterpretable. The following diagram illustrates this idea, as well as the notation we will use to represent each of these four states.

⁶ Note that the claim here is *not* that the wh-words of a language bear [Q] if *and only if* they all share a distinctive morpho-phonological feature. After all, it is commonly assumed that uninterpretable features needn't receive overt pronunciation in the structures where they are present (e.g. Case), and so we shouldn't expect that uninterpretable [Q] is overtly pronounced in every language where it occurs on wh-words. Thus, we assume that there are languages exhibiting Q/Wh-Agreement where the class of wh-words is as morpho-phonologically diverse as those of Japanese.

⁷ The original formal implementation in Kratzer & Shimoyama (2002) is couched in terms of "greedy" feature movement, and so is not compatible with the syntactic system I assume throughout this thesis.

⁸ Of course, other implementations within our Q-based theory are imaginable, and might ultimately prove to be superior to the one I develop here.

(389) **The Independence of Valuation and Interpretability in Pesetsky & Torrego (2007)**

| Feature = F | <u>Interpretable (iF)</u> | <u>Uninterpretable (uF)</u> |
|-------------------------------------|--|--|
| <u>Valued ($F[val]$)</u> | $iF[val]$ | $uF[val]$ |
| <u>Unvalued ($F[]$)</u> | $iF[]$ | $uF[]$ |

Within Pesetsky & Torrego's (2007) system, there are two principles that drive syntactic valuation. The first is the requirement that every feature must possess a value by LF. Due to this principle, any unvalued feature $F[]$ must probe for a valued instance of itself $F[val]$, at which point the usual mechanics of long-distance Agree apply (Chomsky 2000). The second principle relevant here is one stating that all uninterpretable features uF must by LF be matched to some interpretable instance iF .⁹ That is, if any uninterpretable instance of F (uF) has not undergone Agreement with an interpretable instance of F (iF) by LF, then the derivation crashes. For further details regarding this theory of feature valuation, I refer the reader to Pesetsky & Torrego (2007).

With these ideas in place, let us now incorporate the core hypotheses in (388) into our broader network of ideas. First, following (388, i), we assume that the wh-words of some languages (e.g. German) all bear an instance of uninterpretable, valued Q, while the wh-words of other languages (e.g. Japanese) do not bear any instance of the Q-feature. This assumption is illustrated below.

(390) **The Wh-Words of German vs. The Wh-Words of Japanese**

- a. German Wh-Word: $was_{uQ[+]}$
- b. Japanese Wh-Word: $dare$

In some languages, of course, this instance of uninterpretable Q can be overtly spelled out on the wh-word, resulting in the wh-words of the language all sharing a distinctive morpho-phonological feature (388, ii). Thus, as alluded to earlier (Chapter 4, Section 2.5), we assume that the identifiable '[Wh]' sub-morpheme in the wh-words of languages like German and English is an overt pronunciation of Q.

In languages where the wh-word bears an uninterpretable instance of Q, our general theory of valuation entails that the wh-word must by LF undergo agreement with a head bearing an interpretable instance of Q. Given that the only head assumed to carry an interpretable instance of Q is the Q-particle itself, it follows that the Q-particle in languages like German must undergo Agreement with the wh-word (388, iii). In order for this Q/Wh-Agreement to take place, however, we must assume that the Q-particles of such languages initially bear *unvalued* instances of Q.¹⁰ Thus, in those languages where the wh-words bear an uninterpretable, valued

⁹ Note, however, that Pesetsky & Torrego (2007) ultimately derive both these two conditions from the more general condition that every instance of a feature must be interpretable *somewhere* within the structure.

¹⁰ It may at first blush seem suspicious for a Q-particle to initially bear an unvalued Q-feature. Again, however, this is partly due to our (perhaps incorrect) conflation of the syntactic category 'Q' with the feature that is probed during wh-fronting. On the other hand, our proposals regarding Q are not too dissimilar from the proposals regarding

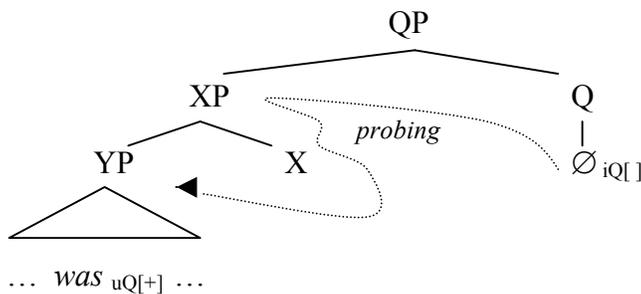
instance of Q (e.g. German), the Q-particle must in turn bear an interpretable, unvalued instance of Q. On the other hand, in those languages where the wh-words bear no instance of the Q-feature (e.g. Japanese), we can safely assume that the Q-particle simply bears an interpretable, valued instance of Q. This idea is illustrated below.

(391) **The Q-Particles of German vs. The Q-Particles of Japanese**

- a. German Q: $\emptyset_{iQ[-]}$
- b. Japanese Q: $ka_{iQ[+]}$

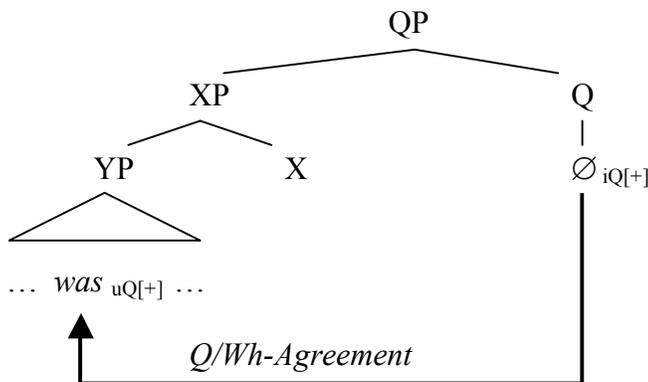
Assuming the initial valuations in (390) and (391), we derive the existence of Q/Wh-Agreement in languages like German, and the absence of such Agreement in languages like Japanese. First, in those languages where the Q-particle bears unvalued $iQ[-]$, the lack of a value for iQ entails that the Q-particle must probe for a valued instance of the feature, as shown below.

(392) **Q-Particle Probing for $iQ[-]$ in German**



Following Chomsky’s (2000) algorithm for probing, the first element bearing $Q[val]$ that the Q-particle probes will be the wh-word that it c-commands. Therefore, the Q-particle will undergo Agreement with that wh-word, as shown below.

(393) **Q-Particle Agreeing with Wh-Word in German**

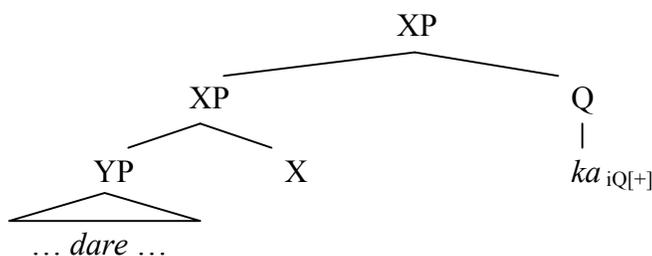


Tense in Pesetsky & Torrego (2007), where the Tense node of the clause initially bears unvalued Tense, and receives its Tense-value only under Agreement with the uninterpretable Tense feature of the verb.

As we see above, this Q/Wh-Agreement has the following two results: (i) the unvalued instance of [Q] on the Q-particle receives a value, (ii) the uninterpretable instance of [Q] on the wh-word is ‘matched’ to an interpretable instance of [Q]. Consequently, both the ‘Agreement-driving’ principles of Pesetsky & Torrego (2007) are satisfied, and the structure is well-formed (i.e., interpretable at LF).

In languages where the Q-particle bears valued iQ , however, the presence of a value for iQ entails that the Q-particle will *not* act as a probe. Furthermore, since the wh-words of such languages are assumed not to bear any instance of the Q-feature, nothing will require them to undergo Agreement with the Q-particle. Consequently, in such languages, there is no syntactic Agreement relation between the wh-word and the c-commanding Q-particle. This is illustrated below.

(394) No Q/Wh-Agreement in Japanese



Such structures nevertheless converge at LF, given that they (trivially) satisfy the two ‘Agreement-driving’ principles of our system; all the features have values, and all the uninterpretable features have undergone Agreement with some interpretable feature.

Given this implementation of the Kratzer & Shimoyama (2002) theory of Q/Wh-Agreement, we can now present our Q-based analysis of the limited pied-piping languages.

3.2 The Theory of Limited Pied-Piping Languages

To recall, we have seen that the pied-piping structures of such well-studied languages as German and English are subject to constraints that appear not to hold of pied-piping structures in Tlingit. We therefore seek to understand what is responsible for the more constrained nature of pied-piping in all the most commonly encountered wh-fronting languages.

In this context, it is worth observing that a great many of the most well-studied wh-fronting languages appear to also be languages where wh-words Agree with Q-particles, henceforth ‘Q/Wh-Agreement languages’. For example, we’ve already seen that German is a Q/Wh-Agreement language. Of course, English also counts as such a language, given that its wh-words all share a distinctive morpho-phonological feature, the eponymous ‘wh-’ sub-morpheme. More generally, *all* the Indo-European languages appear to be Q/Wh-Agreement languages, by virtue of their wh-words having inherited reflexes of the ancestral */kw/ sub-morpheme, a distinctive morpho-phonological feature shared by all the wh-words of Proto-Indo-European (Sihler 1995). Given that Indo-European languages are by far and away the ones most often encountered in studies of wh-fronting and pied-piping, we find that nearly all the best-studied wh-fronting languages are also clear instances of Q/Wh-Agreement languages. Of course, there are also some *non*-Indo-European languages well-represented in the literature on

wh-fronting and pied-piping, Hungarian and Basque being two prominent examples. Although it is less clear that the wh-words of these languages share a distinctive morpho-phonological feature,¹¹ it is nevertheless consistent with our proposals to assume that they are also Q/Wh-Agreement languages (cf. Footnote 6). As we will later see, such an assumption will prove to be justified.

Interestingly, unlike all the most commonly studied wh-fronting languages, Tlingit appears *not* to be a Q/Wh-Agreement language. When we turn to the wh-words of Tlingit, we find that they seem to lack any distinctive morpho-phonological feature. Indeed, as we see below, they perhaps constitute an even more phonologically heterogeneous class than the Japanese wh-words.

(395) The Wh-Words of Tlingit

| | | |
|----|------------|-----------------------------|
| a. | Daat | <i>What</i> |
| b. | Daakw | <i>Which</i> |
| c. | Aa / Aadóo | <i>Who</i> |
| d. | Goo | <i>Where</i> |
| e. | Wáa | <i>How, why, what</i> |
| f. | X'oon | <i>How much</i> |
| g. | Gwatk | <i>When (in the past)</i> |
| h. | Gwatgeen | <i>When (in the future)</i> |

Given the phonological diversity of the Tlingit wh-words, it is consistent with our broader syntactic assumptions to assume that Tlingit is not a Q/Wh-Agreement language. Thus, we will refer to Tlingit as a ‘non-Agreement language’.

We have just seen that besides their limited pied-piping, all the best-known wh-fronting languages also differ from Tlingit in being Q/Wh-Agreement languages. This fact invites the following speculation: perhaps the best-known wh-fronting languages have only limited pied-piping *because* they are Q/Wh-Agreement languages. That is, perhaps it is the obligatory Q/Wh-Agreement in these languages that ultimately prevents the wh-words in pied-piping structures from being dominated by islands and lexical categories. If this were the case, then we would correctly predict that the wh-words of Tlingit, which don’t undergo obligatory Q/Wh-Agreement, can be dominated by islands and lexical categories inside pied-piping structures.

This hypothesis, which is more compactly formulated below, will constitute the overarching idea behind our proposed Q-based theory of the limited pied-piping languages.

¹¹ The wh-words of Basque are the following (Haspelmath 1997; p. 315): *nor* ‘who’, *zer* ‘what’, *non* ‘where’, *noiz* ‘when’, *nola* ‘how’, *zein* ‘which’. Note that all these words either begin in *n-* or *z-*. Thus, one might claim that the wh-words of Basque *do* share a distinctive morpho-phonological feature, { *n-*, *z-* }. On the other hand, appealing to such disjunctive features would significantly weaken the concept of a ‘shared morpho-phonological feature’, and would make it less clear that the wh-words of Japanese *don’t* share such a distinctive feature (cf. (387)).

Similarly, the wh-words of Hungarian are the following (Haspelmath 1997; p. 291): *ki* ‘who’, *mi* ‘what’, *hol* ‘where’, *mikor* ‘when’, *hogy* ‘how’, *milyik* ‘which’, *hány* ‘how much’. Aside from *ki* ‘who’, all these words begin in either *m-* or *h-*. Thus, one might claim that the wh-words of Hungarian *do* share a common morpho-phonological feature, { *m-*, *h-* }, with *ki* ‘who’ as an outlying member. In this context, one should note that the English wh-word *how* demonstrates that even in a clear example of a Q/Wh-Agreement language, it is possible for a small number of wh-words to (irregularly) lack the distinctive morpho-phonological feature of the class.

(396) The Nature of Limited Pied-Piping

If the Q-particle must agree with the wh-word it c-commands, then that wh-word cannot be dominated in the sister of Q by islands or lexical categories. Thus, limited pied-piping occurs when Q/Wh-Agreement is obligatory. Similarly, limited pied-piping languages (e.g. English) are those where Q/Wh-Agreement is always obligatory. Non-limited pied-piping languages (e.g. Tlingit) are those where Q/Wh-Agreement is not obligatory (or does not occur).¹²

Of course, the general hypothesis in (396) still requires some concrete, underlying mechanism. That is, in order for (396) to fully constitute a theory of the limited pied-piping languages, we must have some understanding of *why* Q/Wh-Agreement entails that wh-words cannot be dominated by islands or lexical categories inside the sister of Q.

In the following section, we will see in detail how the presence of obligatory Q/Wh-Agreement can predict the core properties of limited pied-piping languages.

3.3 Limited Pied-Piping Results From Q/Wh-Agreement

According to our overarching hypothesis in (396), the characteristic properties of limited pied-piping languages would follow from a requirement that their Q-particles must undergo Agreement with the wh-words that they c-command. We have yet, however, to explain exactly how this is so.

To begin, let us recall that the first of the two characteristic properties of limited pied-piping languages is that they do not permit pied-piping past islands. Furthermore, let us recall our assumption from Chapter 2 that Agreement cannot apply across syntactic islands. Under this general assumption, of course, it follows that Q/Wh-Agreement cannot apply across syntactic islands. Therefore, if we assume that limited pied-piping languages are Q/Wh-Agreement languages, we correctly predict that such languages will not permit pied-piping past islands. As we see below, the domination of the wh-word by a syntactic island within the sister of Q would

¹² In this context, it is important to observe that although Japanese is not a wh-fronting language, the hypothesis in (396) predicts that, given its putative lack of Q/Wh-Agreement (cf. (394)), it will permit wh-words to be dominated in the sister of Q by islands. This prediction is born out by the well-known possibility in Japanese wh-questions for the wh-operator to be buried inside of an island.

- (i) Kimi-wa [DP [CP **dare-ga** kaita] hono-o] yomi-masi-ta **ka** ?
you-TOP who-HOM wrote book-ACC read.POL-PAST Q
What person is such that you read books that they wrote?
(Books that who wrote did you read?) (Hagstrom 1998; p. 40)

Hagstrom (1998; pp. 40 – 45) argues that such structures are derived via movement of the Q-particle *ka* from a base position outside the island, as shown below.

- (ii) Kimi-wa [DP [CP **dare-ga** kaita] hono-o] t_1 yomi-masi-ta **ka**₁ ?

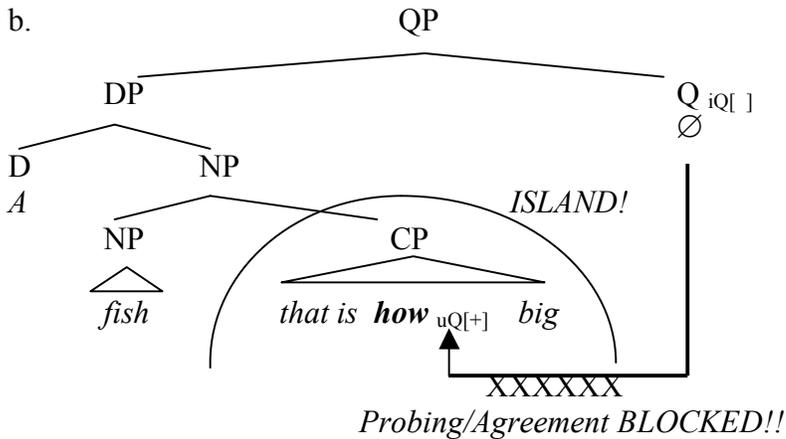
Thus, given the analysis in (ii), it appears that Japanese does allow wh-words to be dominated by islands within the sister of Q, as predicted by our hypothesis in (396).

This fact itself raises the following, more general point. The ‘LF-Pied-Piping’ analysis of sentences like (i) (Nishigauchi 1990) has often been criticized on the grounds that the putative covert pied-piping it appeals to seems to violate constraints on pied-piping seen in well-studied wh-fronting languages like English (cf. Fiengo, Huang, Lasnik & Reinhart 1988, as well as Heck 2004; pp. 495 – 502). However, the behavior of pied-piping in Tlingit and the accompanying theory in (396) significantly undermine these criticisms. A proponent of the Nishigauchi (1990) analysis could justifiably hold that the differences observed between their postulated pied-piping and the pied-piping observed in English follow simply from the fact that Japanese is not a Q/Wh-Agreement language, while English is.

prevent Agreement from taking place between the Q-particle and the wh-word.

(397) **Inability to Pied-Pipe Past Islands in English**

a. * [DP A fish [CP that is **how** big]] do you want?

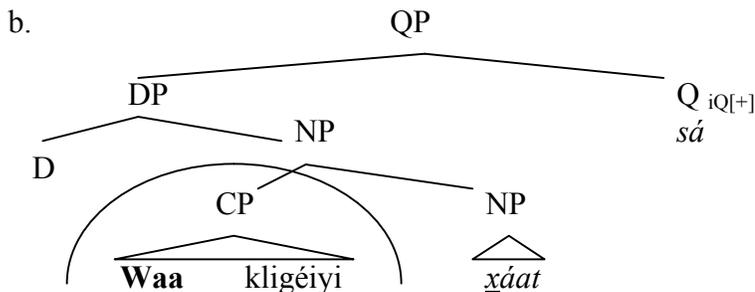


In a Q/Wh-Agreement language, then, the impossibility of Agreement in structures like (397b) would result in the Q-particle never receiving a value for its Q-feature. Consequently, the structure in (397b) would violate the principle that all features must be valued by LF, and so is predicted to be ill-formed.

Thus, our theory predicts that Q/Wh-Agreement languages will never permit pied-piping past islands. On the other hand, such configurations are predicted to be perfectly well-formed in non-Agreement languages like Tlingit. After all, the only structural problem with (397b) is that an Agreement relationship is required which cannot take place. Therefore, in languages where the impossible Agreement relationship in (397b) is *not* required, pied-piping past islands should be possible. This is illustrated below.

(398) **Ability to Pied-Pipe Past Islands in Tlingit**

a. [DP [CP **Waa** kligéiyi] xáat] **sá** i tuwáa sigóo?
 how it.is.big.REL fish Q your spirit it.is.glad
How big a fish do you want?



Given that Tlingit Q-particles are, like Japanese Q-particles, assumed to carry a *valued*

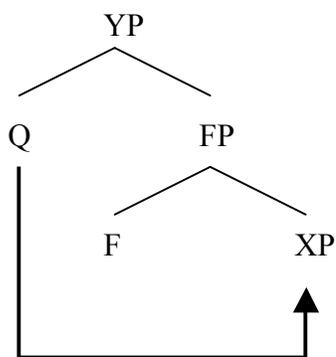
interpretable instance of Q, no Q/Wh-Agreement is required in the pied-piping structures of Tlingit. Consequently, no syntactic principles are violated by structures like (398b), where the wh-word is dominated by an island within the sister of Q. Thus, we predict that non-Agreement languages like Tlingit should permit pied-piping past islands.

We have therefore seen that our broader syntactic theory indeed predicts that pied-piping past islands should be impossible in all and only the Q/Wh-Agreement languages, which supports our hypothesis in (396). But, what of the second core property of limited pied-piping languages, their inability to pied-pipe past lexical categories? Since lexical categories are not inherently islands, we cannot as easily derive this property from the island-sensitivity of probing and Agreement.¹³ For this reason, let us here introduce the following syntactic principle into our Q-based theory, which we will assume is universal.

(399) **The LP-Intervention Condition**¹⁴

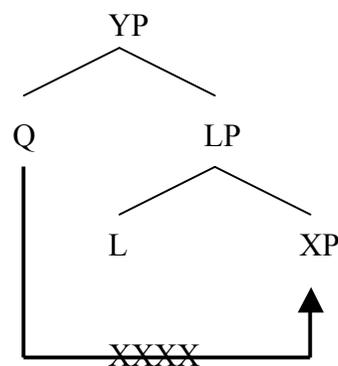
A Lexical Projection (LP) cannot intervene between a Q-particle and a phrase that the Q-particle Agrees with. (Such an intervening LP blocks all probing by Q.)

Functional Projection



Probing and Agreement: OK

Lexical Projection



LP-Intervention Condition VIOLATED

Before we begin to track the consequence of this ‘LP-Intervention Condition’, let us first pause to note its similarity to our earlier QP-Intervention Condition, repeated below. Indeed, the two principles appear somewhat like ‘mirror images’ of one another.

¹³ On the other hand, we will see in Section 3.4 one possible means for reducing the inability to pied-pipe past lexical categories to the inability to pied-pipe past islands.

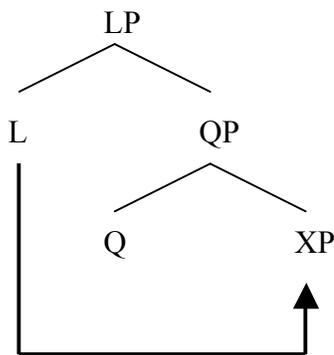
¹⁴ Note that, as we will see later in Section 4.4, the LP-Intervention Condition combined with our earlier hypothesis that ‘P’ is a lexical category in English (Chapter 4, Section 2.3.1) predicts that pied-piping of PPs should be impossible in English.

Although this might strike some readers as a blatantly false prediction, it has been independently claimed in the literature that PP pied-piping is actually a marginal structure of English. The skeptical reader is asked to suspend their disbelief until our discussion of so-called ‘Massive Pied-Piping’ in Section 6. There, we will see that that our overall system actually makes the more nuanced (and accurate) prediction that pied-piping of PPs in English will be absolutely ill-formed in *subordinate* clauses, and will only be acceptable in matrix clauses.

(400) **The QP-Intervention Condition**

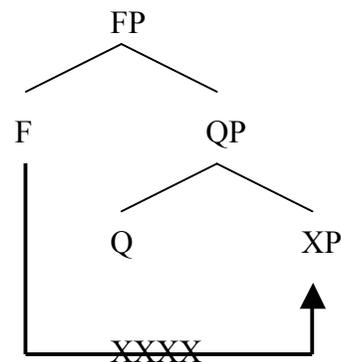
A QP cannot intervene between a functional head and a phrase selected by that functional head. (Such an intervening QP blocks the selectional relation between the functional head and the lower phrase.)

Lexical Head



Selection: OK

Functional Head



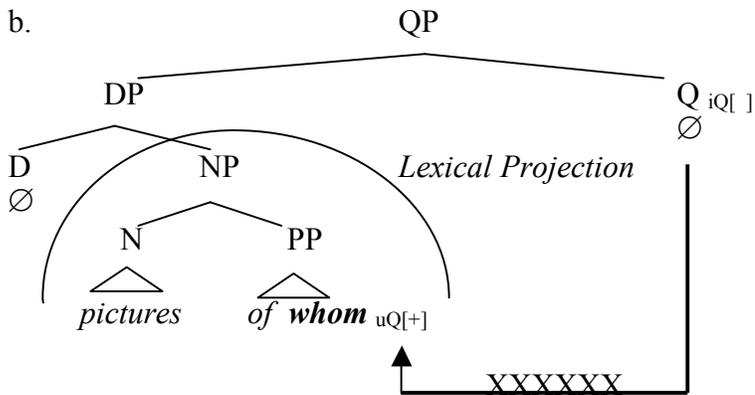
QP-Intervention Condition VIOLATED

Let us also note that, although I introduce both the principles above as special stipulations, we will later see in Section 3.4 that the effects of the LP-Intervention Condition might follow from a broader theory of the structure of lexical projections. Similarly, we earlier noted in Footnote 71 of Chapter 2 that the QP-Intervention Condition might follow from a broader theory of selection.

With the addition of the LP-Intervention Condition in (399), it follows that the Q/Wh-Agreement languages will not permit pied-piping past lexical categories. As illustrated below, the domination of the wh-word by a lexical category within the sister of Q would prevent Agreement from taking place between the Q-particle and the wh-word.

(401) **Inability to Pied-Pipe Past Lexical Categories in English**

a. (?) [_{NP} Pictures of **whom**] did John buy?



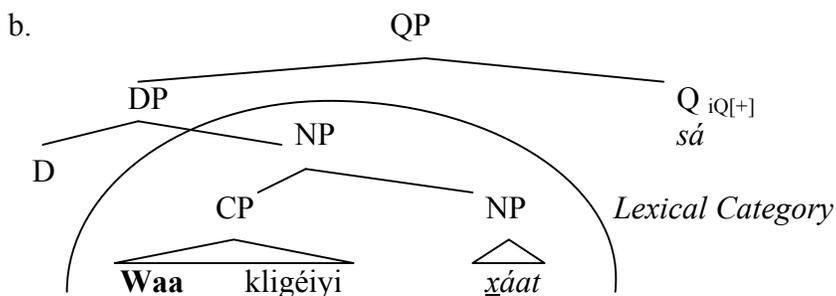
Probing/Agreement BLOCKED (by LP-Intervention Condition)!!!

In a Q/Wh-Agreement language, then, the impossibility of Agreement in structures like (401b) would result in the Q-particle never receiving a value for its Q-feature. Consequently, the structure in (401b) would violate the principle that all features must be valued by LF, and so is predicted to be ill-formed.

On the other hand, such configurations are predicted to be perfectly well-formed in non-Agreement languages like Tlingit. Again, the only structural problem with (401b) is that an Agreement relationship is required which cannot take place. Therefore, in languages where the impossible Agreement relationship in (401b) is *not* required, pied-piping past lexical categories should be possible. We can see this in more detail below.

(402) **Ability to Pied-Pipe Past Lexical Categories in Tlingit**

- a. [DP [CP **Waa** kligéiyi] xáat] **sá** i tuwáa sigóo?
 how it.is.big.REL fish Q your spirit it.is.glad
How big a fish do you want?



In summary, we have seen that with the addition of the LP-Intervention Condition, our broader syntactic theory predicts that pied-piping past islands and pied-piping past lexical categories should be impossible in all and only the Q/Wh-Agreement languages. Consequently, our theory of Q/Wh-Agreement indeed predicts the generalization in (396), that the limited pied-piping languages are precisely the Q/Wh-Agreement languages. In this way, the proposals in this section provide a full Q-based theory of the limited pied-piping languages. The core properties of those languages are seen to follow from a more basic underlying property, the requirement that their Q-particles undergo Agreement with wh-words. Thus, the observed differences between the pied-piping structures of English and those of Tlingit are not due to some deep difference in their syntax, but instead to a rather superficial difference in whether Q/Wh-Agreement is obligatory.

Before we leave this section, however, let us momentarily return to a fundamental assumption of our preceding discussion, the claim that English and all the most well-studied wh-fronting languages do not permit pied-piping past lexical categories. Although we illustrated this claim with only a modicum of data from English, it actually has a much broader empirical coverage. Indeed, it is a generalization that has been independently made several times in the literature on pied-piping (Cowper 1987, Webelhuth 1992, Grimshaw 2000), as it accounts for a wide array of seemingly disparate facts, including a number of generalizations regarding pied-piping that had previously been seen as independent properties.

Therefore, in order to provide a fuller appreciation of the work accomplished by our LP-Intervention Condition, I will review in the following subsection some of the phenomena that fall

under the broader generalization that ‘there is no pied-piping past lexical categories.’

3.3.1 Evidence for the LP-Intervention Condition in Q/Wh-Agreement Languages

As we first noted in Section 3 of Chapter 4, one of the most striking properties of pied-piping structures is how limited they are. No language permits a wh-word to ‘pied-pipe’ any and all phrases that contain it.¹⁵ For example, we will see in Section 4.2 that even Tlingit disallows pied-piping past matrix predicates (cf. Chapter 2, Section 4.4), and the constraints on pied-piping structures are far more severe in all the best known wh-fronting languages. Therefore, an important part of a general theory of wh-fronting is some account of the observed constraints on pied-piping structures. For this reason, linguists have for some time struggled with the logically prior task of properly characterizing *what* the constraints on pied-piping *are*, what patterns the general theory should predict. Unfortunately, given the numerous independent structural differences across the best-studied wh-fronting languages, it is far from transparent what the underlying cross-linguistic generalizations are. A sense of the difficulty of this problem can be gained via the following passage from Pesetsky (2000).

Furthermore, the English conventions [regarding what can dominate the wh-word within the pied-piping structure – SC] appear to be *sui generis*, which makes them hard to understand in terms of deeper principles. It appears that linear peripherality plays an important role. The basic rule for identifying an interrogative wh-phrase in English seems to be this:

- (i) A wh-phrase has the form [(Adv) (P) wh ...]

If the condition in (i) is met, the wh-feature can be embedded indefinitely far down in the structure. (Pesetsky 2000; p. 106)

Although there has yet to be discovered a completely unified account for all the various constraints governing pied-piping structures, a number of them can be seen to follow from the general impossibility of pied-piping past lexical categories (Cowper 1987, Webelhuth 1992, Grimshaw 2000). Indeed, we will see that a number of conditions which had previously been described purely in terms of the phrase-structural or linear position of the wh-word follow from this one generalization.

One immediate consequence of this generalization is, of course, that the complement of a lexical head L will be unable to pied-pipe past the projections of L. Thus, we correctly predict that limited pied-piping languages will not allow the complements of lexical heads to be ‘pied-pipers’.¹⁶ The data in (385), repeated below, illustrate this fact for English.

¹⁵ Throughout this discussion, I will use the verb ‘pied-pipe’ in a purely descriptive sense. The phrase ‘X pied-pipes Y’ means only that X is the wh-operator in a pied-piping structure, and is dominated by Y within the fronted phrase of the structure.

¹⁶ Throughout this discussion, I will use the term ‘pied-pipers’ in a purely descriptive sense. The noun ‘pied-piper’ refers to wh-operators whose projections are properly contained within the fronted phrase of a wh-question.

(403) **Complements of Lexical Heads Can't Pied-Pipe (in Limited Pied-Piping Languages)**

- a. I wonder [[DP **whose** [NP pictures]] John bought] ?
- b. * I wonder [[NP Pictures of **whom**] John bought] ?
- c. * I wonder [[AP proud of **whom**] John was] ?
- d. * I wonder [[VP eaten **what**] John has] ?

As we saw earlier, the data above trivially follow from the generalization that limited pied-piping languages do not permit pied-piping past lexical categories. However, the reader may rightly wonder at this point whether that generalization is the correct one to draw from the data above. Indeed, facts like those in (403) have lead many researchers to instead propose the stronger generalization that *no* complements of *any* head can serve as 'pied-pipers' (Kayne 1994, Koopman 1997, Koopman & Szabolcsi 2000). Under such accounts, pied-piping structures are only well-formed if the *wh*-word occupies a *specifier* position within the fronted phrase.

This stronger generalization will receive more focused discussion in Section 4.3; let us here, however, foreshadow the points we will later make in greater detail. As we will later see more clearly, the stronger generalization that no complements can ever pied-pipe accurately predicts the overwhelming tendency (in limited pied-piping languages) for pied-pipers to be left-peripheral specifiers (cf. Pesetsky 2000; p. 106). On the other hand, these accounts face a direct and immediate challenge from the ubiquity of PP-pied-piping by complements of P. That is, contrary to the stronger generalization, it is possible in most limited pied-piping languages for the *wh*-word in a pied-piping structure to occupy the complement position of a PP within the fronted phrase, as shown below.

(404) **Complements of P Can Pied-Pipe (in Limited Pied-Piping Languages)**

- a. English:
[PP In [**what** sense]] was he a doctor?
- b. Icelandic:
Ég velti því fyrir mér [[PP við **hvern**] þú taladur].
I roll it before me with who you talked
I wonder who you talked with.
- c. Russian:
[v **čey** mashyne] priyekhal ?
in whose car you.arrived
Whose car did you arrive in?

Thus, in order to allow for these remarkably common structures, proponents of the stronger generalization must introduce special assumptions regarding the structure of PPs, so that what appear in so many languages to be pied-pipers in CompPP are in fact covertly specifiers of PP. By contrast, our weaker generalization that complements of lexical categories cannot pied-pipe

receives no *prima facie* challenge from the facts above. Because P is a functional category (in most languages), the weaker generalization correctly predicts that wh-words may generally occupy the complement of PP within the fronted phrase of a wh-question. As regards the general tendency for pied-pipers to be specifiers, we will later see that this is an epiphenomenal consequence of the fact that most functional categories cannot take interrogative words as complements.

Our constraint against pied-piping past lexical categories also predicts another oft-noted feature of the limited pied-piping languages. Besides ruling out pied-piping by *complements* of lexical heads, our generalization also correctly predicts that *modifiers* of lexical heads will be unable to pied-pipe past the lexical projection containing them. This inability for modifiers to pied-pipe, illustrated below, was observed by Webelhuth (1992).

(405) **Modifiers of Lexical Heads Cannot Pied-Pipe (in Limited Pied-Piping Languages)**

- a. * [QP [DP The [NP party **where**]] Q] will John enjoy?
- b. * [QP [VP Go **where**] Q] will you?
- c. * [QP [DP A [NP [DegP **how** big] party]] Q] will you throw? ¹⁷

Again, since the wh-words in each of these structures is contained within a lexical projection inside the fronted phrase, our LP-Intervention Condition predicts their ill-formedness.

A third prediction of our restriction against pied-piping past lexical categories concerns the placement of possessors within pied-piping structures. A pervasive phenomenon across the limited pied-piping languages is the inability for post-nominal possessors to pied-pipe past the larger possessive DP (Heck 2004; p. 133 – 142). Sentences like (403b) demonstrate the impossibility of such structures in English, and the data below illustrate this for German.

¹⁷ Curiously, we can see from sentences like (366a), repeated below, that the correlates of (405c) in German are well-formed.

- (i) **Possible Pied-Piping by a Modifier of NP in German**
 Fritz möchte wissen [ein **wie** schnelles Motorrad] du fahren darfst.
 Fritz wants to.know a how fast motorbike you drive may
Fritz would like to know how fast a motorbike you are allowed to drive.

To my knowledge, there has never been proposed a fully satisfactory account of this difference between English and German. I choose here to adopt an account similar to that in Heck (2004), where the initial determiner *ein* ‘a’ in such structures has actually undergone head-movement to a distinct functional head F above DP. Under this kind of analysis, the inversion of the DegP seen in English sentences like (iia) actually *does* take place in German, but is subsequently obscured by the fronting of the determiner head to the higher functional position above the DegP. The following structures illustrate the general idea.

- (ii) **German Degree Questions Contain Obscured DegP-Inversion**
 a. [FP \emptyset_F [DP [DegP **How** fast]₁ a [NP *t*₁ car]]] can you drive?
 b. [FP [F [D Ein]₁ \emptyset_F] [DP [DegP **wie** schnelles]₂ *t*₁ [NP *t*₂ Motorrad]]] du fahren darfst.

We will later see in Section 5 how our Q-based theory of limited pied-piping licenses the ‘DegP Inversion’ overtly seen in English (iia). That account will also equally-well apply to the postulated German structure in (iib).

(406) **Post-Nominal Possessors Cannot Pied-Pipe in German (Heck 2004; pp. 134 – 135)**

- a. [DP **Marias** Tochter]
 Maria's daughter
- b. [DP die [NP Tochter von **Maria**]]
 the daughter of Maria
- c. [DP **Wessen** Tochter] willst du malen?
 whose daughter want you to paint
 Whose daughter do you want to paint?
- d. * [DP Die [NP Tochter von **wem**]] willst du malen?
 the daughter of who want you to paint

As we see from (406a) and (406b), German generally permits possessor DPs to either precede or follow the N that they possess. However, if that possessor DP is a pied-piper, then the post-nominal order becomes impossible (406d), and only the pre-nominal position is allowed (406c). Thus, we find that German does not permit *wh*-words to function as post-nominal possessors within the fronted phrase of a pied-piping structure. As further noted by Heck (2004), similar patterns of data can also be observed in many Romance languages, as well as the Mayan languages Chol and Tzotzil (cf. Section 5).

Much like the facts in (403), the inability for post-nominal possessors to pied-pipe has been seen by some as evidence that pied-pipers must generally be left-peripheral within the fronted phrase. Note, however, that post-nominal possessors are commonly held to occupy positions internal to the possessed NP, as indicated by our English structure in (403b) and our German structures in (406b,d). Under this plausible assumption, post-nominal possessors are necessarily dominated by a lexical projection within the larger possessive DP. Therefore, our LP-Intervention Condition would correctly predict their inability to pied-pipe past the possessive DPs containing them.

In this context, let us observe that a related phenomenon in Hungarian also follows from the impossibility of pied-piping past lexical categories. Szabolcsi (1994) argues that possessors in Hungarian can occupy one of two distinct structural positions within the larger possessive DP. Much like possessors in German, Hungarian possessors can either occupy a position internal to the NP projection of the possessed noun, or they can occupy a higher position outside the NP. Importantly, however, both these two positions for possessors in Hungarian are *pre*-nominal; Hungarian does not permit post-nominal possessors. Rather, the two positions are empirically distinguished principally through their case properties. Possessors internal to the NP bear nominative case, while Possessors external to the DP bear dative case. Interestingly, it is only the *dative*-marked possessors, those presumed to be external to the NP, which can pied-pipe the entire possessive DP. The following data illustrates.

(407) **Nominative-Marked Possessors Cannot Pied-Pipe in Hungarian (Szabolcsi 1994)**

- a. [DP **Ki**-nek a [NP vendégét]] ismertétek?
who-DAT the guest you.know
Whose guest did you know?
- b. * [DP [NP **Ki** vendégét]] ismertétek?
who-NOM guest you.know

Of course, given the evidence that nominative-marked possessors in Hungarian are NP-internal, the ill-formedness of (407b) follows from our LP-Intervention Condition. Moreover, our restriction against pied-piping past lexical categories ultimately views the data in (407) and those in (406) as instances of the same basic phenomenon. That is, both these facts are derived as consequences of our single overarching generalization, despite the fact that the data in (406) superficially appear to concern the *linear position* of the wh-word, while those in (407) appear to concern its *case*. More importantly, however, let us observe that both the Hungarian possessors in (407) occupy left-peripheral specifier positions within the fronted phrase. It therefore follows that any attempt to capture the contrast between (406c,d) via the simple generalization that ‘pied-pipers must be left-peripheral specifiers’ would fail to capture the parallel contrast between (407a) and (407b). Thus, the behavior of possessors in Hungarian further supports our more general claim that properties like ‘left peripherality’ and ‘specifier-hood’ are not directly relevant to the constraints on pied-piping seen in the limited pied-piping languages (cf. Horvath 2007, Section 2.2).

Furthermore, an examination of English gerunds presents us with data thematically similar to those just observed for Hungarian in (407). As reported in Horvath (2007), Culicover (1999) observes the following contrast regarding pied-piping past gerunds in English.

(408) **Pied-Piping Past Gerunds in English (Culicover 1999)**¹⁸

- a. * [**Who** solving the problem] were you thinking about?
b. [**Whose** solving the problem] were you thinking about?
c. [**Whose** solving of the problem] were you thinking about?

¹⁸ Note that a more well-known observation regarding pied-piping in English gerunds comes from Weibelhuth (1992), who reports a contrast between sentences like (408b) and (408c).

(408b) * [Whose solving the problem] were you thinking about?

(408c) [Whose solving of the problem] were you thinking about? (judgment of Weibelhuth 1992)

Thus, Weibelhuth (1992) would seem to group (408b) with (408a) as ill-formed, in distinction to the well-formed (408c). Furthermore, this particular grouping of judgments crucially supports Weibelhuth’s proposed theory of pied-piping.

As Horvath notes, however, Culicover (1999) reports the judgments in (408) in a context entirely unrelated to the nature of pied-piping, and without any plausible interest in challenging the theory of Weibelhuth (1992). Moreover, consultation with other English speakers reveals a consensus that, although there may be a (slight) contrast between (408b) and (408c), it is not nearly as strong as the contrast between (408a) and the other two. It should be noted that Weibelhuth (1992) doesn’t actually ever consider sentences like (408a) in his discussion, focusing instead on a binary comparison between sentences like (408b) and (408c).

In summary, it appears that with respect to pied-piping past gerunds, there is a much stronger effect from the case-marking of the pied-piping subject than from the case-marking of the object. As we note below, this stronger effect is captured by our Q-based theory, while the weaker one remains a mystery under our account.

Like the Hungarian data in (407), the contrast between the ill-formed (408a) and the well-formed (408b,c) seems connected with the case of the gerund's subject. In the ill-formed (408a), the subject of the gerund bears accusative case, as can be seen from such well-formed declarative correlates as *We were thinking of him solving the problem.* In the well-formed (408b,c), however, the subject of the gerund bears genitive case.

As noted by Horvath (2007), our account of the Hungarian contrasts in (407) might also be able to capture the English data here. Let us assume that accusative-marked gerundive subjects in English occupy the NP-internal position of Hungarian nominative-marked possessors. Furthermore, let us assume that genitive-marked gerundive subjects occupy the NP-external position of Hungarian dative-marked possessors. Under these assumptions, the data in (408) follow from the generalization that English does not permit pied-piping past lexical categories. In the ill-formed (408a), the NP projection of the gerund dominates the wh-word within the fronted phrase, and so the structure is predicted by our generalization to be ill-formed. In the well-formed (408b,c), however, the wh-word is outside the NP projected by the gerund, and so nothing within our theory of limited pied-piping would rule it out. Finally, let us again note that *all* the wh-words in (408) are left-peripheral specifiers, which supports our claim that the constraints governing limited pied-piping are not directly sensitive either to left-peripherality or to specifier-hood.

Thus far, we have seen that a constraint against pied-piping past lexical categories would alone predict a variety of facts that would otherwise only be captured via distinct generalizations. I therefore conclude that any theory of limited pied-piping languages should derive this constraint as a theorem. As we have seen, this constraint would follow from our foundational hypothesis in (396). Thus, the data presented in this sub-section provide important evidence in favor of our overall Q-based account.

Before we leave this discussion, let us consider one final set of data that may be a correct prediction of our theory. Note that a restriction against pied-piping past lexical categories would correctly predict the impossibility in Q/Wh-Agreement languages of the pied-piping of a subordinate CP by a wh-word internal to the VP. The following illustrates this for English.

(409) **Wh-Words Internal to VP Cannot Pied-Pipe a Subordinate CP in English**

* [_{QP} [_{CP} [_{IP} James [_{VP} saw **who**]]]] Q]₁ do you think *t*₁ ?

Given that the wh-word in structures like (409) is internal to a lexical projection (i.e., VP), our theory correctly predicts them to be ill-formed. Of course, this observation immediately raises the question of whether pied-piping of subordinate CPs is possible in these languages when the wh-word is *outside* the VP projection. Note that because such wh-words would not be dominated by any lexical categories, our Q-based theory would not rule them out. It is interesting, then, to note that structures like those in (410) below *are* acceptable sentences of English, and that they have been analyzed as instances of CP-pied-piping (Kayne 2000, Horvath 2007; for an opposing view, see Cable 2005b).

(410) **Wh-Words External to VP Can Pied-Pipe a Subordinate CP**

- a. [_{QP} [_{CP} [_{IP} **Who** [_{VP} saw James]]]] Q] do you think ?
- b. [_{QP} [_{CP} **Who** did [_{IP} James [_{VP} see]]]] Q] do you think ?

Under the structural analyses indicated above, our Q-based theory of limited pied-piping would correctly predict the contrast between the ill-formed (409) and the well-formed sentences of (410). However, it does remain controversial whether the sentences in (410) are actually cases of subordinate CP pied-piping in English (cf. Footnote 20; Cable (2005b)). If it indeed turns out that these structures are *not* really cases of CP pied-piping, then some other principle must be responsible for the ill-formedness of (409), such as a (stipulated) inability for Q in English to take CPs as sisters (cf. Tanaka 1999).^{19, 20}

3.4 Appendix: An Alternative, Phase-Based Account

In the previous section, we presented arguments that the limited pied-piping languages do not permit pied-piping past lexical categories. Under our Q-based account, this fact ultimately follows from our ‘LP-Intervention Condition’ in (399), which stipulates that Q/Wh-Agreement cannot apply across lexical projections. Although we’ve seen that this condition makes a variety of accurate predictions for English and related languages, one might nevertheless balk at its complexity and stipulative nature. Indeed, it appears that our current Q-based account must make two stipulations in order to derive the constraints on pied-piping in languages like English. First, we must stipulate that these languages require Agreement between Q-particles and wh-words. Secondly, we must also stipulate that Q/Wh-Agreement is subject to our LP-Intervention Condition. Our Q-based theory would certainly be more attractive if we could eliminate the second of these stipulations, and instead derive its effects from the first, given general properties of Agreement..

Although I will not ultimately adopt it myself, I will in this section put forth an ‘alternative account’ that can derive from known properties of Agreement the impossibility of pied-piping past lexical categories. This tentatively offered account will rest upon the following, central hypothesis.

(411) The Fine Structure of Lexical Categories (cf. Embick & Marantz 2007)

Every lexical projection (VP, NP, AP) is complement to a functional projection (v, n, a). Furthermore, each of these ‘categorial heads’ (v, n, a) is a phase head.

That is, let us assume that every lexical projection is dominated by its own equivalent of the

¹⁹ As mentioned in Section 2.5 of Chapter 4, Tanaka (1999) puts forth a view very similar to our own Q-based theory of pied-piping. Interestingly, for his own theory-internal reasons, Tanaka (1999) must rule out LF-pied-piping of CPs in Japanese. In order to accomplish this, he introduces a stipulation whereby his correlate of our Q-particle (i.e., his ‘ ω -head’) cannot take CPs as complements. If extended to English, this stipulation would also rule out overt CP-pied-piping in that language. Of course, given the well-formedness of CP-pied-piping in Tlingit and other languages, one must assume that this property of Q idiosyncratically varies across languages.

²⁰ Note that the indicated analysis of sentence (410a), where the subject wh-word remains *in-situ* in SpecIP, immediately raises the question of why sentences like the following are not possible.

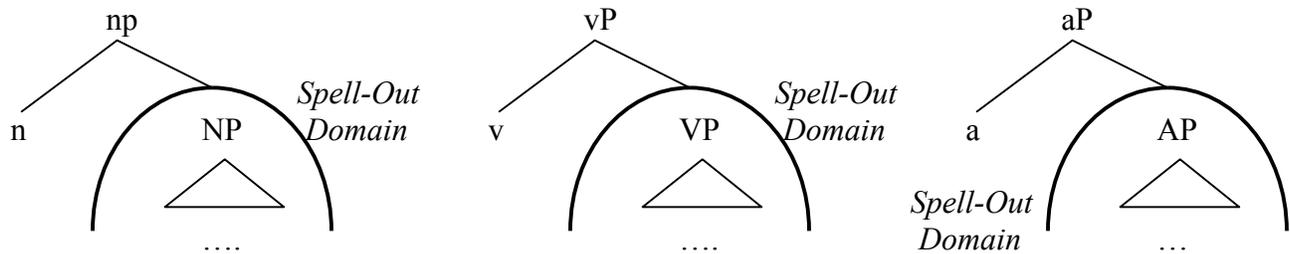
(i) * [_{QP} [_{CP} That [_{IP} **who** [_{VP} saw James]]] **Q**] do you think ?

After all, the structure in (i) would not violate the LP-Intervention Condition any more than the structure in (410a), and so our Q-based theory would incorrectly predict that (i) should be as well-formed as (410a).

On the other hand, we will see in Section 3.4 that a possible alternative to our LP-Intervention Condition could successfully distinguish between (i) and (410a). According to this proposal, the pied-piped subordinate CP in (410a) is one where the subject wh-word has undergone string-vacuous movement to SpecCP. Thus, under this analysis, sentences like (i) above would be ruled out via the usual appeal to the Doubly-Filled Comp Constraint.

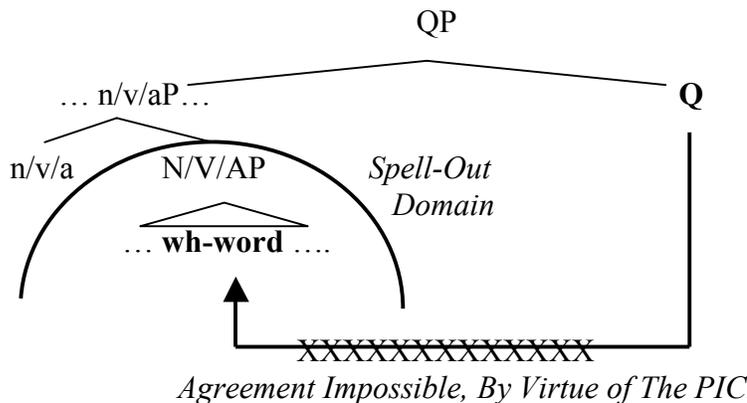
‘little-v’ projection commonly held to dominate VPs. According to this hypothesis, then, every NP, AP and VP is embedded in a structure like that represented under (412), below.

(412) **Diagram of the Lexical Projections**



Importantly, if we assume that each of the little categorial heads (*v*, *n*, *a*) shares with little-*v* the property of being a phase head (cf. Chomsky 2000), then we derive the inability of Q/Wh-Agreement to cross lexical projections. As shown above, if we assume that each of the categorial heads is a phase head, then it follows that all the material inside a lexical projection is in a separate Spell-Out domain from any material outside the lexical projection (cf. Chomsky 2000). Furthermore, under the standard formulation of the ‘Phase Impenetrability Condition’ (PIC), syntactic operations like Agree cannot apply to heads within separate Spell-Out domains (cf. Chomsky 2000).²¹ Thus, under these assumptions, no material inside a lexical projection can undergo Agreement with any head outside that lexical projection. Consequently, we predict that Agreement between a Q-particle and a wh-word buried inside a lexical projection should be impossible. The following structure illustrates

(413) **Inability for Q/Wh-Agreement to Cross a Lexical Projection**



We therefore see that from the core hypothesis in (411), we can predict that Q/Wh-Agreement languages will not allow a lexical projection to intervene between a Q-particle and the wh-word that it binds. Thus, (411) would be sufficient to predict that Q/Wh-Agreement languages will not permit pied-piping past lexical categories. Most importantly, however, an account based upon (411) is able to derive this prediction without any appeal to the LP-

²¹ Note, however, that there is much controversy over the exact nature, and therefore statement, of the PIC. For instance, Bošković (2005a) argues that Agreement can apply across different Spell-Out domains.

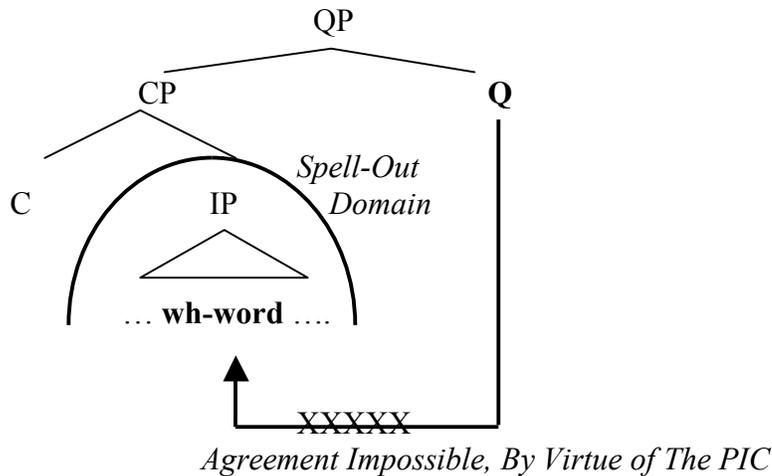
(415) **(Putative) Pied-Piping of Subordinate CPs in English**

- a. [CP **Who** [IP saw James]]₁ do you think t_1 ?
- b. * [CP That [IP **who** saw James]]₁ do you think t_1 ?

The reason for the ill-formedness of (415b) might actually be that English shares with Basque and Ancash Quechua the requirement that pied-piped CPs contain left-peripheral wh-words. Given the ‘Doubly Filled Comp Constraint’, the pied-piping wh-word in sentence (415b) necessarily occupies a position internal to the IP of the subordinate clause, which would violate the constraint seen in Basque and Quechua. Furthermore, if we assume that (contrary to the analysis in (410a)) sentence (415a) contains string-vacuous movement of the wh-word to SpecCP, then we find that the contrast in (415) is indeed parallel to that seen for Basque and Ancash Quechua in (414).

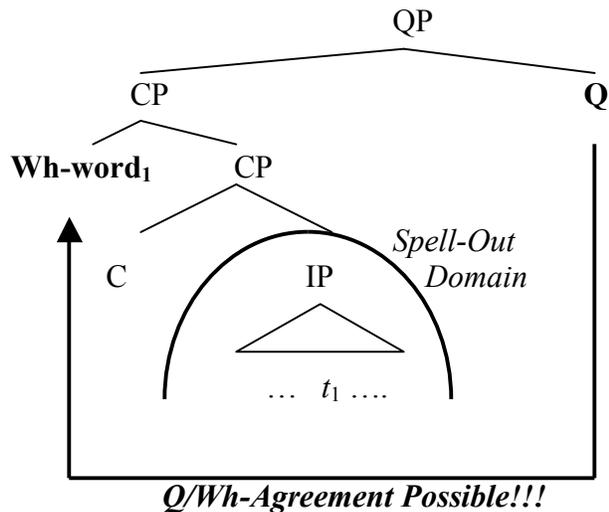
If we assume that Basque, Ancash Quechua and English are all Q/Wh-Agreement languages, then the data in (414) and (415) would follow from the inability for Agreement to apply across separate Spell-Out domains. Since C heads are the paradigmatic example of phase heads, each of the ill-formed structures in (414b,d) and (415b) would require Q/Wh-Agreement to apply to heads in separate Spell-Out domains, contrary to the PIC. The following structure illustrates.

(416) **No Q/Wh-Agreement Across Complementizer Heads**



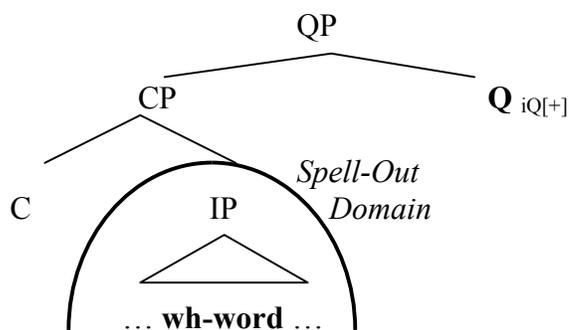
Therefore, under these assumptions, the only way in which a Q-particle can Agree with a wh-word buried inside a subordinate CP is if that wh-word moves into the specifier position of the CP, as shown in (417) below.

(417) **Subordinate CP Pied-Piping is Possible if the Wh-Word is in Spec-CP**



We thus find that our assumption that Agreement cannot apply across distinct Spell-Out domains predicts that Q/Wh-Agreement languages will only permit pied-piping of subordinate CPs if the pied-pipers occupy SpecCP, a prediction born out for Basque, Quechua, and (possibly) English. Of course, this result immediately raises the question of what happens in languages where Q-particles and wh-words do *not* obligatorily Agree. Since pied-piping of subordinate clauses is most popularly known from the Q/Wh-Agreement languages Basque and Quechua, it has often been claimed in the literature that such pied-piping is *always* subject to the constraint seen in (414) (cf. Heck 2004). Under the proposal advocated here, however, the pattern in (414) and (415) is crucially tied to the need for Q-particles and wh-words to Agree in those languages. It follows, of course, that languages where Q-particles and wh-words *don't* Agree are predicted by our system to permit structures like (414b,d). That is, since the so-called ‘non-Agreement’ languages are assumed not to require Q-particles to undergo Agreement with wh-words, structures like the following are predicted to be well-formed in such languages.

(418) **Non-Agreement Languages Allow Pied-Piping of CPs by IP-Internal Wh-Words**



Let us therefore seek to test this prediction. In order to do so, we must find a non-Agreement language that has overt wh-fronting. As Tlingit is our reigning example of such a language, we should naturally seek to determine whether this prediction is true for Tlingit.

Unfortunately, I have not yet been able to test this prediction with speakers of Tlingit. However, relevant data have been published for *another* wh-fronting non-Agreement language, the neighboring language Haida (Enrico 2003). Haida, like its neighbor Tlingit, is a non-Agreement language with overt wh-fronting.²⁴ That Haida is a non-Agreement language can be seen most clearly from the fact that pied-piping past islands is possible in Haida. As the following sentences demonstrate, Haida permits pied-pipers to be dominated by (internally headed) relative clauses.

(419) **Pied-Piping Past Islands in Haida**

- a. [DP [CP Dang **giisda** tla.adsiisk'yùu]]-uu dang riidang?
 you who will.help FOC you wait.for
 Who are you waiting for that is going to help you?
- b. [DP [CP **Giisda** raayaa]]-uu 7aanàa 7iijang?
 who be.fat FOC in.next.room is
 Who that is fat is in the next room? (Enrico 2003; p. 205)

As our theory correctly predicts, subordinate CPs may be pied-piped in Haida by wh-words internal to the subordinate IP. This is evident from sentences like (419a) and (420) below.

(420) **Non-Left-Peripheral Wh-Word Pied-Piping a CP in Haida**

- [CP k'yuwee **guusrahl** 'la srasgadaan]-uu 7wii qeeng.ulaang?
 the.door what.with he strike FOC it.is.easy.to.see
 What is it easy to see that he hit the door with? (Enrico 2003; p. 205)

Thus, the behavior of subordinate clause pied-piping in Haida reveals that the restriction observed in (414) to hold of subordinate CP pied-piping in Basque and Quechua is *not* universal. As predicted by our account, in the non-Agreement languages, pied-piping of subordinate CPs is possible even when the pied-piping wh-words are *not* left-peripheral.

In summary, we have seen that variation in the behavior of subordinate CP pied-piping independently supports the notion that Q/Wh-Agreement is subject to the PIC, a cornerstone assumption of our alternative account in (411). Thus, we find that the ideas put forth in this section can cover a variety of data, providing us with a viable – and in some ways better – alternative to the LP-Intervention Condition of Section 3.3. Indeed, in light of the arguments above, what reason could there be for maintaining the stipulative LP-Intervention Condition?

However, our alternative to the LP-Intervention Condition does face a rather difficult challenge from the behavior of DP-pied-piping in Hungarian. Consider the following data.

²⁴ Although Haida does optionally permit wh-words to remain *in-situ* in wh-questions, such sentences necessarily contain the interrogative clitic *gu*, as in the sentence below (Enrico 2003; p. 206).

- (i) Huu-gu Joe guus taa-gaa?
 there-Q Joe what eat-EVID
 What did Joe eat? (Enrico 2003; p. 206)

Thus, we can be certain that the sentences in (419) and (420) indeed contain overt pied-piping, given that they lack any instance of the interrogative clitic (cf. Enrico 2003; pp. 203 – 207).

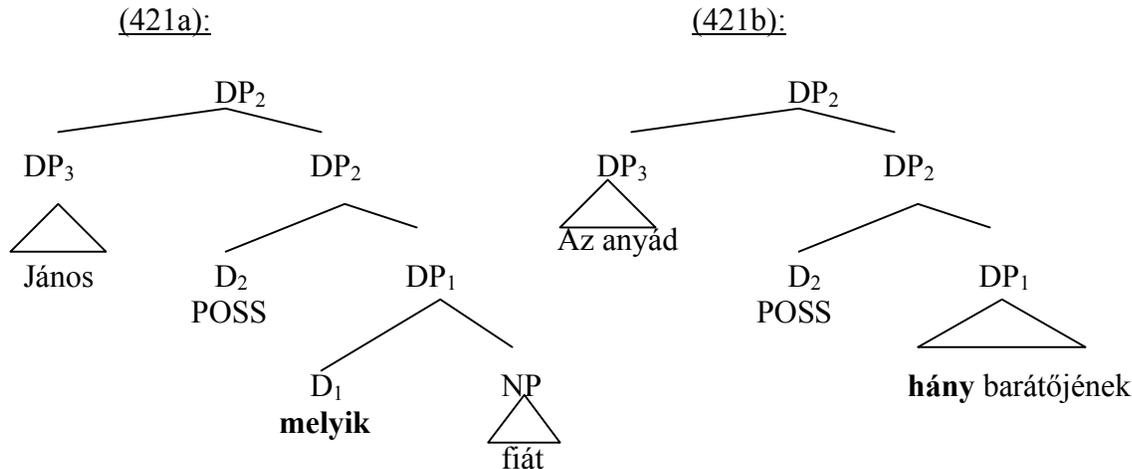
(421) **Hungarian Wh-Determiners Can Pied-Pipe Past Higher DPs**

- a. [DP₁ János [DP₂ **melyik** fiát]] szereted legjobban?
 John which son you.like best
Which son of John's do you like the best?
- b. [DP₁ Az anyád [DP₂ **hány** barátójének]] telefonáltál?
 the your.mother how.many her.friends you.phoned
How many of your mother's friends did you call?

(Horvath 2007; Szabolcsi 1984)

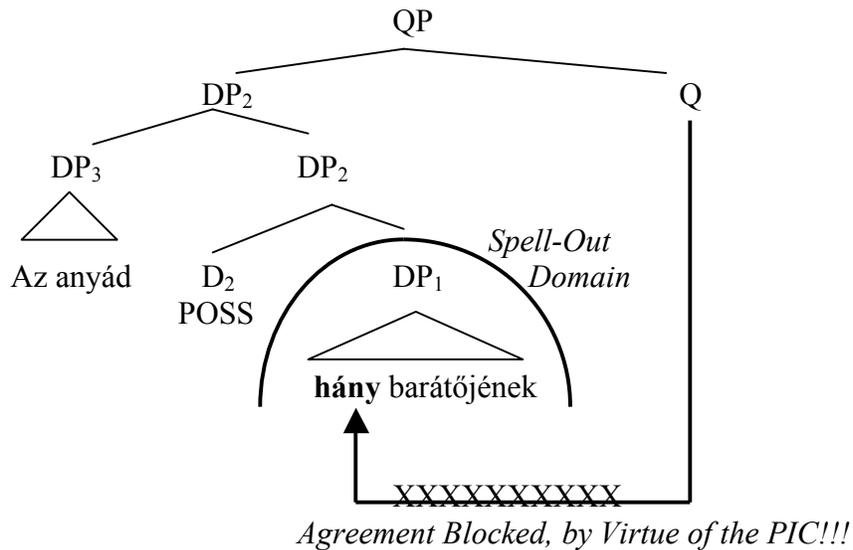
In the sentences above, it appears that a wh-word internal to a DP can actually pied-pipe past *two distinct* DP projections. Given that the possessor DPs in (421) are most likely specifiers of possessive D-heads, the syntax of the complex DPs in (421) appears to be the following.

(422) **Structure of the Hungarian DPs in (421)**



If correct, the structures in (422) immediately present the following challenge to our alternative theory in (411). Given that determiners are another core example of a phase head, the sentences in (421) witness pied-piping past a phase head. However, since Hungarian is a Q/Wh-Agreement language, our proposed alternative to the LP-Intervention Condition predicts that such structures should be *impossible*. The following illustrates.

(423) **No Pied-Piping Past Determiner Heads, Under the ‘Alternative Account’**



As we see in (423), because D-heads are phase heads, the wh-words in (421) are located in a distinct Spell-Out domain from the Q-particles that c-command them. Therefore, given its assumption that Q/Wh-Agreement is subject to the PIC, our alternative account incorrectly predicts that the pied-piping structures in (421) will be ill-formed. To put the matter differently, the Hungarian sentences in (421) demonstrate that it is generally possible to pied-pipe past phase heads, even in Q/Wh-Agreement languages. This, in turn, entails that Q/Wh-Agreement *can* apply across distinct Spell-Out domains. Consequently, Agreement is *not* generally subject to the Phase Impenetrability Condition, contrary to the cornerstone assumption of our alternative account.²⁵ We must therefore conclude that the impossibility in Q/Wh-Agreement languages of pied-piping past lexical categories must be due to something other than simply the fact that the wh-word would be in a separate Spell-Out domain from the Q-particle.

Our conclusion that Agreement is not subject to the PIC, and so can apply across distinct Spell-Out domains, receives independent conceptual and empirical support in the literature. Perhaps the most explicit proponent of this view is Bošković (2005a). Bošković adduces the following points in favor of the notion that Agreement is not constrained by the PIC.

(424) **Arguments by Bošković (2005a) that Agree is Not Subject to the PIC**

- If one assumes the Fox & Pesetsky (2004) theory of the PIC, it follows that pure syntactic operations like Agreement should not be limited by the PIC.
- In some languages (e.g. Chuckchee) it is possible for matrix verbs to agree with the arguments of subordinate *finite* clauses, implying that Agreement between V and DP can cross the ‘CP-phase’.
- Certain facts regarding ‘first conjunct agreement’ in English receive an elegant analysis if

²⁵ Note that this also implies that the impossibility of Agreement across relative clause islands must follow from something other than simply the PIC.

one assumes that Agreement is *not* limited by the PIC.

- A number of ‘broad-coverage’ syntactic theories require that Agreement not be subject to the PIC (e.g. Landau’s (2004) “Calculus of Control” and Bošković’s own theory of successive cyclic movement).

It does seem, then, that there is converging evidence that Agreement is not subject to the Phase Impenetrability Condition, and that it can apply to heads in distinct Spell-Out domains. Besides Bošković’s arguments above, there is the just-noted fact that even in Q/Wh-Agreement languages, Q-particles and *wh*-words can be separated by phase boundaries.

For these reasons, I therefore choose to put aside the alternative account that we developed in this section. Instead, I will pursue our earlier account, based upon the LP-Intervention Condition.²⁶ Of course, the alternative account developed here is not without merit, which is why I chose to present it to the reader. I do not doubt that others might be able to devise clever means than I can of rendering it consistent with the Hungarian facts in (421).

3.5 Summary

In this section, we put forth our proposed account of the limited pied-piping languages. Under this account, the limited pied-piping languages are all languages where Q-particles must undergo Agreement with the *wh*-words that they bind. We saw how this overarching hypothesis is able to derive the core properties of limited pied-piping languages. Thus, under this account, the observed differences between the pied-piping structures of Tlingit and those of the most widely-studied *wh*-fronting languages (e.g. English) are ultimately due to a comparatively superficial underlying contrast, whether or not the Q-particle must Agree with a *wh*-word.

More broadly, our theory of the limited pied-piping languages improves the viability of our general theory of pied-piping structures, under which they are all homologous to the Tlingit structures in (382). Consequently, it also lends further support to our overall universalist position that the Q-based structure in (18) underlies the *wh*-questions of every *wh*-fronting language.

4. Further Results Regarding Pied-Piping

Up until now, our discussion has centered on the two core properties of limited pied-piping languages, the inability to pied-pipe past islands and the inability to pied-pipe past lexical categories. In this section, I will enumerate some further predictions of our Q-based theory of pied-piping structures. In some cases, these predictions are fully general, and are expected to hold of all *wh*-fronting languages. In other cases, we will see that our system (correctly) makes different predictions for Q/Wh-Agreement and non-Agreement languages.

I begin in Section 4.1 by demonstrating that our theory of pied-piping is able to derive the ‘Transitivity Generalization’ of Heck (2004). Then, in Section 4.2, I show that that our account predicts the inability for matrix predicates to be pied-piped. Section 4.3 presents our discussion of the relationship between pied-piping and left-peripherality. Next, in Section 4.4, I show that our Q-based account correctly predicts that pied-piping should generally be in free variation with

²⁶ Note that in so doing, I also give up our account of the Basque and Quechua data in (414). I currently know of no other possible account of these facts within our Q-based theory.

sub-extraction of the *wh*-word. Finally, Section 4.5 demonstrates how our Q-based account can capture the fact that limited pied-piping is subject to the Coordinate Structure Constraint.

4.1 The Transitivity Generalization

In his extensive study of pied-piping, Heck (2004; pp. 116 – 129) argues that pied-piping obeys the following generalization across all natural languages.

(425) Transitivity (Heck 2004; p. 116)

If A can pied-pipe B, and B is in a canonical position to pied-pipe C, then A can pied-pipe C.

This property of pied-piping is nicely exemplified by possessor pied-piping in English. As is well-known, possessors can pied-pipe possessive DPs in English.

(426) Transitivity of Pied-Piping: English Possessors

[_{DP} **Whose** father] did you meet at the party?

Furthermore, if a possessive DP containing a *wh*-possessor is *itself* a possessor, then the larger possessive DP can also be pied-piped by the *wh*-possessor.

(427) Transitivity of Pied-Piping: English Possessors

[_{DP} [_{DP} **Whose** father's] friend] did you meet at the party?

This process of embedding may, of course, be further iterated, and there seems to be no principled limit on the depth of embedding.

(428) Transitivity of Pied-Piping: English Possessors

[_{DP} [_{DP} [_{DP} [_{DP} [_{DP} **whose**] father's] friend's] uncle]] did you meet at the party?

As shown by Heck (2004), this property of Transitivity can also be seen in PP-pied-piping. It is most easily observed in languages where pied-piping of PPs is obligatory, such as German. In German, the complement of P can pied-pipe the PP in which it is contained, as illustrated below.

(429) Transitivity of Pied-Piping: German PPs

Ich frage mich [_{CP} [_{PP} mit **wem**] sie gesprochen hat].
I ask myself with whom she spoken has
I wonder who she has spoken with.

(Heck 2004; p. 126)

Moreover, if a PP containing a *wh*-complement is itself the complement of a larger PP, then the

larger PP may also be pied-piped by the wh-word. Such embedding can be further iterated, and there again seems to be no principled limit on the depth.

(430) **Transitivity of Pied-Piping: German PPs**

Fritz will wissen [CP [PP bis [PP zu [DP **welchem** Punkt]]] er gehen kann].
 Fritz wants to.know until to which point he to.go can
Fritz wants to know until which point he can go to. (Heck 2004; p. 126)

Thus far, we've seen that possessor DPs can pied-pipe larger possessor phrases, and that complements of P can pied-pipe larger PP complements. Finally, just as we would expect from the general statement in (425), this property of Transitivity is not sensitive to the *exact* position of the pied-piping phrase. That is, possessor DPs can also pied-pipe larger PP complements, as we see below.

(431) **Transitivity of Pied-Piping: German PPs and Possessors**

Ich frage mich [CP [PP bis [PP zu [DP **wessen** Geburtstag]]] ich warten muss].
 I ask myself until to whose birthday I to.wait must
I wonder whose birthday I have to wait until. (Heck 2004; p. 127)

Let us now confirm that our Q-based theory of pied-piping can predict the Transitivity Generalization in (425). First, recall that within our theory of pied-piping structures, the informal notion that 'A can pied-pipe B' amounts more precisely to the claim that 'A can be dominated by B in the fronted phrase of a pied-piping structure'. With this in mind, we restate the Transitivity generalization in (425) so that it reads as in (432), below.

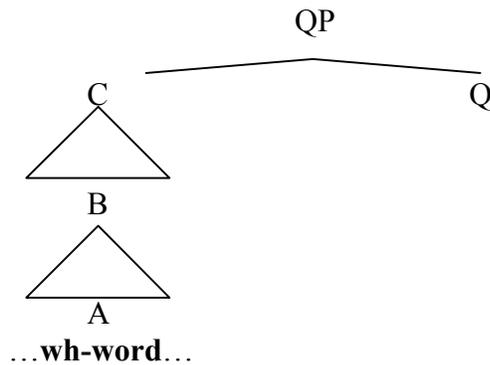
(432) **Transitivity, Within the Q-Based Theory**

If A can be dominated by B in the fronted phrase of a pied-piping structure, and B can be dominated by C in the fronted phrase of a pied-piping structure, then A can be dominated by C in the fronted phrase of a pied-piping structure.

The restatement of Transitivity in (432) is still empirically equivalent to the original statement in (425), but is a more precise characterization of the generalization we wish our Q-based theory to derive.

Within our Q-based account, it trivially follows that the non-Agreement languages will satisfy (432). Informally speaking, since there are no limits on the 'distance' between the Q-particle and the wh-word in such languages, the mere fact that 'B can pied-pipe C' entails that 'A can pied-pipe C'. The following structure illustrates.

(433) **Transitivity in Non-Agreement Languages**



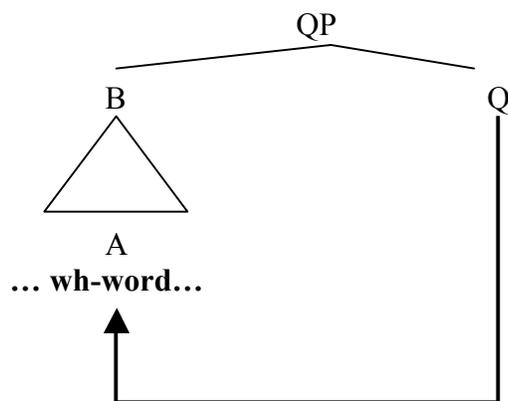
More precisely, as we will see in greater detail throughout the remainder of this chapter, the only time a non-Agreement language disallows a node *X* from being dominated by a node *Y* in the fronted phrase of a pied-piping structure is when the node *Y* is not a permissible sister to the *Q*-particle. Thus, suppose that *B* can be dominated by *C* in the fronted phrase of a pied-piping structure. It follows that *C* is a legitimate sister of the *Q*-particle. Consequently, it also follows that *A* can be dominated by *C* in the fronted phrase of the pied-piping structure. In this way, our *Q*-based theory predicts that non-Agreement languages will satisfy the generalization in (432).

Finally, let us confirm that our *Q*-based theory predicts that the *Q/Wh*-Agreement languages will also satisfy the generalization in (432). As we will presently see, our account derives the Transitivity Generalization for *Q/Wh*-Agreement languages from the basic transitivity of accessibility for Agreement (cf. Heck 2004).

First, note that if a *wh*-word at position *A* can be dominated by *B* in the fronted phrase of a pied-piping structure, then it follows that there is no ‘barrier’ to *Q/Wh*-Agreement within the constituent *B* (i.e., *B* contains no islands and no lexical projections). This is illustrated below.

(434) **Transitivity in The *Q/Wh*-Agreement Languages, Part 1**

Wh-word at position *A* can pied-pipe the larger phrase *B*.



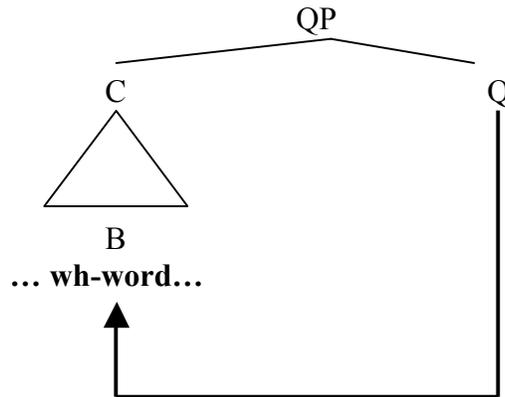
*Agreement Possible; Thus, No ‘Barriers’ to *Q/Wh*-Agreement Within *B**

Similarly, if a *wh*-word at position *B* can be dominated by *C* in the fronted phrase, then it follows

that there are no ‘barriers’ to Q/Wh-Agreement within the constituent C (i.e., no islands, and no lexical projections).

(435) Transitivity in The Q/Wh-Agreement Languages, Part 2

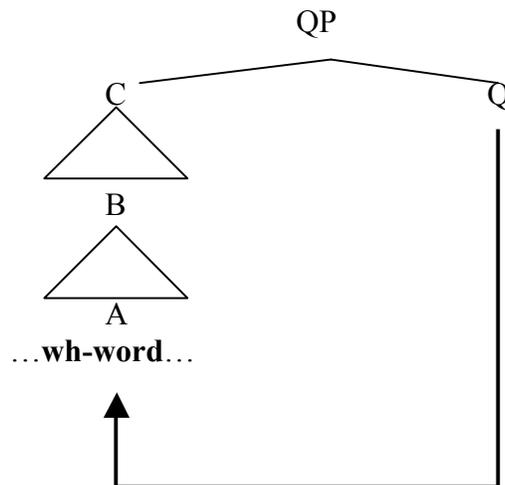
Wh-word at position B can pied-pipe the larger phrase C.



Agreement Possible; Thus, No ‘Barriers’ to Q/Wh-Agreement Within C

Finally, given that there are no barriers to Q/Wh-Agreement within either B or C, it follows that no such barriers would separate a wh-word at position A from a Q-particle that is sister to the phrase C. Therefore, in even a Q/Wh-Agreement language, it should be possible for A to be dominated by C within the fronted phrase of a pied-piping structure.

(436) Transitivity in The Q/Wh-Agreement Languages, Part 3



No ‘Barriers’ Inside either C or B; Therefore, Agreement between Q and wh-word is Possible!!!

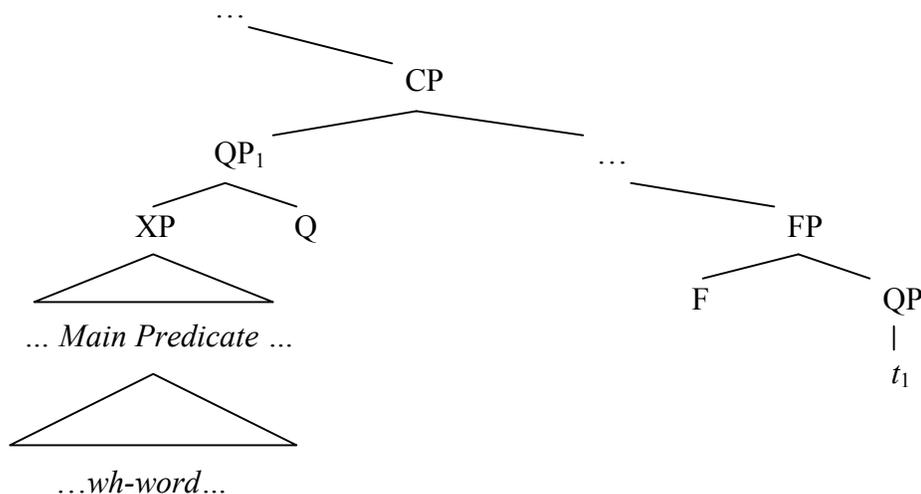
In summary, then, we find that our Q-based theory of pied-piping correctly predicts that all languages should exhibit the Transitivity Generalization in (425)/(432), even those languages where pied-piping is otherwise subject to rather stringent locality conditions.

4.2 The Inability to Pied-Pipe Matrix VPs and Other Predicates

A second general prediction of our Q-based theory of pied-piping is that *no* language should permit pied-piping past matrix predicates. That is, in all languages – even the non-Agreement languages – it will not be possible within a clause C for a wh-word within the fronted phrase of C to be dominated by the main predicate of C.

This result ultimately follows from our QP-Intervention Condition. To see this, let us suppose that within some clause C, a wh-word is dominated by the main predicate of C within the fronted phrase of C.²⁷ The following structure illustrates.

(437) No Pied-Piping of Main Predicates



Now, since the wh-word is dominated by the main predicate of C within (437), it follows from standard assumptions regarding clausal architecture that the sister of Q is some projection XP between the main predicate of the clause and the root node of the clause. Furthermore, these same assumptions regarding clausal architecture entail that the base position of the fronted phrase is sister to some functional head F that selects for XP. Crucially, however, because the language in question is by *ex hypothesi* a wh-fronting language, it follows under our Q-based theory in (18) that it is a Q-Projection language. Therefore, a QP-projection must intervene between the XP sister of Q and the F head that is sister to the base-position of the fronted phrase. Finally, because F is a functional head, and selects for XP, it follows that the hypothetical configuration violates the QP-Intervention Condition. Therefore, our Q-based theory predicts that the configuration will be ill-formed, and so predicts that the pied-piping structure in question will be impossible. Given that no assumptions have been made concerning Q/Wh-Agreement, it follows that we predict such pied-piping structures to be impossible in *all* wh-fronting languages.

The argument above demonstrates that our system predicts that no language will permit the fronted phrase of a clause C to contain the main predicate of C. That this is indeed a correct prediction has been widely accepted in the prior literature on pied-piping (cf. Heck 2004; p. 338). For example the ill-formedness of the following structures illustrate the truth of this prediction

²⁷ The following argument parallels our arguments from Chapters 2 and 3 that the Q-particles of Tlingit and Sinhala will never be clause-final in main clauses.

for English, and similar data can be observed in all the best-studied wh-fronting languages.

(438) **No Pied-Piping of Main Predicates in English**

- a. * [QP [VP Eaten **what**] Q] have you?
- b. * [QP [AP Proud of **whom**] Q] are you?
- c. * [QP [DP A doctor of **what**] Q] is he?

Similarly, we saw in Chapter 2 that this prediction is also true of the non-Agreement language Tlingit. Given our Q-based theory of Tlingit wh-questions, the impossibility of sentences like those in (439) shows that Tlingit also does not permit the fronted phrase of a wh-question to contain the main predicate of that question (cf. Chapter 2, Section 4.4).

(439) **No Pied-Piping of Main Predicates in Tlingit**

- a. * **Daa** iyatéen **sá?**
what you.can.see.it Q
- b. * **Aadóo** xáat aawaxáa **sá?**
who fish he.ate.it Q
- c. * **Wáa** ituwatee **sá?**
how you.feel Q

We find, then, that the generalization we predict above is indeed true; *no* wh-fronting language allows pied-piping of main predicates.

It is instructive to compare our Q-based theory of this generalization to the account put forth in Heck (2004; p. 338). Under the proposals of Heck (2004), the impossibility of the structures above follows from an assumption that pied-piping is a ‘last resort’ operation, which can only occur when sub-extraction of the wh-word is impossible. According to the logic of this account, because the complements of main predicates can always be extracted, pied-piping of those predicates is universally ruled out. In other words, pied-piping of main predicates is ill-formed because the ‘simpler’ option of extracting the complement of the predicate is always possible.

Unfortunately, as we will soon see, this straightforward account cannot be correct, as it rests upon the questionable premise that pied-piping of a phrase X is ‘blocked’ by sub-extraction from within X. That is, as we will see in Section 4.4, pied-piping is *not* a last resort operation, and can generally exist in free variation with sub-extraction of the wh-word. Although we will see more examples of this later, one rather acutely problematic one is the pied-piping of subordinate clauses. In the languages where pied-piping of subordinate clauses is possible – e.g., Basque, Quechua and Tlingit – such structures can freely alternate with long-distance extraction of the wh-word. This is illustrated for each of these languages below.

(440) **Free Variation of Long-Distance Movement and CP-Pied-Piping in Tlingit**

- a. [QP [PP **Goodéi** **sá**]]₁ has uwajée [CP *t*₁ woogootx] i shagóonich ?
where.to Q they.think he.went your parents.erg
Where do your parents think he went?
- b. [QP [CP **Goodéi** woogootx **sá**]]₁ has uwajée *t*₁ i shagóonich ?
where.to he.went Q they.think your parents.erg
Where do your parents think he went?

(441) **Free Variation of Long-Distance Movement and CP-Pied-Piping in Basque**

- a. **Se**₁ pentzate su [CP *t*₁ idatzi rabela Jonek] ?
what you.think written has Jon.erg
What do you think Jon wrote? (Arregi 2003b; p. 117)
- b. [CP **Se** idatzi rabela Jonek]₁ pentzate su *t*₁ ?
what written has Jon.erg you.think
What do you think Jon wrote? (Arregi 2003; p. 118)

(442) **Free Variation of Long-Distance Movement and CP-Pied-Piping in Quechua**

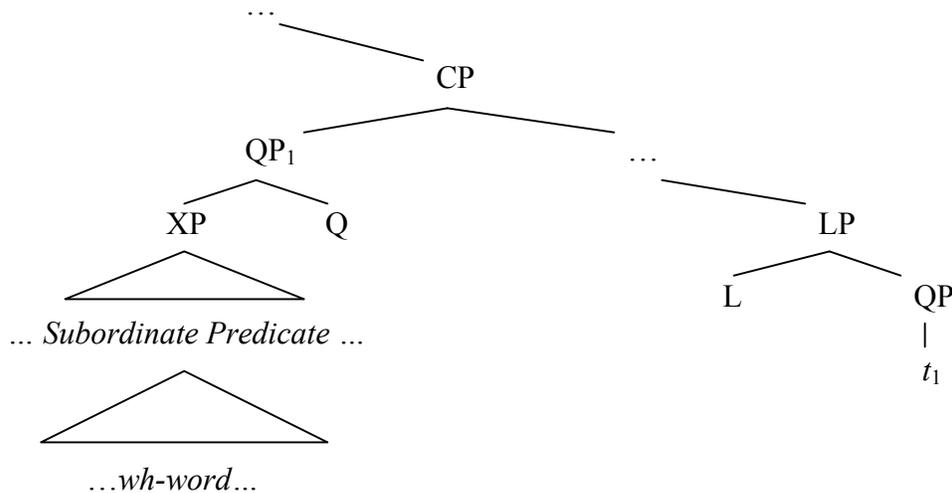
- a. [**Ima-ta**]₁-taj Maria-ka [CP Juzi *t*₁ mikushka]-ta krin ?
what-ACC Q Maria-TOP José ate-ACC believes
What does Maria believe that José ate? (Cole & Hermon 1981)
- b. [CP **Ima-ta** wawa mikuchun]-taj Maria kri?
what-ACC child ate Q Maria believes
What does Maria believe that the child ate? (Cole & Hermon 1981)

Consider, then, what the theory of Heck (2004) predicts regarding pied-piping of subordinate CPs in each of these languages. As is clear from (440a), (441a) and (442a), each of these languages permits sub-extraction of *wh*-words from within subordinate CPs. Given that such sub-extraction is possible, the assumption that pied-piping is generally a last resort operation would predict that pied-piping of the subordinate CPs should be impossible. That is, Heck (2004) predicts that pied-piping of subordinate predicates in Tlingit should be as ill-formed as the pied-piping of matrix predicates in (439). As we can see from (440b), (441b) and (442b), however, this prediction is incorrect. Contrary to the predictions of Heck (2004), pied-piping of subordinate predicates is *not* blocked by long-distance extraction. Thus, we see that unlike pied-piping of matrix predicates, the pied-piping of subordinate predicates is sometimes possible.

However, this observed contrast between pied-piping of matrix and subordinate predicates *is* correctly predicted by our Q-based theory. To see this, let us suppose that within some clause *C*, a *wh*-word is dominated by a subordinate predicate of *C* within the fronted phrase of *C*.²⁸ The following structure illustrates.

²⁸ The following argument parallels our arguments from Chapters 2 and 3 that the Q-particles of Tlingit and Sinhala will be allowed to be clause-final in subordinate clauses.

(443) **Pied-Piping of Subordinate Predicates is Sometimes Possible**



As we see above, the hypothesized structure could be such that the base position of the QP is sister to a *lexical* head L. Indeed, in each of the well-formed (440b), (441b) and (442b), the fronted phrase moves from a position where it is sister to a V. Because the sister to the QP is a lexical head, it follows that the interposition of the QP between L and the XP that it selects for does *not* violate the QP-Intervention Condition. Finally, because there are no other principles that structures like (443) violate, we predict them to be well-formed. Thus, our Q-based theory correctly predicts that pied-piping of subordinate predicates can in some cases be possible, particularly when the base position of the fronted phrase is sister to a lexical head, such as the main verb of the clause.

In summary, then, we find that our Q-based theory of pied-piping correctly predicts the observed contrast between the pied-piping of matrix and subordinate predicates. Although pied-piping of subordinate predicates is possible in some languages, *no* language permits pied-piping of matrix predicates.

4.3 The Relationship Between Pied-Piping and the Left Edge

In Section 3.3.1, we briefly noted that a potential advantage of our Q-based theory of pied-piping is that it does not predict that pied-piping is only possible from left-peripheral specifiers. Consequently, the ability for *wh*-words in CompPP to pied-pipe the larger PP presents *prima facie* challenge to our theory. In this section, we will elaborate upon this point in detail.

Let us begin by noting that our Q-based account employs exactly the same mechanisms to derive pied-piping by specifiers and pied-piping by complements of P. That is, the analysis of pied-piping structures where the *wh*-word occupies a specifier position appeals to no notions beyond those appealed to in the analysis of pied-piping structures where the *wh*-word occupies CompPP, and *vice versa*.

This 'analytic uniformity' does not, however, hold for most other theories of pied-piping (e.g. Sells 1985, Cowper 1987, Kayne 1994, Koopman 1997, Grimshaw 2000, Koopman & Szabolcsi 2000). Under most other accounts, pied-piping by *wh*-words in CompPP employs mechanisms not required for pied-piping by specifiers. For example, under analyses like Kayne

(1994) and Koopman (1997), it is only specifiers that can truly pied-pipe. Consequently, special assumptions must be introduced regarding the covert syntax of adpositional phrases, so that what appear overtly to be pied-pipers in CompPP are covertly in SpecPP. Similarly, Grimshaw (2000) proposes that complements of P can pied-pipe PP because adpositions are ‘extended projections’ of D, and so can inherit the *wh*-feature of their complements via normal feature projection. However, since Grimshaw’s system assumes that a given phrase can never be an extended projection of its specifier, it follows that some other mechanism (i.e., Spec-Head Agreement) must be responsible for pied-piping of a phrase by its specifier. However, despite this tendency for theories of pied-piping to treat pied-piping by CompPP via mechanisms different from those used in pied-piping by specifiers, I am unaware of independent evidence that these two cases of pied-piping *do* involve distinct mechanisms.²⁹

On the other hand, the tendency to treat pied-pipers in CompPP as exceptional does have some potential merit. Indeed, it is largely *by design* that those earlier accounts categorize pied-piping by CompPP as a distinct phenomenon from pied-piping by specifiers. Such accounts generally seek to predict that, aside from CompPP, all pied-pipers must occupy left peripheral specifier positions. Importantly, this prediction is *in fact true*, at least for the Q/Wh-Agreement languages. As is clear from the cross-linguistic studies of Heck (2004) and Horvath (2007), in the Q/Wh-Agreement languages, it *is* the case that P is the only category that permits pied-piping from its complement. In all cases but pied-piping of PP, a pied-piping *wh*-word must occupy a left-peripheral specifier position. Given these circumstances, we must therefore question whether our uniform treatment of pied-piping is in fact accurate. Does our Q-based theory of pied-piping actually fail to capture an important property of pied-piping by failing to explicitly limit pied-piping to left-peripheral specifiers?

In fact, it does not. Rather, there is under our Q-based account a quite straightforward explanation for the observed tendency in Q/Wh-Agreement languages for pied-pipers to be specifiers. Under our account, this tendency follows from the fact that *P happens to be the only functional category that directly takes interrogative words as complements*.

To see this more clearly, let us first consider the class of functional categories, which we

²⁹ One might, however, argue that English does provide some evidence that pied-piping by CompPP is a distinct phenomenon from pied-piping by specifiers. Note that pied-piping by CompPP in English tends to be somewhat marginal and stilted, compared to pied-piping by SpecDP.

(i) **Pied-Piping by CompPP in English vs. Pied-Piping by SpecDP in English**

- a. [DP **Whose** books] did you read?
- b. (?) [PP Into **which** store] did you go?
- c. [DP **Which** store] did you go [PP into *t*] ?

One could claim that the marginal status of (ii) is due to some interruption in English of the mechanisms responsible for pied-piping by CompPP. Under such a view, the well-formedness of (i) could be evidence that pied-piping by SpecDP is accomplished by means different from those used for pied-piping of CompPP.

To my knowledge, however, this argument has never been put forth by those advocating the exceptional status of pied-piping by CompPP. Instead, the most common view regarding the marginality of (ii) is that pied-piping is a ‘last resort’ operation that can only take place when sub-extraction of the *wh*-word is blocked (cf. Section 4.2 and Section 4.4). Under such an account, the possibility of adposition stranding in (ic) renders the pied-piping in (ib) ill-formed.

Finally, let us note in passing that our Q-based theory can account for the contrast between (ib) and (ic) without assuming either that pied-piping is a last resort operation or that pied-piping by CompPP is a distinct phenomenon from pied-piping by SpecDP. We will present our Q-based analysis of (ib) and (ic) in the following section.

might reasonably assume to be the following: C, I, D, Deg, P.³⁰ Now, consider the class of wh-words, which we might reasonably assume to be represented by the following English items: *who, what, which, where, why, how*. Placing these two sets side-by-side, we easily observe that the only member from the first set that can take as complement a member of the second set is the category P.³¹ It follows, then, that if a wh-word ever occupies a complement position, and is *not* complement to P, then it must be complement to some lexical head. Recall, though, that in the Q/Wh-Agreement languages, pied-piping past lexical projections is impossible. Consequently, in those languages, any wh-word that is complement to a category other than P will not be able to pied-pipe. We see, then, that our theory correctly predicts that, for the Q/Wh-Agreement languages, it is only PPs that may be pied-piped from their complement position.

In short, the reason why so many pied-pipers are specifiers (in the Q/Wh-Agreement languages) is not that there is some special importance of the specifier position *per se*. Rather, this tendency simply follows from the twin facts that (i) these languages only permit pied-piping past *functional* categories, and (ii) there is only one functional category, P, where a wh-word can occupy the complement position. Consequently, for the Q/Wh-Agreement languages, if the wh-word of a pied-piping structure is ever contained within a phrase other than PP, it must be within the specifier of that phrase. For this reason, in the grand majority of pied-piping structures (in the Q/Wh-Agreement languages), the wh-word will be a left-peripheral specifier.

In summary, our Q-based theory *does* assign a somewhat special status to pied-piping by CompPP, as it correctly predicts that pied-pipers in the Q/Wh-Agreement languages will almost always occupy specifier positions. Importantly, however, our theory does *not* derive this tendency by explicitly banning pied-piping from complement position. Rather, this generalization emerges as an epiphenomenal consequence of the independent fact that P is the only functional category to directly take wh-words as complements. Thus, our Q-based theory can correctly predict the tendency for pied-pipers in Q/Wh-Agreement languages to be specifiers without receiving any *prima facie* challenge from the widespread possibility of pied-piping from CompPP.

4.4 The Optionality of Pied-Piping

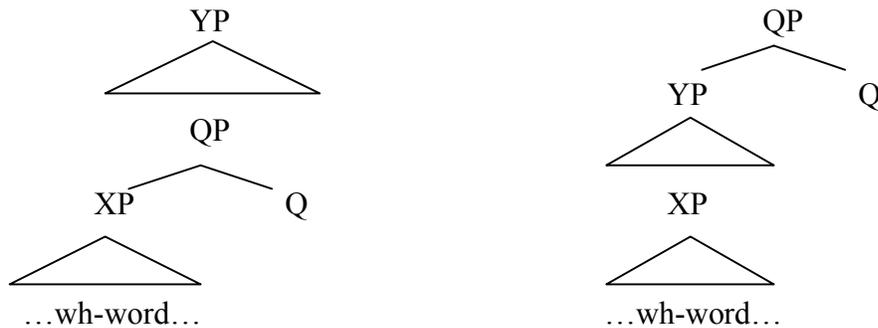
One important result of our Q-based theory of pied-piping is that it correctly predicts that pied-piping of a phrase XP by a wh-word W will generally be in free variation with sub-extraction of W from within XP.

To help unpack this claim, let us first note that nothing within our Q-based theory requires that a Q-particle be ‘as close as possible’ to the wh-word that it binds. Suppose that a wh-word is contained within a structure XP, which is in turn contained within a larger structure YP, as illustrated below.

³⁰ To my knowledge, all other purported functional heads (e.g., Foc, Agr, Num, Loc) are a result of ‘exploding’ the four basic functional categories listed above.

³¹ A potential counter-example to this claim is the category D, which we saw in Section 3.4 can in some languages (e.g. Hungarian) take as complement interrogative DPs headed by *which*. Of course, we also saw in Section 3.4 that the languages where D can take *which*-phrases as complements are also ones where complements of D can pied-pipe the larger DP (cf. sentence (421a)). Thus, the possibility of pied-piping by CompDP in these languages actually strengthens the evidence for our Q-based account.

(444) **Optionality of Pied-Piping in Proposed Analysis**



Moreover, let us suppose that neither XP nor YP contain any barriers to Q/Wh-Agreement. Finally, let us suppose that placement of Q as sister to either XP or YP would not violate the QP-Intervention Condition. Under these assumptions, our Q-based theory licenses *both* the structures in (444). That is, placement of Q as sister to XP is predicted to be as well-formed as placement of Q as sister to the larger structure YP. In this sense, our theory permits Q-particles to be either closer or farther from the wh-word; there is no predicted requirement that Q-particles be maximally close to the wh-words they bind.

Given our Q-based theory of wh-fronting in (18), the general well-formedness of both structures in (444) entails that pied-piping of a larger phrase YP and sub-extraction from within YP should be freely alternating options. That is, under our Q-based account, the mere ability to extract an XP from within some constituent YP does not alone entail that pied-piping of a larger constituent YP containing XP should not be possible. Pied-piping and sub-extraction are predicted to generally occur in free variation with one another.

This prediction indeed appears to be correct. Heck (2004) surveys a number of pied-piping constructions, the great majority of which appear to optionally co-vary with sub-extraction of the wh-word. The following is a representative list of some of the many constructions where the choice between pied-piping and sub-extraction appears to be completely free.

(445) **P-Stranding vs. PP-Pied-Piping in Icelandic (Heck 2004; p. 153)**

- a. Ég velti því fyrir mér [**hvern**₁ þú talaðir [PP við t₁]].
 I roll it before me who you talked with
I wonder who you talked with.
- b. Ég velti því fyrir mér [[PP við **hvern**] þú talaðir].
 I roll it before me with who you talked
I wonder who you talked with.

(446) **P-Stranding vs. PP-Pied-Piping in German and Dutch (Heck 2004; p. 184)**

- a. Fritz möchte wissen [**wo**₁ du [PP *t*₁ mit] gerechnet hast].
Fritz wants to.know what you with counted have
Fritz wants to know what you expected (to happen).
- b. Fritz möchte wissen [[PP **wo**-mit] du gerechnet hast].
Fritz wants to.know what-with you counted have
Fritz wants to know what you expected (to happen).

(447) **P-Stranding vs. PP-Pied-Piping in Irish (Heck 2004; p. 301 - 303)**³²

- a. **Cé**₁ a raibh tú ag caint [PP *t*₁ leis]?
who C were you at talking with
Who were you talking with?
- b. [PP **Cé** leis] a raibh tú ag caint?
who with C were you at talking
Who were you talking with?

(448) **DP Splits in German [and Other Germanic Languages] (Heck 2004; p.185)**

- a. Fritz möchte wissen [**was**₁ du [DP *t*₁ für Leute] eingeladen hast].
Fritz wants to.know what you for people invited have
Fritz wants to know what kind of people you have invited.
- b. Fritz möchte wissen [[DP **was** für Leute] du eingeladen hast].
Fritz wants to.know what for people you invited have
Fritz wants to know what kind of people you have invited.

(449) **DP-Splits in French [and Other Romance Languages] (Heck 2004; p. 186)**

- a. **Combien**₁ Marie a décidé d'engager [DP *t*₁ de personnes] ?
how.many Mary has decided to.employ of persons
How many people has Mary decided to employ?
- b. [DP **Combien** de personnes] Marie a décidé d'engager ?
how.many of persons Mary has decided to.employ
How many people has Mary decided to employ?

³² The reader may observe that in both German (446) and Irish (447), there is some kind of inversion between the wh-word and the preposition when the PP is pied-piped. Our Q-based account has no special explanation of this inversion. Note, however, that the example of Icelandic in (445) demonstrates that the optionality of PP-pied-piping is not necessarily tied to such inversion.

(450) **DP-Splits in Russian [and Other Slavic Languages] (Heck 2004; p.187)**³³

- a. Ja sprosil [**čju**₁ ty cital [DP t₁ knigu]]
I asked whose you read book
I asked whose book you read.
- b. Ja sprosil [[DP **čju** knigu] ty cital]
I asked whose book you read
I asked whose book you read.

(451) **DP-Splits in Greek (Heck 2004; p.187)**

- a. Anarotieme [**tin**₁ echis diavasi [DP t₁ vivlio]].
I.wonder whose you.have read book
I wonder whose book you have read.
- b. Anarotieme [[DP **tin** vivlio] echis diavasi].
I.wonder whose book you.have read
I wonder whose book you have read.

(452) **DP-Splits in Mohawk (Heck 2004; p.187)**

- a. **Ka nikáy**Δ₁ íhsere' ahshnúnu' ne [DP t₁ ká'sere] ?
which you.think you.buy NE car
Which car do you want to buy?
- b. [DP **Ka nikáy**Δ ká'sere] íhsere' ahshnúnu' ?
which car you.think you.buy
Which car do you want to buy?

³³ Recall, however, that in Section 2.3 of Chapter 4, we proposed that the possibility of (450a) was due to the fact that possessive nominals in Slavic languages like Russian are bare NPs. Under this account, the possibility of (450b) is rather unexpected. Indeed, if the pied-piped possessive nominal in (450b) were a bare NP, then the structure would violate the LP-Intervention Condition, and our Q-based theory would incorrectly predict it to be ill-formed.

On the other hand, we might suppose that the possibility of (450a) in Russian only shows that possessive nominals *can* be bare NPs, not that they *must* be bare NPs. Under this account, possessive nominals in the Slavic languages also have the option of being DPs. That is, we might suppose that Russian has the option of employing a possessive D head of the kind found in English possessive DPs. Given these assumptions, our theory could also derive (450b) by assuming that the pied-piping possessor in such sentences is specifier to the (optional) possessive D head, just as in the English correlates of such structures.

(453) **DP-Splits in Tlingit**

- a. [**Aa** **sá**]₁ [_{DP} **a**₁ **yahaayí**] tlél yi.oo.
who Q his picture not you.bought.it
Who didn't you buy any pictures of?
- b. [_{DP} **Aadóo** **yahaayí** **sá**] tlél yi.oo.
who picture Q not you.bought.it
Who didn't you buy any pictures of?

(454) **DegP-Splits in German [and Other Germanic Languages] (Heck 2004; p.188)**

- a. Ich frage mich [[**wieviel** Grade]₁ der Ofen [_{DegP} *t*₁ zu heiss] war].
I ask myself how.many degrees the oven too hot was
I wonder how many degrees too hot the oven was.
- b. Ich frage mich [[_{DegP} **wieviel** Grade zu heiss] der Ofen war].
I ask myself how.many degrees too hot the oven was
I wonder how many degrees to hot the over was.

(455) **Free Variation of Long-Distance Movement and CP-Pied-Piping in Tlingit**

- a. [_{QP} [_{PP} **Goodéi** **sá**]]₁ has uwajée [_{CP} *t*₁ woogootx] i shagóonich ?
where.to Q they.think he.went your parents.erg
Where do your parents think he went?
- b. [_{QP} [_{CP} **Goodéi** woogootx **sá**]]₁ has uwajée *t*₁ i shagóonich ?
where.to he.went Q they.think your parents.erg
Where do your parents think he went?

(456) **Free Variation of Long-Distance Movement and CP-Pied-Piping in Basque**

- a. **Se**₁ pentzate su [_{CP} *t*₁ idatzi rabela Jonék] ?
what you.think written has Jon.erg
What do you think Jon wrote? (Arregi 2003b; p. 117)
- b. [_{CP} **Se** idatzi rabela Jonék]₁ pentzate su *t*₁ ?
what written has Jon.erg you.think
What do you think Jon wrote? (Arregi 2003; p. 118)

(457) **Free Variation of Long-Distance Movement and CP-Pied-Piping in Quechua**

- a. [**Ima-ta**]₁-taj Maria-ka [CP Juzi *t*₁ mikushka]-ta krin ?
what-ACC Q Maria-TOP José ate-ACC believes
What does Maria believe that José ate? (Rizzi & Shlonsky 2005)
- b. [CP **Ima-ta** wawa mikuchun]-taj Maria kri?
what-ACC child ate Q Maria believes
What does Maria believe that the child ate? (Rizzi & Shlonsky 2005)

In each of the sentence pairs in (445) – (457), we find that sub-extraction of the *wh*-word in the (a)-sentence exists side-by-side with pied-piping of a larger structure in the (b)-sentence. Therefore, we may conclude that there is no general prohibition against pied-piping a larger structure XP when a smaller phrase within XP can be sub-extracted. Thus, our Q-based analysis correctly predicts that pied-piping is *not* a ‘last resort’ operation, but rather a freely available option (where consistent with independent constraints).

However, some researchers have proposed that, contrary to the prediction of our Q-based account, pied-piping *is* indeed a kind of ‘last resort’ repair operation (Heck 2004). Under this perspective, pied-piping of a larger constituent XP can *only* occur when sub-extraction of the *wh*-word from inside XP is impossible. Such accounts therefore predict that pied-piping should *not* be in free variation with sub-extraction; rather the two should appear to be in complementary distribution.

The principle evidence supporting this opposing view is the relative ‘marginality’ of PP pied-piping in English and Danish, two languages where P-stranding is possible.³⁴ The

³⁴ Heck (2004) also puts forth a number of other arguments in favor of pied-piping being a ‘last resort’ operation (Heck 2004; pp. 149 – 174). However, each of these allows an alternative explanation.

First, Heck (2004; pp. 157 – 165) notes that the universal inability to pied-pipe matrix predicates follows from pied-piping being a last-resort, since sub-extraction from within a predicate is always possible. However, we’ve already seen that this generalization also follows from the QP-Intervention Condition (cf. Section 4.2). Heck notes that the quantifier *alle* ‘all’ cannot be pied-piped by German *wh*-words, and that this might follow from the fact that *alle* can be stranded (Heck 2004; pp. 165 – 167). However, this also might well be because such elements are adverbs rather than adnominal quantifiers (Fitzpatrick 2006); such an adverbial analysis would account for the ordering restrictions that Heck observes when the *wh*-phrases are in-situ (Heck 2004; p. 167). Heck similarly notes that adjectival/(adverbial) modifiers of German *wh*-words cannot be pied-piped, and instead must be stranded (Heck 2004; pp. 168 – 171). However, the data seem to show that such adjectives *never* form constituents with the *wh*-words (Heck 2004; p. 170). Finally, Heck claims that the French relative pronoun *dont* ‘of whom’ can pied-pipe a DP only if the DP is itself an island for extraction (Heck 2004; pp. 173 – 174). However, Heck himself notes that the data in question do not come from a single speaker, and that it’s rather controversial whether *dont* ever actually pied-pipes anything (Heck 2004; p. 138 – 140).

In addition to these arguments, Heck notes that possessors in Chamorro cannot pied-pipe complex possessive DPs, and instead must be extracted (Heck 2004; pp. 171 – 173). Note, however, that in the context of the examples above, Chamorro seems to be the unusual case, and not indicative of the general pattern; also an account similar to that offered above for PP-pied-piping in English and Danish might be possible. Under such an account, Chamorro differs from (e.g.) Russian in that it *doesn’t* ever allow possessive nominals to be DPs. As noted above under Footnote 33, our account would then predict that pied-piping by possessors in Chamorro is always impossible.

Finally, Heck notes that in Basque, one cannot extract the complement of a participle, and so participles may (indeed, must) be pied-piped (Heck 2004; pp. 160 – 161). Note, however, that it’s somewhat controversial whether Basque even has *wh*-movement (Arregi 2003a); moreover, in the context of the cases listed above, this sort of pattern appears to be the exceptional one.

following data illustrate.

(458) **P-Stranding vs. PP-Pied-Piping in English**

- a. I wonder [**who** she left [PP with t_1]] ?
- b. *(?) I wonder [[PP with **who**] she left] ?

(459) **P-Stranding vs. PP-Pied-Piping in Danish (Heck 2004; p. 151)**

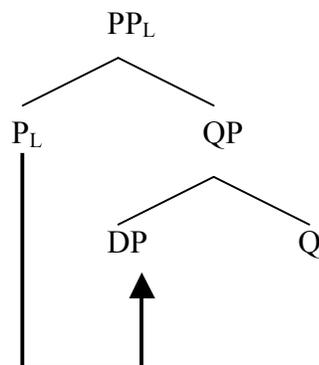
- a. Jag gad vide [**hvem**₁ du har snakket [PP med t_1]] ?
 I would know who you have spoken with
I wonder who you spoke with.
- b. *Jag gad vide [[PP med **hvem**₁] du har snakket] ?
 I would know with who you have spoken

Under the competing assumption that pied-piping of an XP can only occur when sub-extraction from within XP is impossible, these facts follow straightforwardly. Thus, it seems that the behavior of PP-pied-piping in two of the best-known P-stranding languages suggests that pied-piping is *not* a freely available option, and can only occur when sub-extraction is ruled out.

On the other hand, we should note that, when viewed together with the data from (445) – (457), the data in (458) and (459) appear to be exceptional, and not indicative of the general pattern. Rather, the general pattern does appear to be that sub-extraction and pied-piping are in free variation with one another. Is there any way, then, that our Q-based theory can account for the exceptional data in (458) and (459), given its general prediction that pied-piping is not a ‘last-resort’?

Indeed there is. Recall from Section 2.3.1 of Chapter 4 that the well-formedness of P-stranding in English is possibly due to the (exceptional) status of P in English as a *lexical* category. This idea is illustrated below.

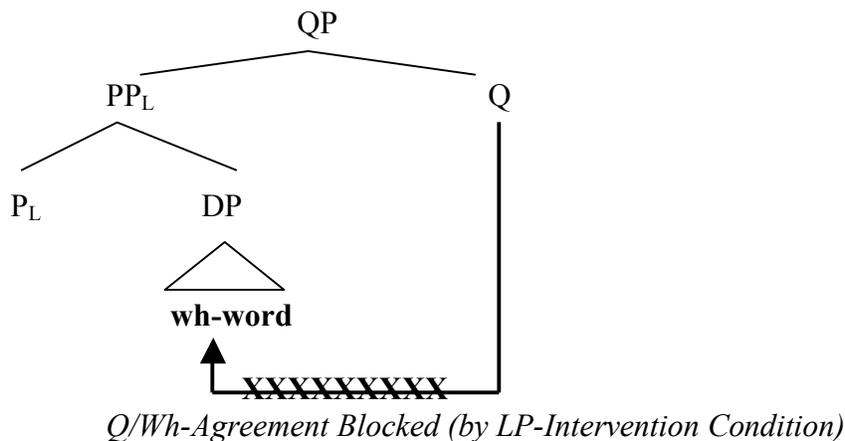
(460) **P-Stranding in English as Due to Lexical Status of English P**



*Selection is not Blocked by the QP-Intervention Condition,
 Because English P is a Lexical Category!!!*

Furthermore, recall that our theory of the limited pied-piping languages entails that English is a Q/Wh-Agreement language, that Q-particles must Agree with wh-words in English. Given these independent assumptions, then, it follows that the LP-Intervention Condition would rule out pied-piping of PPs in English. The following structure illustrates.

(461) **No PP-Pied-Piping in English as Due to Lexical Status of P**



As we see above, pied-piping of PP in English necessarily violates the LP-Intervention Condition. Because P in English is a lexical category, the pied-piping of a PP in English would require a structure where the wh-word is dominated by a lexical projection within the fronted phrase. However, such an interposition of a lexical projection between Q and the wh-word would entail that Q/Wh-Agreement could not occur, and we predict such structures to be ill-formed.

We find, then, that our Q-based theory correctly predicts that pied-piping of PPs will be impossible in languages like English, where P is a lexical category.³⁵ Of course, it remains to be seen whether an account of this sort could be extended to the data from Danish, where the status of P as a lexical category may be more doubtful. Nevertheless, it should be apparent that within the contours of our Q-based analysis, there are means for capturing complementarity of pied-piping and sub-extraction where it occurs, without such complementarity being predicted as the general pattern.

4.5 Pied-Piping is Subject to the Coordinate Structure Constraint

Finally, our Q-based theory makes an important prediction regarding the interaction between pied-piping and coordination. As first noted by Postal (1972), a single wh-word contained within a conjunct cannot (in English) pied-pipe the entire coordinate structure. This is illustrated below.

³⁵ On the other hand, there is the undeniable fact that pied-piping of PPs in English greatly improves in matrix clauses, as the contrast below illustrates.

- (i) * (?) I wonder [[with who] she left] ?
- (ii) (?) [With who] did she leave?

We will return to this fact in Section 6, where our theory of so-called ‘massive pied-piping’ is shown to accurately predict the improved status of PP-pied-piping in English matrix clauses.

(462) **No-Pied-Piping of Conjunction by a Single Wh-Word (in English)**³⁶

- a. (?) [Bill and **who**] did you meet?
- b. ?? [**Who** and Bill] did you meet?

- c. (?) [[John's books] and [**whose** paintings]] did you sell?
- d. ?? [[**whose** paintings] and [John's books]] did you sell?

Interestingly, however, if *both* conjuncts contain wh-words, then the two wh-words together can pied-pipe the entire coordinate structure.

(463) **Pied-Piping of Conjunction is Possible if Both Conjuncts Contain Wh-Words**

- a. [**Where** and **when**] did you see him?
- b. [[**Whose** books] and [**whose** paintings]] did you sell?

As noted by many analysts, the facts above bear a striking resemblance to the Coordinate Structure Constraint (CSC), which prevents movement operations from targeting a single constituent within a coordinate structure.

(464) **Illustration of the Coordinate Structure Constraint**

- a. * **Who**₁ did you [[meet Bob] and [thank **t**₁]] ?
- b. **Who**₁ did you [[meet **t**₁] and [thank **t**₁]] ?

Naturally, then, analysts have sought to reduce the facts in (462) and (463) to the CSC. Under the common assumption that pied-piping structures are derived via an operation of 'feature percolation', a straightforward means for doing so would be to postulate that feature percolation is subject to the CSC (Heck 2004).³⁷ In a system like ours, however, which does not make use of

³⁶ Note that such pied-piping is somewhat improved if the wh-word is in the second conjunct rather than the first. Thus, (462a,c) are noticeably better than (462b,d). I have no account of this apparent contrast.

³⁷ Technically, Heck (2004) proposes that certain cases of pied-piping – the cases of so-called 'massive pied-piping' (see Section 6) – are derived via an operation of feature movement, which *qua* movement, is naturally sensitive to the CSC.

Note, however, that this account would analyze coordinate structure pied-piping as an instance of 'massive pied-piping'. Such pied-piping, though, is by definition restricted to matrix clauses (see Section 6), and so this account would predict that coordinate structure pied-piping is ill-formed in subordinate clauses. This, however, appears to be untrue.

- (i) I wonder [[**where** and **when**] you saw him].
- (ii) I wonder [[**whose** books and **whose** magazines] you sold].

Furthermore, even if it were possible to incorporate the well-formedness of (i) and (ii) into the Heck (2004) theory, one still could not account for the contrast between these sentences and (iii) and (iv).

- (iii) * I wonder [[Bill and **who**] you met].
- (iv) * I wonder [[John's book and **whose** paintings] you sold].

The problem is that Heck (2004) explains the ill-formedness of (462) as due to feature-movement being constrained by the CSC. However, a cornerstone of Heck (2004) is the idea that no feature-movement occurs in cases of the more limited pied-piping seen in subordinate clauses. Therefore, under Heck's account, some factor *other* than the

an operation of feature percolation, how are these facts to be captured?

One account of these facts might follow under the assumption that CSC is ultimately about *Agreement* rather than *movement*.³⁸ Consider the following constraint.

(465) The Coordinate Structure Constraint for Agreement

If an Agreement relation holds between A and B, and B is contained within conjunct D of a coordinate structure (C and D), then an agreement relation *also simultaneously* holds between A and some element within C.

First, note that, under the assumption that all movement is a reflex of Agreement, the condition in (465) is sufficient to account for the data in (464a) and (464b).³⁹ In brief, sentence (464a) is impossible because it would require the matrix interrogative C head to bear an Agree relation only with an element of the second conjunct, and not also the first. However, (464b) is possible because in this structure the interrogative C head bears an Agree relation with elements within both conjuncts.

Now let us see how the condition in (465) might account for the data in (462) and (463). Recall that, since English is a Q/Wh-Agreement language, an Agreement relation must hold between the Q-particle and the wh-word that it binds. Recall also that, according to our Q-based theory of wh-fronting, the Q-particle binding a wh-word always dominates the fronted phrase of the wh-question. Under this account, then, it follows that the structures in (462) violate condition (465). The structure below illustrates.

CSC must be responsible for the ill-formedness of (iii) and (iv), and so this account fails to meet the full desideratum of reducing all such facts to the CSC.

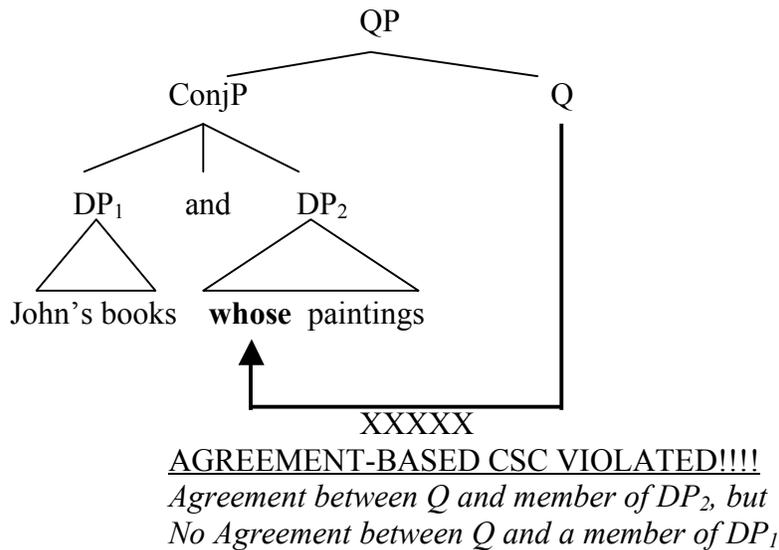
³⁸ Note, however, that this assumption is highly controversial, and receives a rather direct and difficult challenge from the phenomenon of ‘first conjunct agreement (FCA)’. I refer the reader to Babyonyshev (1996) for arguments that FCA demonstrates that Agreement is *not* sensitive to the CSC in the way suggested by our condition in (465). On the other hand, I also refer the reader to Aoun, Benmamoun & Sportiche (1994, 1999) for a theory of FCA which is consistent with the condition in (465).

³⁹ Note, of course, that this condition alone does not explain the *possibility* of the ATB movement seen in (464b). On the other hand, it might account for why such ATB movement is obligatory, it being impossible to leave one of the two wh-words in-situ.

(i) * Who did you meet and thank who?

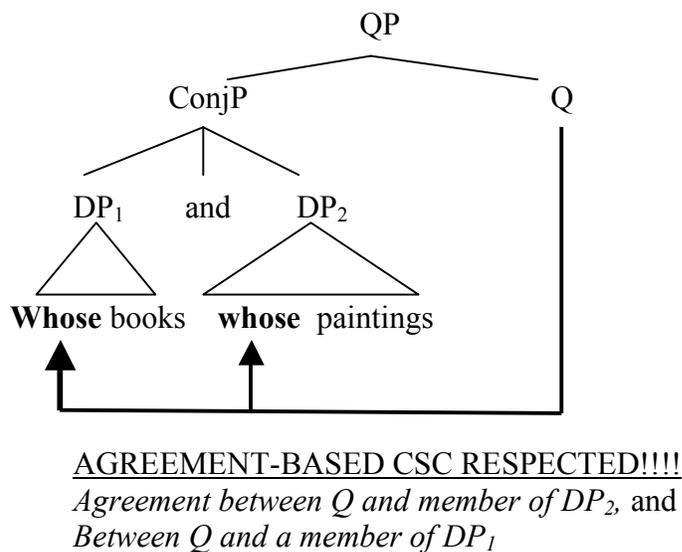
Suppose that in-situ wh-words in English multiple wh-questions are those which Agree with the interrogative C head *after* that C head has Agreed with a distinct wh-word (Richards 1997, Pesetsky 2000). It would follow, then, that in a sentence like (i), there is a stage of the derivation where the interrogative C head Agrees with the fronted wh-word, and not the other wh-word. Clearly, at this stage of the derivation, the CSC condition in (465) would be violated, and the structure would be predicted to be ill-formed. On the other hand, if we suppose that ATB extraction occurs precisely when the interrogative C head Agrees simultaneously with two wh-words, we predict the possibility (and necessity) of ATB extractions like (464b).

(466) **No-Pied-Piping of Conjunction by a Single Wh-Word (in English)**



According to this analysis, the problem with the structures in (462) is that the Q-particle sitting above the pied-piped coordination only Agrees into *one* of the two conjuncts. It follows, then, that if a wh-word were added to the other conjunct of these structures, then they should be well-formed. The following illustrates.

(467) **Pied-Piping of Conjunction is Possible if Both Conjuncts Contain Wh-Words**



Thus, we find that, when combined with the statement of the CSC in (465), our analysis accurately predicts the contrast between (462) and (463). Furthermore, this account successfully derives these data from the same condition responsible for the similar, classic CSC facts in (464).

Finally, let us consider what our Q-based account predicts for the non-Agreement languages like Japanese and Tlingit. Clearly, since our account ties the impossibility of

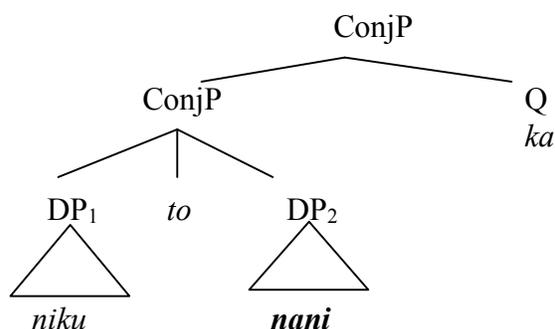
configurations like (466) to the necessity of Agreement between the Q and the wh-word, it follows that such configurations should be licit in non-Agreement languages. It has indeed been noted that wh-questions in Japanese seem to violate the CSC (Cheung 2003). The wh-operator of a Japanese wh-question can be located within a coordination, without the other conjunct of the coordination containing a wh-word.

(468) **Apparent Violations of the CSC in Japanese**

Taro-wa [niku to **nani**]-o katta ka?
 Taro-TOM meat and what-ACC buy Q
What is the thing x such that Taro bought meat and x?

Assuming that the Q-particle in (468) is initially merged as an adjunct to the entire coordinate structure, as in (469) below, we find that our analysis of (462) and (463) provides a straightforward account of these facts, under which there is no real violation of the CSC.

(469) **Base Structure of the Apparent Violations of the CSC in Japanese**



Under this analysis, the Agreement between the interrogative C head and the Q-particle *ka* does not violate the CSC, because the Q-particle is not contained within a conjunct of the coordinate structure. Moreover, no violation of the CSC is entailed by the presence of the Q-particle *ka* outside the coordination, because there is no Agreement between Q and the wh-word in Japanese.

We find, then, that our theory of the CSC in (465) can account for the apparent inactivity of the CSC in Japanese wh-questions. Therefore, the behavior of Japanese wh-questions provides some additional support for our Agreement-based theory of the CSC, and thus also for our Q-based theory of the sensitivity of pied-piping structures to the CSC (in Q/Wh-Agreement languages).

4.6 Summary

In this section, we enumerated a variety of results obtained by our Q-based theory of pied-piping. The predictions detailed above cover a substantial portion of the facts concerning pied-piping that have received focused attention in the prior literature. Thus, we find that the Q-based theory provides a versatile, though properly constrained tool for the analysis of pied-piping structures.

In the following two sections, we will turn our attention from pied-piping *per se* to two

related phenomena. We begin in Section 5 with our study of ‘secondary wh-fronting’.

5. Secondary Wh-Fronting

This section examines the phenomenon whereby a wh-word undergoes movement *within* the fronted phrase of a pied-piping structure, a phenomenon dubbed ‘secondary wh-fronting’ by Heck (2004). Section 5.1 and 5.2 together lay out the proposed Q-based theory of secondary wh-fronting, illustrating the theory with examples from English. The full theory having been laid out, Sections 5.3 and 5.4 provide crucial evidence in support of our Q-based account. In Section 5.3, we see how our Q-based theory provides a principled account of possessor pied-piping in the Mayan languages Chol and Tzotzil. Section 5.4 then shows how P(reposition)-inversion in these Mayan languages provides additional support for our proposed system.

5.1 The Basic Nature of Secondary Wh-Fronting

In the preceding sections, we have seen how our proposed account captures a variety of facts concerning pied-piping structures, particularly the locality restrictions that (parametrically) govern the distance between the Q-particle and the wh-word it binds. As we’ve seen, these locality restrictions often prevent a wh-word *W* occupying a position *A* inside a larger phrase *B* from pied-piping *B*. Interestingly, however, many languages possess a clever ‘technique’ for nevertheless permitting *W* to pied-pipe *B*. In these languages, *W* may be moved from its base position *A* to a higher position *inside B* from which it can pied-pipe *B* without violating the locality restrictions on pied-piping. For example, we find that the ill-formed structures in (470) become well-formed if the pied-piper is located at the left edge of the fronted phrase.

(470) Secondary Wh-Fronting in English

- a. (?) [Pictures of **who**] did John buy?
- b. [**Whose**₁ pictures *t*₁] did John buy?

- c. * [A [**how** big] boat] did John buy?
- d. [[**How** big]₁ a *t*₁ boat] did John buy?

Following Heck (2004), I will use the term ‘secondary wh-fronting’ to denote cases where a wh-word has undergone movement inside the fronted phrase of a pied-piping structure.

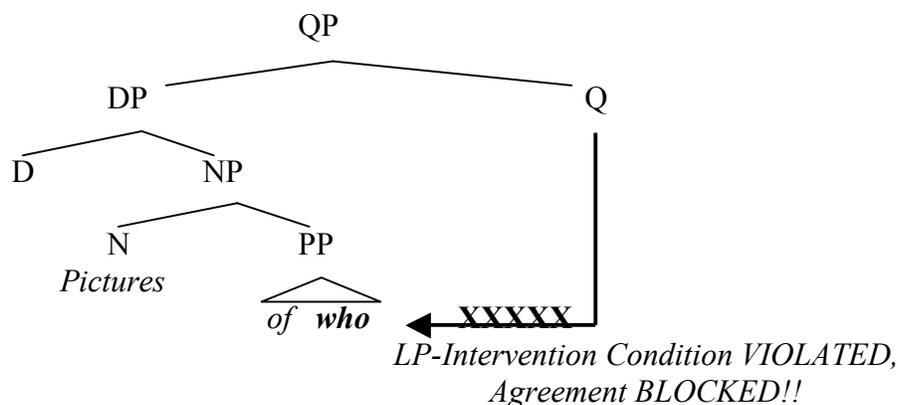
In the literature on pied-piping, the contrasts witnessed in (470) are often taken as evidence for the relevance of ‘left-peripherality’ or ‘specifier-hood’ to the well-formedness of a pied-piping structure. After all, if one assumes that only left-peripheral elements can be pied-pipers, then the contrast between (470a,b) and (470c,d) naturally follows. Recall, however, that under our proposed account, there is no essential connection between left-peripherality/specifier-hood and the ability to pied-pipe. How, then, would our account capture the contrasts seen in (470)? More broadly, what would our Q-based theory postulate as the ‘engine’ driving secondary wh-fronting?

Actually, it is possible to offer within our Q-based account a theory of secondary wh-fronting that is not too different from previous ones. Under previous accounts, the well-formedness of (470b,d) is ultimately due to the fact that the wh-words have been moved to a

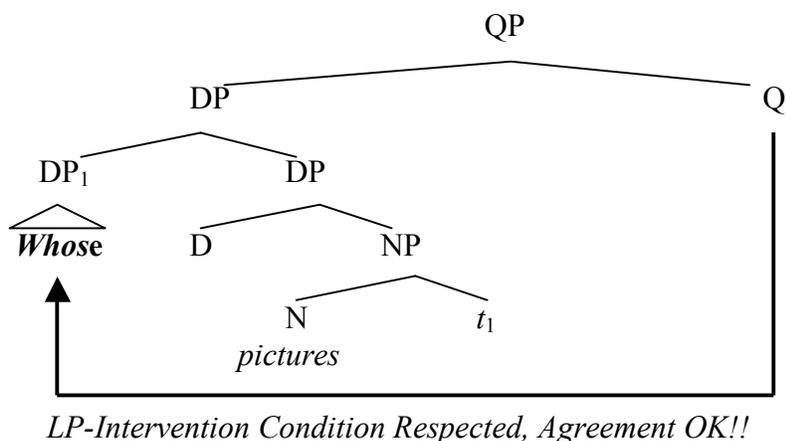
position where they meet the locality constraints on pied-piping. The logic of these earlier accounts could easily be employed in our own Q-based theory of pied-piping. For example, under our Q-based account, the necessity of possessor fronting seen in (470a,b) would receive the following analysis. First, as we have already seen in Section 3.3, the ill-formedness of (470a) follows from the fact that Q/Wh-Agreement is impossible when the wh-word is contained within the NP projection of the possessed NP; this fact is illustrated under (471a) below. However, as we also saw in Section 3.3, the well-formedness of (470b) follows from the fact that Q/Wh-Agreement *is* possible when the wh-word occupies the specifier position of the possessive DP; this fact is illustrated under (471b).

(471) **The Nature of Secondary Wh-fronting in Possessive DPs**

a. No Pied-Piping Without Possessor Raising



b. Pied-Piping Possible With Possessor Raising⁴⁰



⁴⁰ Note that the possibility of the Agreement relation in (471b) supports our earlier conclusion that SpecDP in English is not a syntactic island (cf. Chapter 4, Section 2.3). On the other hand, let us also note that the raising of the possessor in (471b) creates certain problems for the ‘phase-based’ approach to the LP-Intervention Condition put forth in Section 3.4. Note that if all movement is driven by Agreement, then the movement of the possessor to SpecDP in (471b) entails that an Agreement relation holds between D and a position *internal to the lexical NP projection*, contrary to the assumptions of the phase-based account.

The preceding observations suggest the following general claim. To answer the broader question that prompted these observations, the ‘engine’ that ultimately drives secondary wh-fronting is the need (in Q/Wh-Agreement languages) for the Q-particle to Agree with the wh-word. Given the LP-Intervention Condition, such Agreement can only take place if no lexical projections intervene between the Q-particle and the wh-word. Thus, if a lexical projection intervenes between the Q-particle and the *base* position of the wh-word, that wh-word will only be able to Agree with the Q-particle if it is fronted to a position above any and all such lexical projections. In summary, then, our Q-based account views the phenomenon of ‘secondary wh-fronting’ as a means for facilitating Agreement between the Q-particle and the wh-word, and so such fronting necessarily targets a position above all the lexical projections in the pied-piped phrase.⁴²

In this context, let us observe that our account therefore makes a clear prediction regarding secondary wh-fronting in the non-Agreement languages like Japanese, Tlingit and Haida: it should not exist. That is, because we assume that there is no Agreement between the Q-particle and the wh-word in these languages, we thereby predict that there should be no restrictions whatsoever on the position of the wh-word within the fronted phrase of a pied-piping structure. Indeed, we have already seen in Section 3.4 some evidence that this prediction is accurate. As we noted in that section, the Haida data in (419) and (420) demonstrate that pied-piping of CPs and relative clauses in that language does not require the wh-word to be left-peripheral. However, it is difficult to find any further evidence supporting this prediction for the non-Agreement languages. As mentioned in Footnote 3, neither Tlingit nor Haida allow post-nominal possessors, and in neither language is there a class of adnominal DegPs. Further evidence will have to come from a deeper examination of CP- and Relative-Clause-Pied-Piping in Tlingit.

5.2 Some Secondary Wh-Fronting is an Instance of ‘True’ Wh-Movement

In the preceding section, we were presented with the basic Q-based account of secondary wh-fronting. Under this account, the LP-Intervention condition entails that a wh-word *W* dominated by a lexical projection *LP* within a larger phrase *XP* will be unable to pied-pipe *XP*, unless *W* undergoes fronting to a position above *LP*.

Note, however, that there is a striking empirical lacuna in this theory of secondary wh-fronting. Although our account predicts that wh-words occupying base positions inside lexical projections *must* move in order to pied-pipe, we have not yet accounted for the *possibility* of such movement. Now, in certain cases this gap is innocuous, since the phrase-internal movement is an independent, freely available option in the language. For example, the general fact that possessors in English may move to SpecDP accounts for the possibility of the secondary wh-fronting seen in (470b)/(471b). In other cases, however, this gap is a bit more problematic, since the phrase-internal movement undergone by the pied-piper is not a freely available option. In fact, in some cases, the movement in question can *only* occur with wh-operators. The secondary wh-fronting seen in (470d)/(472b) is a potential example of this latter type of movement. Although such ‘DegP inversion’ is obligatory when the Deg head is a wh-operator, it

⁴² Similarly, if we assume the alternative, phase-based account put forth in Section 3.4, we predict that wh-words must occupy a position above any and all *phase heads* in the fronted phrase. Therefore, under that ‘alternative account’, we predict the secondary wh-fronting seen in the CP-pied-piping of Basque and Quechua, as earlier discussed in Section 3.4.

is *impossible* in most other cases.⁴³ The following data illustrate.

(473) **Impossibility of DegP Inversion with Non-Wh Deg**

- a. I ate [DP a [DegP **very nice**] meal].
- b. * I ate [DP [DegP **very nice**]_I [DP a t_I meal]].

Our theory of the data in (470c,d) is therefore somewhat incomplete, in that it lacks any account of *how* the ‘rescuing’ movement in (470d)/(472b) is possible in the first place.

Let us, then, begin to fill this lacuna by developing a theory of those cases of secondary wh-fronting where the phrase-internal movement is only allowable for wh-operators. We’ll take the case of English DegP inversion as our paradigmatic example. Since the fronting of the DegP seen in (470d)/(472b) is crucially tied to the Deg head being a wh-operator, it would be most natural to view this movement as being tied to the wh-feature of that operator. Let us, then, suppose that English possesses a special indefinite determiner a_{wh} , which is virtually identical to the regular indefinite article a , except that it bears an unvalued instance of the feature Wh .⁴⁴

(474) **The Wh-Indefinite A_{wh} in English**

$$\begin{array}{lcl} \{ \text{Def}[-], \text{Num}[\text{sg}] \} & = & a \\ \{ \text{Def}[-], \text{Num}[\text{sg}], \mathbf{Wh}[\] \} & = & a_{wh} \end{array}$$

Given our assumed theory of feature valuation under Agree (cf. Section 3.1), when the determiner a_{wh} is merged as the head of the DP, it must Agree with some head within its domain that bears a valued instance of Wh . Assuming that wh-words all bear valued instances of Wh , in cases where the domain of a_{wh} includes the Deg head *how*, this Agreement can take place. Finally, as a reflex of the Agreement between a_{wh} and the DegP headed by *how*, the DegP moves into the specifier of the DP. The following structure illustrates.

⁴³ Note, however, that this DegP inversion is also required for some Deg heads other than the wh-head *how*. For example, demonstrative Deg heads in English must also apparently undergo this inversion.

(i) **DegP Inversion with Demonstrative Deg Heads**

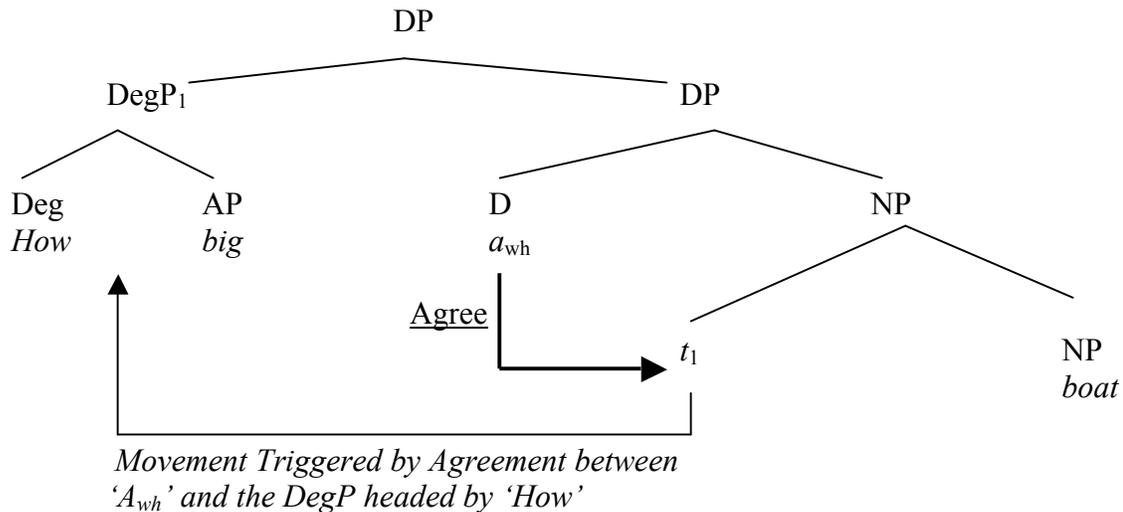
- a. [DP [DegP **That big**]_I [DP a t_I dissertation]] will never be widely read.
- b. * [DP A [DegP **that big**] dissertation] will never be widely read.

The necessity of DegP inversion with non-wh Deg-heads demonstrates that, contrary to our discussion above, such inversion is not crucially tied to the wh-feature of the Deg-head *how*.

On the other hand, we will see in the following sections some clearer examples of secondary wh-fronting where the secondary fronting *is* crucially tied to the wh-feature. However, since the facts surrounding these later examples are rather complicated, I choose not to employ them in this introductory section. For this reason, I opt to (misleadingly) use the simple case of DegP inversion in English to illustrate the basic ideas behind our account. Although the analysis of English DegP inversion offered above may be incorrect in its tying such inversion to the wh-feature, it nevertheless aptly illustrates the basic ideas behind our analyses of the later, more difficult examples.

⁴⁴ We may also assume that the unvalued Wh on this determiner is uninterpretable, but this will actually not be relevant for our discussion that follows.

(475) **DegP Inversion Triggered by Merger of A_{wh}**



Clearly, from the logic of this proposal, it follows that any DP-internal fronting of DegP can only occur if the DegP is headed by a wh-operator.⁴⁵ Thus, our account correctly predicts the impossibility of (473b).

Let us now pause for a moment, and see how the proposals just offered connect with our wider theory of secondary wh-fronting, to explain the contrast repeated below.

(476) **Obligatory Secondary Wh-Fronting in DegP Questions**

- a. * [QP [DP A [NP [DegP **how** big] boat]] Q] did John buy?
- b. [QP [DP [**how** big]₁ [DP a_{wh} [NP t_1 boat]]] Q] did John buy?

The impossibility of (476a) follows for precisely the reason outlined in (472); the wh-word is buried inside a lexical projection, and so is not accessible for Agreement with Q. Turning to (476b), the possibility of this structure now follows for two reasons. First, English possesses the special indefinite article a_{wh} , which allows the DegP headed by the wh-word *how* to front into the specifier position of the DP. We assume that in structures like (476b), the DP is headed by this special indefinite article. Secondly, once the DegP has been moved into this left-peripheral position by the a_{wh} , it is now in a position where it is accessible for Agreement with Q. Thus, the unvalued $iQ[]$ on the English Q-particle receives a value, and the structure converges.

In summary, then, we find that our overall theory of secondary wh-fronting can apply to cases where the phrase-internal movement of the wh-operator is *not* a general, independently

⁴⁵ Note, however, that something must also ensure that a_{wh} can only Agree with *DegPs*, and not (e.g.) post-nominal possessors. If a_{wh} could Agree with post-nominal possessors, our theory would incorrectly derive structures like the following.

(i) * [DP Who₁ [a_{wh} picture of t_1]] did you buy?

To my knowledge, this is also a weakness of all other theories of DegP Inversion (e.g. Kennedy & Merchant 2000). As a possible solution, we might suppose that a_{wh} has some additional featural differences from 'normal *a*' which render it specifically 'DegP-hungry'.

available structure in the language, but rather is crucially tied to the *wh*-feature of the operator.

Our discussion here nicely illuminates a comparatively subtle property of our general theory of secondary *wh*-fronting, one that warrants some spotlighting. Under the account proposed above, the ‘proximal cause’ of DegP inversion is an Agreement relation holding between the fronted DegP and a special D-head bearing unvalued *Wh*. On the other hand, the *necessity* of DegP inversion in English ‘degree-questions’ is due to the impossibility of Q/*Wh*-Agreement without it. We find, then, that while our theory does propose that secondary *wh*-fronting is a consequence of obligatory Q/*Wh*-Agreement, it is only an *indirect* consequence. That is, secondary *wh*-fronting is not directly *triggered* by Q/*Wh*-Agreement under our account, but is rather the structural precondition for such Agreement. This property also, of course, holds for those cases of secondary *wh*-fronting where the phrase-internal fronting of the *wh*-word *is* a free, independently available option in the language. Even though the phrase-internal fronting in these other cases isn’t triggered by the *wh*-feature of the operator, it is locally triggered by *some* feature of the fronted phrase. For example, in the case of possessor fronting in English, we might suppose that the fronting of the possessor to SpecDP is due to phi-Agreement between the possessive D-head and the possessor. Generally speaking, though, in all cases of secondary *wh*-fronting, the movement of the *wh*-word internal to the pied-piped phrase is only *directly triggered* by an Agreement relationship between the *wh*-word and the position that it moves to. It is not directly triggered by the (later) Q/*Wh*-Agreement that it facilitates.

In the following two sub-sections, we will present some crucial evidence supporting our Q-based theory of secondary *wh*-fronting. Before we come to these arguments, however, let us briefly note one final consequence of our proposals concerning DegP inversion. Recall that our analysis derives the possibility of DegP inversion from the existence of a special indefinite article a_{wh} , which is lexically specified as bearing an unvalued instance of *Wh*. Our account therefore provides an explanation of the impossibility of DegP inversion within other indefinite DPs. Note the following contrast between (477a) and (477b,c).

(477) **Secondary DegP-Fronting Crucially Tied to Presence of A_{wh}**

- a. [How big [**a** boat]] did John buy?
- b. * [How big [**some** boat]] did John buy?
- c. * [How big [**three** boats]] did Jon buy?

The impossibility of (477b,c) would follow from the absence of putative $some_{wh}$ and $three_{wh}$ in English. On the other hand, it is unclear how these facts could follow from any semantic or syntactic difference between the normal indefinite article *a* and the indefinite determiners *some* and *three*. Thus, it seems correct to tie the possibility of DegP inversion to an idiosyncratic, unpredictable lexical property of the D-head, rather than view it as a productively driven reflex of the *wh*-fronting of the larger DP (cf. Heck 2004).

5.3 Supporting Evidence from Possessor Pied-Piping in Mayan

A unique property of our theory of secondary *wh*-fronting is that the movement of the *wh*-word internal to the pied-piped phrase is held to be a different *type* of movement from the movement of the entire pied-piped phrase. That is, according to our Q-based theory of pied-piping, the movement of the pied-piped phrase is always an instance of ‘Q-movement’, movement triggered

by the Q-feature of the Q-particle. By contrast, secondary wh-fronting is directly triggered by some (other) feature of the wh-word, and so is not an instance of ‘Q-movement’.⁴⁶ To my knowledge, this property distinguishes our Q-based account from other analyses of secondary wh-fronting. The prevailing view regarding secondary wh-fronting and pied-piping is that *both* the phrase-internal fronting of the wh-word *and* the fronting of the larger pied-piped phrase are movements of the same type; both are directly triggered by the wh-feature of the wh-word itself (cf. Heck 2004; pp. 295 - 329).

As first observed by Coon (2007), the Mayan languages Chol and Tzotzil provide some evidence that our Q-based account is correct to distinguish the movement seen in secondary wh-fronting from the movement seen in pied-piping. Following Coon (2007), all the data below are taken from Chol; the entirely parallel Tzotzil data (also discussed by Coon) can be found in Aissen (1996).

Wh-questions in Chol exhibit secondary wh-fronting whenever a wh-possessor pied-pipes the entire possessive DP. In such wh-questions, the wh-word must front to a pre-nominal position (479), even though such a position is not otherwise permitted for Chol possessors (478).

(478) **Regular Possessors in Chol Must be Post-Nominal**

- a. Tyi puli [iyotyoty **aj-Maria**]
 burned house Maria
 Maria’s house burned.
- b. * Tyi puli [**aj-Maria**₁ [iyotyoty *t*₁]]
 burned Maria house

(479) **Pied-Piping Wh-Possessors in Chol Must be Pre-Nominal**

- a. [**Maxki**₁ [iyotyoty *t*₁]] tyi puli ?
 who house burned
 Whose house burned?
- b. * [Iyotyoty **maxki**] tyi puli ?
 house who burned

Furthermore, when a wh-possessor is recursively embedded within another possessor, Chol requires that the wh-possessor appear at the left periphery of the entire complex possessive DP. From this position, the wh-possessor can then pied-pipe the entire DP. The following data illustrate.

⁴⁶ Indeed, we will see in this section that secondary wh-fronting is predicted by our system to *never* be an instance of Q-movement.

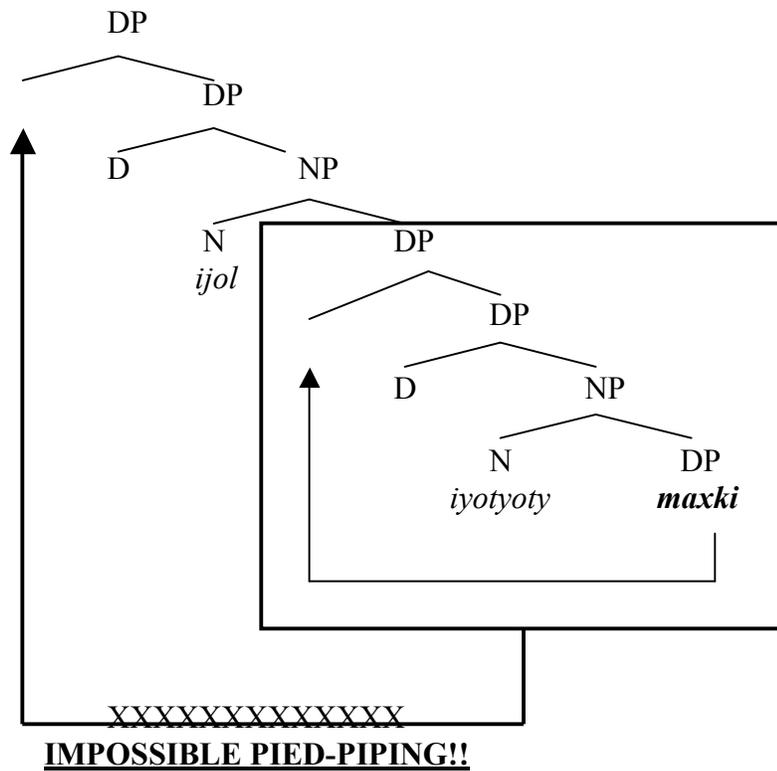
(480) **Pied-Piping of DP by Possessors of Possessors in Chol**

- a. [**Maxki**₁ [ijol [iyotyoty *t*₁]]] tyi puli ?
 who roof house burned
 Whose house's roof burned?
- b. * [Ijol [iyotyoty **maxki**]] tyi puli ?
 roof house who burned
- c. * [Ijol [**maxki**₁ [iyotyoty *t*₁]]] tyi puli ?
 roof who house burned

Crucially, as pointed out by both Coon (2007) and Aissen (1996), in examples like (480a), there can be no pied-piping by the *wh*-possessor strictly within the larger pied-piped possessive DP. That is, movement of the *wh*-word *maxki* ‘who’ to the left-periphery of the possessive DP cannot pied-pipe the embedded NP headed by *iyotyoty* ‘house’. Such pied-piping would produce the ‘roll-up’ structure in (481), which is judged in both languages to be ill-formed.

(481) **No Pied-Piping of Embedded Possessive DP by Embedded Possessor**

- * [[[**Maxki**₁ [iyotyoty *t*₁]₂ ijol *t*₂] tyi puli ?
 who house roof burned

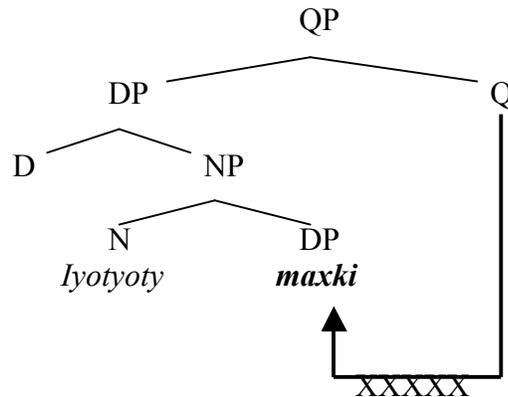


As first observed by Coon (2007), the contrast between (480a) and (481) is problematic for accounts that treat both secondary wh-fronting and the fronting of pied-piped phrases as instances of ‘wh-movement’. After all, it is clear from sentences like (479a) and (480a) that wh-fronting in these languages generally allows wh-possessors to pied-pipe possessive DPs. Why, then, can such pied-piping not occur when the wh-fronting takes place internal to a larger, pied-piped DP? As Coon notes, there is no straightforward answer to this question within the prevailing theories of pied-piping, which can only rule out the roll-up structure in (481) by external stipulation.⁴⁷ On the other hand, Coon (2007) goes on to show that the Q-based theory of wh-fronting advocated here predicts the impossibility of the roll-up structure seen in (481).

Abstracting away from Coon’s own particular implementation of the Q-based theory for Chol, let us adopt the view that the secondary wh-fronting found with Mayan wh-possessors is, like English DegP inversion, an instance of ‘real’ wh-movement, triggered by an instance of unvalued *Wh*[*J*] on a higher D-head. Following our general theory of secondary wh-fronting, the appearance of this *Wh*-bearing D-head is required in order to place the wh-possessor in a position where it can Agree with the Q-particle sitting above the pied-piped possessive DP.⁴⁸ As we see in (482) below, if the *Wh*-D does not appear within a possessive DP, then the wh-possessor remains in a position where Q/Wh-Agreement cannot occur.

(482) **Secondary Wh-Fronting of Possessors in Chol (and Tzotzil)**

No Wh-D = No Possessor Fronting = No Q/Wh-Agreement = Ungrammaticality



LP-Intervention Condition Violated!! AGREEMENT BLOCKED!!!

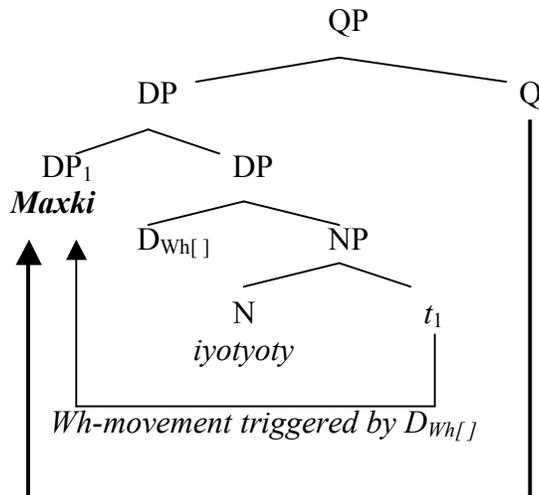
On the other hand, as shown in (483), the presence of the *Wh*-D within a possessive DP entails that the wh-possessor must front to SpecDP, which places the wh-word in a position where Q/Wh-Agreement is possible.

⁴⁷ Within a theory where pied-piping structures are derived via feature-percolation, such a stipulation might be that a wh-word can only ‘percolate’ its wh-feature once within a derivation (Coon 2007). Thus, (481) is ruled out because the wh-possessor must percolate its wh-feature once when it moves to the specifier of *iyotyoty* ‘house’, and then again when the pied-piped DP moves to the specifier of *ijol* ‘roof’. Note, however, that even this stipulation is itself problematic in a number of respects, as it would appear to rule out the cases of ‘transitive’ pied-piping discussed in Section 4.1.

⁴⁸ That Chol is a Q/Wh-Agreement language is supported by the fact that all its wh-words share a distinctive morpho-phonological feature, the suffix *-ki* (Coon p.c.).

(483) **Secondary Wh-Fronting of Possessors in Chol (and Tzotzil)**

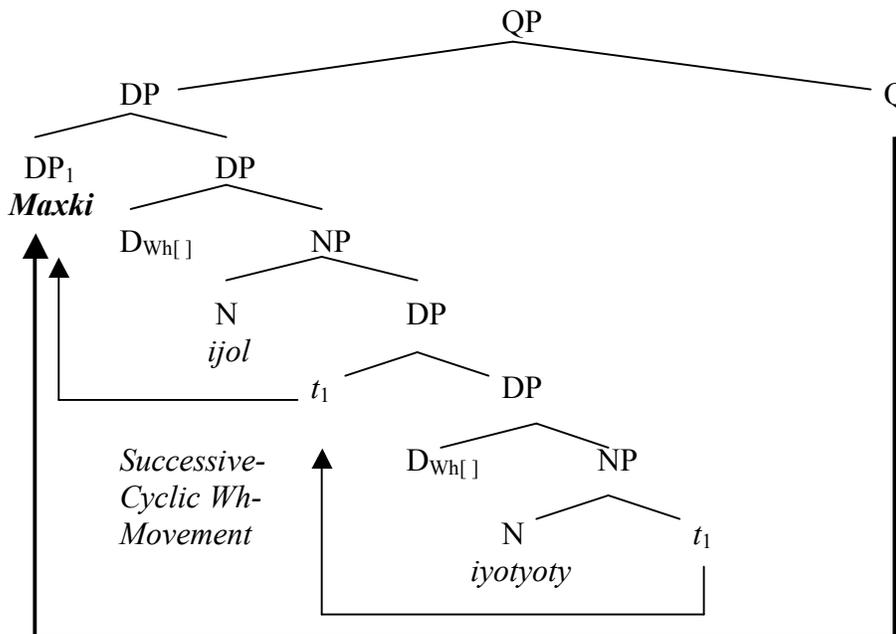
Presence of Wh-D = Fronting of Possessor = Q/Wh-Agreement = Convergence



LP-Intervention Condition Respected! AGREEMENT PERMITTED!!!

Under this analysis, structures like (480a), with ‘long-distance’ possessor fronting, are derived via the insertion of multiple instances of $D_{Wh[]}$. Such long-distance fronting of the wh-possessor is likewise required in order put the wh-possessor in a position where no lexical projections intervene between it and the Q-particle.

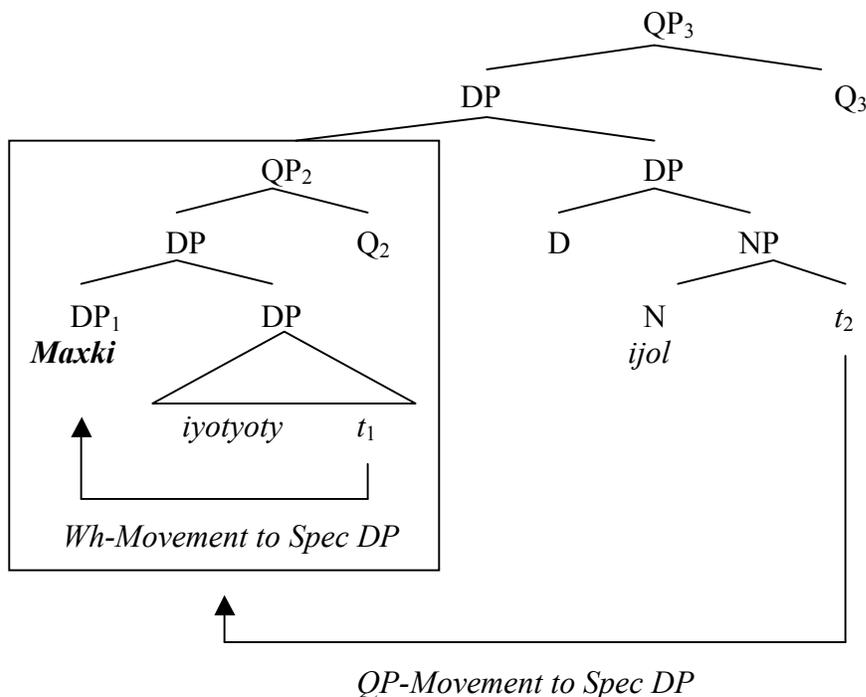
(484) **Obligatory Long-Distance Possessor-Fronting in Chol (and Tzotzil)**



LP-Intervention Condition Respected! AGREEMENT PERMITTED!!!

Importantly, however, the Q-based theory of wh-fronting possesses no means for deriving ‘roll-up’ structures like (481). Recall that under our Q-based theory, there are no real instances of pied-piping. Whenever a phrase larger than the projection of the wh-word is fronted, such fronting is *ipso facto* not triggered by the wh-features of the wh-word, but rather by the Q-features of a c-commanding Q-particle. Thus, the only conceivable means by which the ‘roll-up’ structure in (481) could be created is by *QP-movement* internal to the pied-piped DP, as illustrated below.

(485) **Roll-Up Structures Like (481) within the Q-based Account**



This structure, however, suffers from the following problem: it is uninterpretable. The issue is that the lower Q-particle inside the DP closes off the focus-alternatives projected by the wh-word *maxki* ‘whose’, preventing them from being passed up to the higher Q-particle outside the DP. Thus, the higher Q-particle never receives an argument of the appropriate type, and a ‘semantic crash’ results.

This observation can be immediately generalized to a broader explanation of the impossibility of the roll-up structure in (481). Under our Q-based theory, it will *never* be possible for a wh-word undergoing ‘secondary wh-fronting’ to pied-pipe sub-constituents of the larger phrase it is pied-piping. More precisely, it will *never* be possible for the pied-piper W of a phrase XP to undergo movement internal to XP where it pied-pipes a sub-constituent YP of XP. That is, any configuration of the form in (486) is predicted by our Q-based theory to be impossible.

5.4 Supporting Evidence from P(reposition)-Inversion in Mayan

In this final sub-section, I will show that our Q-based theory of secondary wh-fronting receives further support from a curious pattern of P(reposition)-inversion in these two Mayan languages. As before, all the following data are taken from Chol.⁴⁹ The entirely parallel Tzotzil data can be found in Heck (2004) and Aissen (1996).

As in many languages, prepositions in Chol cannot be stranded. Instead, whenever the complement of P is a wh-word that must be fronted, the entire PP is pied-piped into the left periphery. Interestingly, in those cases where the complement of P is a possessive DP, the possessor of which is a pied-piping wh-word, then the pied-piping wh-possessor must be placed *before* the P. That is, whenever a wh-possessor pied-pipes a larger PP, that wh-possessor must be sub-extracted from the complement of P, and fronted to a position above the P. The following data illustrate.

(487) P-Inversion with Wh-Possessors in Chol

- a. [PP **Maxki**₁ [PP tyi [NP iyotyoty *t*₁]]] tyi majliyety ?
 whose to house perf you.go
 Whose house did you go to?
- b. * [PP tyi [NP iyotyoty **maxki**]] tyi majliyety ?
 to house whose perf you.go
- c. * [PP Tyi [NP **maxki** iyotyoty]] tyi majliyety ?
 to whose house perf you.go

Moreover, this P-inversion can only target the wh-possessor of the possessive DP. The entire possessive DP can never itself undergo movement to the left of the preposition.

(488) P-Inversion Doesn't Apply to the Entire Complement of P

- * [PP [NP **Maxki** iyotyoty]₁ [PP tyi *t*₁]] tyi majliyety?
 whose house to perf you.go

Besides being an intrinsically interesting pattern, the Mayan data above raise the following challenge to any theory of secondary wh-fronting. Although this pattern is fully general for both Chol and Tzotzil, it is notably absent from the most well-studied wh-fronting languages. For example, although Russian permits both possessor extraction and PP-pied-piping (cf. (261) and (272)), it does not require – or even allow – the kind of P-inversion seen in (487a) for Chol. The following data illustrate.

⁴⁹ The Chol data here were provided to me by Jessica Coon (p.c.).

(489) **No P-Inversion with Wh-Possessors in Russian** ⁵⁰

- a. [PP V [DP **čjej** mashyne]] priexal ?
in whose car you.arrived
Whose car did you arrive in?
- b. * [PP **Čjej**₁ [PP V [DP t₁ mashyne]]] priexal ?
whose in car you.arrived

Thus, a full account of the Mayan P-inversion seen in (487a) should also predict the absence of such secondary wh-fronting in languages like Russian.

Unfortunately, such an account has not yet been offered. To my knowledge, current proposals concerning the Mayan P-inversion in (487a) immediately generalize to all languages where both possessor-extraction and PP-pied-piping are possible. For example, under the analysis offered by Heck (2004), the secondary wh-fronting in (487a) results from a general constraint that the wh-word be as ‘close’ as possible to the interrogative C head. Therefore, Heck (2004) is only able to rule out the ill-formed Russian structure in (489b) by stipulating that Russian PPs do not allow movement to their specifiers (Heck 2004; p. 299). However, this putative unavailability of SpecPP in Russian is a fact unconnected to any other, independently visible differences between Russian and these Mayan languages.

In contrast to previous accounts, however, our Q-based theory of secondary wh-fronting provides an analysis of the Mayan pattern in (487) that successfully ties such P-inversion to an independently visible property of these languages, one that moreover distinguishes them from Russian and most other well-studied wh-fronting languages.

A striking property of both Chol and Tzotzil is that neither of these languages permit P to take full DPs as complements. Rather, as described by Coon (p.c.), Ps in these languages must take bare NP complements.⁵¹ The following data illustrate.

(490) **Prepositions in Chol Must Take Bare NPs as Complements**

- a. Tsajñoñ ila [tyi [NP otyoty]]
I.went here to house
I went to this house. (Lit. “I went to house here”)
- b. * Tsajñoñ [tyi [DP ili otyoty]]
I.went to this house
- c. Tyi kwuts’u pisil ix [tyi [NP ja’]]
perf I.wash clothes there in river
I washed my clothes in this river. (Lit. “I washed my clothes in river there.”)
- d. * Tyi kwuts’u pisil [tyi [DP ixä ja’]]
perf I.wash clothes in that river

⁵⁰ I thank Kirill Shklovsky for offering me his Russian judgments.

⁵¹ The Chol data here were provided to me by Jessica Coon (p.c.). That Tzotzil behaves in a parallel fashion was reported to me by Coon (p.c.), citing John Haviland (p.c.).

As shown above, the Chol preposition *tyi* ‘to’ can only take as complement bare NPs like *otyoty* ‘house’ and *ja* ‘river’ (490a,c). If *tyi* ‘to’ takes as complement an unambiguous instance of a Chol DP, such as *ili otyoty* ‘this house’ or *ixä ja* ‘that river’, then the resulting structure is ill-formed (490b,d). Consequently, it appears that Chol (and Tzotzil) only permit Ps to take NPs as complement, never full DPs.

This inability to take full DP complements distinguishes the Ps of Chol and Tzotzil from the Ps of Russian and most other languages. Structures like those below demonstrate that the prepositions of Russian can take full DPs as complements.⁵²

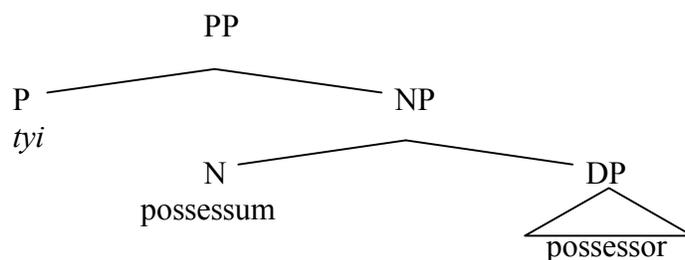
(491) **Prepositions in Russian Can Take Full DPs as Complements**

- a. I zashel [v [DP ètot magazin]]
I entered in this store
I entered into this store.
- b. I zashel [v [DP tot magazin]]
I entered in that store
I entered into that store.

As we will see, our Q-based theory of secondary wh-fronting can derive from this basic difference between Mayan and Russian prepositions the contrast seen between (487) and (489). To see this, let us first examine how our Q-based theory would analyze the P-inversion of Chol and Tzotzil.

To begin, let us consider the potential consequences of the fact that Chol and Tzotzil P cannot take full DP complements. From this fact, it follows that possessive nominals that are complement to P must be bare NPs, and cannot have the DP functional projections of other possessive nominals.

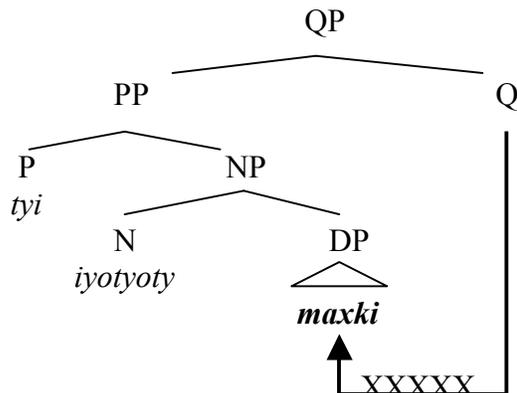
(492) **The Structure of Possessive Complements to P in Chol**



Given our LP-Intervention Condition, it therefore follows that a Q-particle taking PP as complement in Chol will be unable to Agree with a wh-possessor sitting *in-situ* inside a possessive complement to P. This is illustrated below.

⁵² Note that this argument assumes that demonstratives in Russian must take NPs as complements rather than adjoin to them, contrary to our earlier proposals in Section 2.3.3 of Chapter 4 (cf. (291)). We will later explain in Footnote 54 how the following account can be made consistent with our earlier proposals concerning possessor-extraction in Russian.

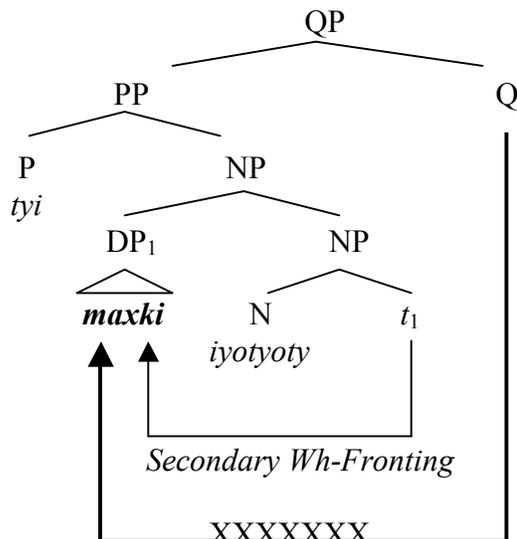
(493) **No Pied-Piping of PP by *In-Situ* Wh-Possessor in Chol**



LP-Intervention Condition Violated!
AGREEMENT IMPOSSIBLE!!!

As we have seen, Chol typically facilitates Agreement between Q and wh-possessors by fronting the wh-possessor to SpecDP, removing it from the NP projected by the possessum. Unfortunately, however, when the possessive nominal is complement to P, there is no DP projection into which the wh-possessor can move. Thus, if ever a complement to P in Chol contains a wh-possessor, it follows that merely moving the possessor to an immediately pre-nominal position would *not* be sufficient to permit Q/Wh-Agreement. Such fronting could only position the wh-possessor higher within the NP projected by the possessum; it would not successfully remove the wh-word from the lexical projection itself. The following illustrates.

(494) **No Pied-Piping of PP by a Merely Pre-Nominal Possessor in Chol**

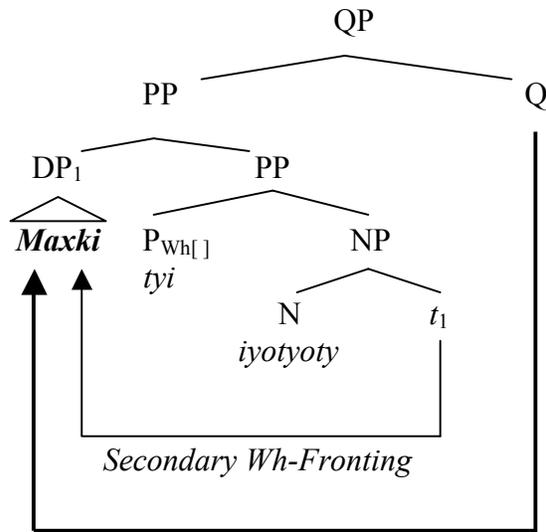


LP-Intervention Condition Violated!
AGREEMENT IMPOSSIBLE!!!

If, however, the wh-possessor were fronted into the PP-projection itself, then the wh-word could

be accessible for Agreement with Q. Let us suppose that prepositions in Chol can optionally bear an instance of unvalued *Wh*. Following our general theory of secondary wh-fronting, a P bearing *Wh*[] in Chol will trigger wh-movement of the wh-possessor into SpecPP. The crucial result of this wh-movement is that the wh-possessor now occupies a position where no lexical projections intervene between it and Q, and thus Q/Wh-Agreement can occur. The following illustrates.

(495) **Obligatory P-Inversion with Wh-Possessors in Chol**

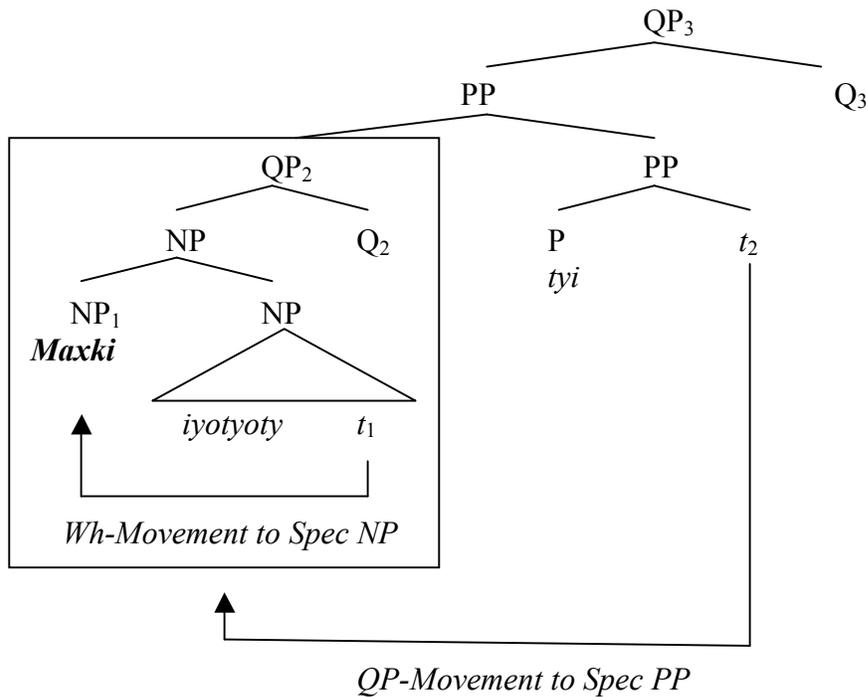


LP-Intervention Condition Respected!
AGREEMENT POSSIBLE!!!

We find, then, that our Q-based theory of secondary wh-fronting is able to derive the necessity of P-inversion with Chol/Tzotzil wh-possessors from the independent inability for P in the language to take full DP complements. Furthermore, our system correctly predicts that this P-inversion will never target the entire possessive NP itself, as shown in (488). Structures like (488) would necessarily be instances of ‘roll-up pied-piping’ as in (481), which we have previously shown our Q-based theory to generally rule out (cf. (486)). Because the phrase moved to SpecPP in (488) is not a projection of the wh-word, it follows that such fronting is *not* wh-movement, but rather Q-movement. Thus, as shown below, such a structure would necessarily involve the interposition of a Q-particle between the wh-possessor and the Q-particle external to the pied-piped PP. Consequently, the structure in (488) is predicted to be uninterpretable.⁵³

⁵³ Of course, as the structure in (496) makes clear, such fronting of the possessive NP would also fail to put the wh-word in a position where it could Agree with either Q-particle. Thus, the structure is syntactically ill-formed in addition to being uninterpretable.

(496) **P-Inversion Doesn't Apply to the Entire Possessive NP**



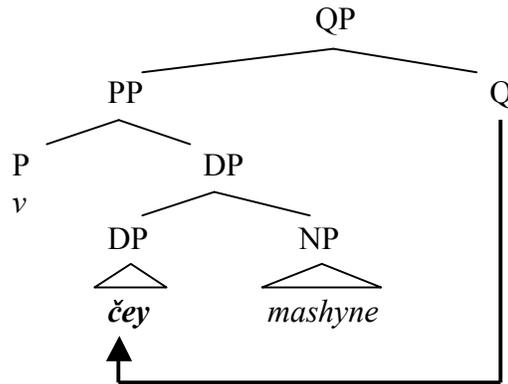
In summary, we have just seen that our Q-based theory of secondary wh-fronting predicts the pattern of P-inversion seen in Chol and Tzotzil. Moreover, it derives this peculiar pattern from a rather special property that these languages are independently observed to exhibit: their Ps can only take bare NPs as complements. We therefore see that our Q-based theory of secondary wh-fronting indeed successfully ties the extraordinary behavior of wh-possessors in Mayan PPs to an extraordinary property of the Ps themselves. Consequently, we rightly predict that all those languages where P lacks this extraordinary property will be languages where the P-inversion seen in (487) is likewise absent.

To see this concretely, let us return to the case of Russian. As demonstrated in (491), it is possible for Ps in Russian to take full DPs as complements. Thus, as the structure in (497) below illustrates, it should be possible for wh-possessors in Russian to pied-pipe a larger PP without having to move to the Spec of PP.⁵⁴

⁵⁴ Observe, however, that the structure in (497) assumes that possessive nominals in Russian can be DPs rather than bare NPs, contrary to our original proposals in Section 2.3.2 of Chapter 4 (cf. (284)). On the other hand, we might follow Footnote 33 of this chapter in the assumption that possessive nominals in Russian have the option of being DPs, as well as bare NPs.

Finally, the reader will observe that the logic of the following account assumes that possessive nominals in CompPP are *always* DPs (and never bare NPs) in Russian. We might render this assumption consistent with our wider proposals by assuming that P in Russian obligatorily takes DP complements, and can never take bare NPs as complements. Thus, unlike nominals occupying other positions within a Russian clause, possessive complements of P are always DPs. Under these assumptions, consistent with our earlier analysis of possessor-extraction in Slavic, the following account goes through.

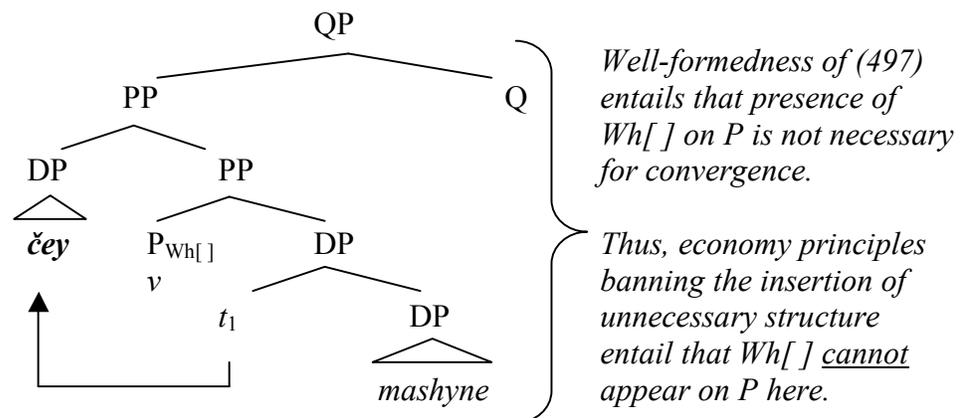
(497) **P-Inversion is Not Necessary for PP-Pied-Piping by Wh-Possessors in Russian**



LP-Intervention Condition Respected!
AGREEMENT Possible!!!

Since pied-piping of PP by a wh-possessor in Russian doesn't require movement of the wh-possessor to SpecPP, it follows that such structures can be derived without appeal to a *Wh*-bearing P-head. That is, unlike the case of Mayan in (493) – (495), Russian does not require one to insert the formal feature *Wh*[] on P in order for a wh-possessor in CompPP to be able to Agree with a Q-particle dominating the PP. Thus, insertion of *Wh*[] on P is not required in Russian for structures like (497) to converge at the interpretative interfaces. It follows that, since the only conceivable 'output effect' of insertion of *Wh*[] on P is the creation of a convergent structure (as in Mayan), the insertion of *Wh*[] on P in structures like (497) would be superfluous. Consequently, insertion of *Wh*[] on P in Russian would be ruled out by independent economy principles requiring that the insertion of formal features have 'output effects' that are unavailable otherwise (Chomsky 1995, Reinhart 1995, Fox 2000, Reinhart 2006, *inter alia*). This is illustrated in (498) below.

(498) **P-Inversion is Impossible with PP-Pied-Piping by Wh-Possessors in Russian**



Thus, our theory of secondary wh-fronting correctly restricts the pattern of P-inversion seen in Mayan to only those languages, and does not generally predict that any language where possessors can extract should exhibit that pattern. This account successfully ties the observed

differences between the Mayan languages and languages like Russian to an independently visible property of those languages. Moreover, the property that distinguishes the Mayan languages seems to be a comparatively extraordinary one; no other languages to my knowledge prevent adpositions from taking full DP complements. Thus, the rather extraordinary movement of wh-possessors to SpecPP in Chol and Tzotzil is rightly derived from a property independently known to be exceptional, and so is correctly predicted to be a comparatively rare phenomenon in the languages of the world.

5.5 Summary

In this section, we examined a Q-based theory of secondary wh-fronting. According to this account, secondary wh-fronting is a means in some languages for placing a wh-word in a position where it can Agree with a higher Q-particle. Thus, such fronting allows a wh-word to pied-pipe a larger phrase that it would otherwise be unable to pied-pipe if left within its base position.

Our Q-based account does not view secondary wh-fronting as directly triggered by the Agreement between the Q-particle and the wh-word. Nor is such fronting triggered by the (even later) Agreement between the interrogative C head and the Q-particle. Rather, secondary wh-fronting is always directly triggered by an Agreement relation between the wh-word and the head whose specifier position it moves to. As we saw, this has the consequence that secondary wh-fronting is always predicted to be a distinct ‘type’ of movement from the movement of the pied-piped phrase.

Finally, we saw that this prediction of our Q-based account receives support from the behavior of wh-possessors in the Mayan languages Chol and Tzotzil. Our theory of secondary wh-fronting correctly predicts that (i) secondary wh-fronting will never itself exhibit pied-piping (cf. (486)), and (ii) the P-inversion seen with Chol and Tzotzil wh-possessors will only occur in languages where P can only take bare NP complements.

In the next and final substantive section of this chapter, we will examine one last related phenomenon, so-called ‘massive pied-piping’.

6. Massive Pied-Piping and its Constraints

In this section, we investigate the phenomenon dubbed ‘massive pied-piping’ by Heck (2004). Like secondary wh-fronting, massive pied-piping is a phenomenon peculiar to the limited pied-piping languages. In cases of massive pied-piping, the more stringent constraints on pied-piping structures imposed by the limited pied-piping languages are somewhat weakened, and so structures violating those constraints are thus marginally well-formed.

Section 6.1 introduces the basic facts concerning massive pied-piping, and then lays out our proposed Q-based theory of the phenomenon. Finally, Section 6.2 discusses certain properties of massive pied-piping that are problematic for our Q-based analysis.

6.1 The Q-Based Theory of Massive Pied-Piping

In the previous section, we examined a variety of cases where the locality constraints on pied-piping in Q/Wh-Agreement languages are obviated by movement of the wh-word internal to the pied-piped constituent. Interestingly, however, many Q/Wh-Agreement languages possess an

additional means for obviating their stricter locality constraints on pied-piping. As has been observed numerous times in the literature on pied-piping, there appear to be environments where the stricter locality constraints of the Q/Wh-Agreement languages are relaxed. For example, it has often been observed that the constraint against complements of N pied-piping the DP is weaker in matrix questions than in subordinate questions (Ross 1979, Sells 1985, Weibelhuth 1992, Kayne 1994, Heck 2004, *inter alia*). The following data illustrate.

(499) **Pied-Piping Past NP Projections in Matrix vs. Subordinate Clauses**

- a. (?) [_{NP} Pictures of **which** president] does Jim own?
- b. * I wonder [_{CP} [_{NP} pictures of **which** president] Jim owns] ?

Similarly, this constraint also seems to be weaker in non-restrictive relative clauses than in restrictive relatives (Bresnan 1976, Emonds 1976, Jackendoff 1977, Nanni & Stillings 1978, Emonds 1979, Ishihara 1984, Sells 1985, Safir 1986, Fabb 1990, Grimshaw 2000, Borsley 1992, Heck 2004, Horvath 2007, *inter alia*), as shown below.

(500) **Pied-Piping Past NP Projections in Restrictive vs. Non-Restrictive Relatives**

- a. (?) This book, [_{CP} [_{DP} the [_{NP} reviews of **which**]] were awful], is really quite nice.
- b. * No book [_{CP} [_{DP} the [_{NP} reviews of **which**]] are awful] is really quite nice.

Following Heck (2004), I use the term “massive pied-piping” to refer to structures like (499a) and (500a), where the stricter constraints of the limited pied-piping languages can be (marginally) violated in those languages.⁵⁵ Throughout this last section, we will explore how such massive pied-piping can be approached within our Q-based theory.

As first articulated by Heck (2004), any theory of massive pied-piping should accomplish two highly important goals. First, it should offer a generalization characterizing the environments where massive pied-piping can occur. Secondly, it should explain *why* massive pied-piping can occur in precisely these environments. Although numerous authors had observed the basic phenomenon of massive pied-piping, it was not until Heck (2004) that a general theory meeting these two basic criteria had been developed. Indeed, Heck (2004) is the first work to both (i) observe that the weakening of the constraints on pied-piping in matrix clauses is identical to the weakening of those constraints in non-restrictive relatives, and (ii) provide a unified account of these contrasts.⁵⁶

A major insight of Heck’s (2004) theory of massive pied-piping is his characterization of the environments where it can take place. This characterization is summarized by Heck’s

⁵⁵ Heck (2004) attributes the term “massive pied-piping” to Safir (1986). However, the latter actually employs the term “heavy pied-piping” to refer to these cases.

⁵⁶ Prior to Heck (2004) most authors had only noted either the contrast in (499) or the contrast in (500). Sells (1985) is perhaps the first work to note the parallelism between matrix questions/non-restrictive relatives and embedded questions/restrictive relatives. However, as noted in Heck (2004), Sells (1985) does not actually pursue a unified account of the freer pied-piping in matrix questions and non-restrictive relatives, and so loses its original insight in the technicalities of its analysis.

‘Generalization on Massive Pied-Piping’, stated below.

(501) **The Generalization on Massive Pied-Piping (Heck 2004; p. 191)**

Massive pied-piping is only possible within non-subordinated CPs.

That the generalization in (501) predicts the contrast in (499) between matrix and subordinate questions is rather obvious. Somewhat less obvious, however, is that it also predicts the contrast in (500) between restrictive and non-restrictive relative clauses. In order to derive this contrast from (501), Heck (2004) assumes an analysis of non-restrictive relatives where they are ‘parentheticals’, and thus not truly constituents of the larger sentence where they are interposed. Under such an analysis, non-restrictive relatives are therefore CPs that are not dominated by any other phrasal nodes, and so classify as being non-subordinated CPs. Thus, the generalization in (501) predicts that they should also permit massive pied piping.

Given its ability to unify the phenomena in (499) and (500), let us therefore adopt the generalization in (501) as the proper characterization of the environments permitting massive pied-piping. Of course, we must now ask *why* this generalization should hold, why the stricter locality constraints in Q/Wh-Agreement languages appear to be (marginally) weaker in non-subordinated CPs than in subordinated CPs.

Although I am unable to offer an entirely principled account, I would like to observe here that many of the properties of massive pied piping – including the generalization in (501) – can be shown to follow from the stipulation stated below.⁵⁷

(502) **Optionality of Q/Wh-Agreement in Non-Subordinated CPs**

In all Q/Wh-Agreement languages, it is (marginally) possible in non-subordinated CPs to employ Q-particles that have *valued iQ*.⁵⁸ Thus, in the non-subordinated CPs of Q/Wh-Agreement languages, it is (marginally) possible for a Q-particle *not* to Agree with any wh-word.

That is, I claim that instances of massive pied-piping are simply cases where the Q-particle of a Q/Wh-Agreement language is (marginally) permitted not to undergo Agreement with any wh-word. As we will see in a moment, this view of massive pied-piping correctly predicts a variety of properties it has been observed to have. We may note immediately, however, that under this view of massive pied-piping, the stipulation in (502) trivially predicts that massive pied-piping will be restricted to non-subordinated CPs. Thus, under the assumption that massive pied-piping results from the (marginal) absence of Q/Wh-Agreement, the stipulation in (502) derives generalization (501).

Let us now observe how the stipulation in (502) predicts certain properties of massive

⁵⁷ It should be noted that Heck’s own (2004) theory of massive pied-piping requires a stipulation of equal complexity to (502) in order to derive generalization (501). Although I do not wish to review the details of Heck’s (2004) treatment here, the interested reader will note that Heck (2004) ultimately derives the generalization in (501) from a stipulation that features having undergone feature-movement are invisible for selection (though not any other syntactic operations) (cf. Heck 2004, p. 414).

⁵⁸ I currently have no precise views regarding *why* Q-particles can marginally bear *iQ[+]* in the non-subordinated CPs of Q/Wh-Agreement languages.

pied-piping. First, we derive the fact, illustrated above in (499) and (500), that the constraint against complements of N pied-piping DP is weakened in non-subordinated CPs. Recall that the ill-formedness of (499b) and (500b) is assumed to follow from (i) the requirement that Q agree with a wh-word within its domain, (ii) the inability for Q to Agree with a wh-word buried inside an NP projection. The following illustrates.

(503) **The Absolute Ill-Formedness of Pied-Piping Past NP in Subordinate CPs**

I wonder [_{CP} [_{QP} [_{NP} pictures of **which president**] Q_{iQ₁}] Jim owns] ?



Q/Wh-Agreement Impossible; but Agreement Required for Well-Formedness

Given the stipulation in (502), however, it follows that such Agreement needn't take place in matrix questions and non-restrictive relatives, as shown below.

(504) **Marginal Well-Formedness of Pied-Piping Past NP in Matrix CPs**

[_{QP} [_{NP} Pictures of **which president**] Q_{iQ₁}] does Jim own ?

Q/Wh-Agreement Still Impossible, but Not Required for (Absolute) Well-Formedness

Therefore, we predict that it should be marginally possible for Q to be separated from the wh-word by an NP projection in such environments, and so we correctly predict the marginal well-formedness of (499a) and (500a). Moreover, we predict that in such non-embedded environments, it should be possible for the Q to be separated from the wh-word by *multiple* NP projections. Thus, we correctly predict that in cases of massive pied-piping, the wh-word may be buried arbitrarily far down within the massively pied-piped constituent.

(505) **Marginal Well-Formedness of Pied-Piping Past Multiple NPs in Matrix CP**

- a. (?) [_{DP} The [_{NP} height of the [_{NP} lettering on the [_{NP} covers of **which books**]]]] is against regulations ?
- b. (?) These books, [_{CP} [_{DP} the [_{NP} height of the [_{NP} lettering on the [_{NP} covers of **which**]]]] is against regulations] , must be returned.

We have just seen that the stipulation in (502) predicts that pied-piping past NP projections should be marginally possible in non-subordinated CPs. Generally speaking, however, our reasoning above demonstrates that *any* constraint on pied-piping structures that derives from constraints on Q/Wh-Agreement should be weaker in non-subordinated CPs. Thus, we should find that for *all* lexical categories LP, it is marginally possible to pied-pipe past LP in such environments. That this prediction is born out for VPs can be seen from contrasts like the following.⁵⁹

⁵⁹ For reasons that will be discussed below, this prediction can only be tested by examining cases of pied-piping past *subordinate* VPs (and APs), since pied-piping of matrix VPs (and APs) is correctly predicted to remain

(506) **Pied-Piping Past VP Projections in Matrix vs. Subordinate Clauses**

- a. (?) [_{CP} To [_{VP} criticize **who**]] would be a mistake?
- b. * I wonder [_{CP} [_{CP} to [_{VP} criticize **who**]] would be a mistake].

(507) **Pied-Piping Past VP Projections in Restrictive vs. Non-Restrictive Relatives**

- a. (?) John, [_{CP} [_{CP} to [_{VP} criticize **whom**]] would be a mistake], is having some trouble.
- b. * No one [_{CP} [_{CP} to [_{VP} criticize **whom**]] would be a mistake] should be criticized.

Again, the absolute ill-formedness of (506b) and (507b) is assumed to result from the inability for Q/Wh-Agreement to penetrate the VP within which the wh-word is buried. Therefore, if the requirement that the Q-particle Agree with the wh-word is (marginally) lifted in non-subordinated CPs, it follows that such pied-piping should be available in those clauses. Thus, the principle in (502) predicts the marginal well-formedness of (506a) and (607a).

Furthermore, data like the following show that our prediction is also born out for APs.

(508) **Pied-Piping Past AP Projections in Matrix vs. Subordinate Clauses**

- a. (?) [_{CP} To be [_{AP} proud of **who**]] would be a mistake?
- b. * I wonder [_{CP} [_{CP} to be [_{AP} proud of **who**]] would be a mistake].

(509) **Pied-Piping Past AP Projections in Restrictive vs. Non-Restrictive Relatives**

- a. (?) John, [_{CP} [_{CP} to be [_{AP} proud of **whom**]] would be a mistake], is in some trouble.
- b. * Every man [_{CP} [_{CP} to be [_{AP} proud of **whom**]] would be a mistake] is a real jerk.

As before, the absolute ill-formedness of (508b) and (509b) follows from the inability for Q/Wh-Agreement to cross the AP lexical projection dominating the wh-word. Thus, since (502) states that such Agreement can (marginally) be absent from non-subordinated clauses, we predict the (marginal) well-formedness of the pied-piping structures in (508a) and (509a).

As one final demonstration that pied-piping past LPs is generally possible in massive pied-piping, let us consider PPs in English. Recall that one possibility regarding the ability to strand prepositions in English is that the category P in English is actually a lexical category (cf. Section 4.4). Under this account, then, it would follow that PPs in English are lexical

impossible in non-subordinated clauses. Moreover, we will also see that one must further restrict their attention to the VPs of *infinitival* subordinate CPs, as independent principles rule out pied-piping past the VPs of *finite* subordinate clauses.

projections. Thus, our principle in (502) predicts that pied-piping of PPs in English should be more euphonic in non-subordinated clauses than in embedded questions and restrictive relatives. As the following data demonstrate, this prediction is borne out.

(510) **Pied-Piping of English PPs in Matrix vs. Subordinate Clauses**

- a. (?) [_{PP} For **whom**] did she sing yesterday?
- b. * I wonder [_{CP} [_{PP} for **whom**] she sang yesterday].

(511) **Pied-Piping of English PPs in Restrictive vs. Non-Restrictive Relatives**

- a. (?) John, [_{CP} [_{PP} for **whom**] she sang yesterday], is a very nice guy.
- b. * No man [_{CP} [_{PP} for **whom**] she sang yesterday] is a very nice guy.

The data in (503) – (511) support our prediction that the general prohibition against pied-piping past lexical projections will be weakened in the non-subordinated CPs of the limited pied-piping languages. As we noted above, however, our stipulation in (502) makes an even more general prediction than this. Recall that (502) entails that *any* constraint on pied-piping structures that derives from constraints on Q/Wh-Agreement should be weaker in non-subordinated CPs. Furthermore, recall from Section 4.5 that the sensitivity of limited pied-piping to the CSC derives from the fact that Q/Wh-Agreement is governed by the CSC. It follows, then, that (502) predicts that pied-piping in non-subordinated clauses will marginally permit violations of the CSC. As the data in (512) and (513) indicate, this prediction is accurate.⁶⁰

(512) **Massive Pied-Piping in Matrix Questions is Not as Sensitive to the CSC**

- a. (?) [Dave and **who**] did you see at the party?
- b. * I wonder [[Dave and **who**] you saw at the party].

⁶⁰ In contrast to our proposals, Heck (2004) explicitly predicts that massive pied-piping should be *subject* to the CSC (Heck 2004; p. 392). However, he supports his claim by citing examples containing *normal*, *non-massive* pied-piping. That is, Heck (2004) claims that examples like the following support his prediction that massive pied-piping is subject to the CSC.

(i) * The speaker [Bill and **whom**] I watched was vain. (Heck 2004; p. 392)

This sentence, however, appears to contain a *restrictive* rather than a *non-restrictive* relative clause. Thus, the generalization in (501) would not classify the pied-piping in (i) as ‘massive pied-piping’. Rather, (501) would categorize this as normal, non-massive pied-piping. Furthermore, Heck (2004) offers no examples of ill-formed CSC-violating sentences where the pied-piping in question is clearly massive pied-piping rather than normal, non-massive pied-piping.

For this reason, despite our opposing predictions, the data I present in (512) – (513) are not actually in conflict with the data from Heck (2004). Rather, all available data seem to indicate that massive pied-piping is *not* subject to the CSC, while normal, non-massive pied-piping *is*.

(513) **Massive Pied-Piping in Non-Restrictive Relatives is Not as Sensitive to the CSC**

- a. (?) John, [[his mother and **whom**] I saw at the party], was really drunk.⁶¹
- b. * The man [[his mother and **whom**] I saw at the party] was really drunk.

Thus far, we have seen a variety of data demonstrating that, in the limited pied-piping languages, pied-piping in non-subordinated clauses is marginally less constrained than pied-piping in subordinate clauses. One might naturally ask, then, whether pied-piping in non-subordinate clauses is entirely *unconstrained* in these languages. That is, one might conclude from the data above that *all* constraints on pied-piping are weakened in non-subordinated contexts. Such a conclusion, however, would be incorrect. As the following data illustrate, even massive pied-piping is still subject to the constraint that matrix VPs cannot be pied-piped.

(514) **Matrix VPs Cannot be Massively Pied-Piped**

- a. * [_{VP} Baked **what**] has John?
- b. * Our wedding cake, [[_{VP} baked **which**] John has], is simply beautiful.

Furthermore, generally speaking, *no* matrix predicates of any sort can be massively pied-piped. The following sentences illustrate this generalization for predicative APs and DPs.⁶²

(515) **Matrix Predicates Cannot be Massively Pied-Piped (APs)**

- a. * [_{AP} Angry at **whom**] is John?
- b. * Robert, [[angry at **whom**] John is], has really underperformed.

⁶¹ However, as observed by Norvin Richards (p.c.), violations of the CSC in seemingly parallel sentences are rather ill-formed. Consider the following.

- (i) * John, [[Mary and **whom**] I saw at the party], was really drunk.

I have no explanation for this effect, nor the ill-formedness of sentences like (i), above.

⁶² Note, however, that massive pied-piping of main predicate DPs and APs seems to improve as one increases the ‘heaviness’ of the remaining material in the IP.

- (i) **Marginal Improvement of Pied-Piping Matrix AP Predicate**

- a. ?? [_{AP} Angry at **whom**] could John never be?
- b. ?? Robert, [[_{AP} angry at **whom**] John could never be], has really underperformed.

- (ii) **Marginal Improvement of Pied-Piping Matrix DP Predicate**

- a. ?? [_{DP} A doctor of **what**] was John during the war?
- b. ?? Podiatry, [[_{DP} a doctor of **which**] John was during the war], is a wonderful field.

However, increasing the heaviness of the IP has no effect on the well-formedness of pied-piping a matrix VP.

- (iii) **No Improvement of Pied-Piping Matrix VP**

- a. * [_{VP} Baked **what**] has John for us this morning?
- b. * Our wedding cake, [[_{VP} baked **which**] John has at very little cost], is beautiful.

I currently have no account of these contrasts. Our Q-based theory of massive pied-piping predicts that (i) – (iii) and (514) – (516) should all be equally impossible.

(516) **Matrix Predicates Cannot be Massively Pied-Piped (DPs)**

- a. * [DP A doctor of **what**] is John?
- b. * Podiatry, [[DP a doctor of **which**] John is], is a wonderful field.

The data above demonstrate that even massive pied-piping is subject to the general constraint that main predicates cannot be pied-piped. Given the overall freedom of massive pied-piping, however, we should naturally ask *why* it should remain subject to this particular constraint.

Recall that the stipulation in (502) predicts only that the constraints derived from *Q/Wh-Agreement* should be weaker for non-subordinated pied-piping structures. Therefore, any constraints on pied-piping that follow from more general conditions on the placement of Q-particles are predicted to still govern massive pied-piping. Finally, recall from Section 4.2 that the general constraint against pied-piping main predicates follows purely from the QP-Intervention Condition, and so is independent of any properties of Q/Wh-Agreement. Consequently, the presence/absence of Q/Wh-Agreement in no way bears upon the ill-formedness of such structures. Indeed, we saw that pied-piping of main predicates is impossible even in non-Agreement languages like Tlingit, as shown below.

(517) **No Pied-Piping of Main Predicates in Tlingit**

- a. * **Daa** iyatéen **sá?**
what you.can.see.it Q
- b. * **Aadóo** xáat aawaxáa **sá?**
who fish he.ate.it Q
- c. * **Wáa** ituwatee **sá?**
how you.feel Q

Therefore, even if Q/Wh-Agreement were not required in non-subordinated CPs, that would have no bearing on the ill-formedness of the structures in (514) – (516). Each of these structures still violates the QP-Intervention Condition, and so each of them is still predicted to be ill-formed.

We find, then, that our stipulation in (502) correctly predicts that massive pied-piping is not free from *every* constraint on pied-piping. Rather, it is only the constraints that follow from properties of Q/Wh-Agreement that are (marginally) weakened in non-subordinated CPs. Importantly, as we just observed, this recalls the fact that pied-piping in non-Agreement languages like Tlingit is *also* not entirely free. As with massive pied-piping, it is only those constraints that follow from properties of Q/Wh-Agreement that fail to hold of pied-piping in the non-Agreement languages. We can see, then, that the distinction our Q-based theory draws between the ‘Agreement-based’ constraints on pied-piping and those that follow from the QP-Intervention Condition appears to be a quite real and robust one. It is confirmed not only by the cross-linguistic variation in the constraints on pied-piping, but also by the language-internal differences between pied-piping in embedded and matrix clauses. In all cases, the same sets of constraints group together. That our Q-based theory rightly picks out these natural classes

should be considered further evidence in its favor.

6.2 Some Further, Problematic Constraints on Massive Pied-Piping

Before concluding our discussion of massive pied-piping, I would like to point out a number of problems that face our proposed Q-based account of the phenomenon in (502). In short, besides the inability to pied-pipe main predicates, there are certain further constraints on massive pied-piping in English, ones that do *not* easily follow from our Q-based account. It is not currently known how general these restrictions are. If further study does determine that they generally hold of massive pied-piping in other languages, then they might stand as rather challenging evidence against the Q-based account offered here.

It has long been noted that English does not permit massive pied-piping past specifiers (Nanni & Stillings 1978, Ishihara 1984, Sells 1985, Heck 2004). That is, otherwise acceptable massive pied-piping structures in English become ill-formed if a specifier c-commands the *wh*-word within the fronted phrase. This generalization is illustrated below.

(518) No Massive Pied-Piping Past Specifiers

- a. Their parties, [[to be invited to one of **which**] is an honor], are legendary.
- b. * Their parties, [[for us to be invited to one of **which**] is an honor], are legendary.

Similar to this generalization is the observation that *wh*-words occupying specifier positions cannot massively pied-pipe (Nanni & Stillings 1978, Kayne 1983, Sells 1985, Heck 2004). That is, if a *wh*-word is contained within a specifier inside a phrase XP, then XP cannot be massively pied-piped by that *wh*-word.⁶³ This generalization is illustrated by contrasts like the following.

(519) Specifiers Cannot Massively Pied-Pipe

- a. Their parties, [[to be invited to one of **which**] was an honor], are legendary
- b. * Their parties, [[for **which** to be reported in Time] was an honor], are legendary.

Finally, we might note a third generalization, similar to the inability for specifiers to massively pied-pipe. Data like the following suggest that English does not permit massive pied-piping by adjuncts. That is, if a *wh*-word is contained within an adjunct inside a phrase XP, then XP cannot be massively pied-piped by that *wh*-word. The following illustrates.

⁶³ Note that, as stated, this generalization also predicts that *wh*-possessors should be unable to massively pied-pipe. That is, it predicts that even if normal pied-piping is possible from a given specifier position, massive pied-piping from that position should *not* be possible. As pointed out by Heck (2004), this is incorrect.

(i) **Specifiers that Can be ‘Normal’ Pied-Pipers, Can Also be Massive Pied-Pipers**

- a. (?) [Pictures of [**whose** mother]] did you buy?
- b. (?) [The contents of [[**how** big] a bag of chocolate] did you eat?

To my knowledge, there is no theory of massive pied-piping that predicts the ill-formedness of (519b), *and* the well-formedness of sentences like those above.

(520) **Adjuncts Cannot Massively Pied-Pipe**

- a. * [DP A [NP [**how** big] fish] did you catch?
(cf. *I caught a very big fish*)
- b. * [DP A [NP journey to NY **how**]] did he make?
(cf. *He made a journey to NY **by bus**.*)
- c. * [DP The [NP party **where**]] did you attend?
(cf. *I attended the party on 1st street*).

The first thing to note about the contrasts in (518) – (520) is that none of them follow from our proposed Q-based theory of massive pied-piping. Nothing within our Q-based theory would rule out structures like the following, where the Q-particle undergoes no Q/Wh-Agreement with the wh-word.

(521) **Q-Based Theory of Massive Pied-Piping Fails to Predict (518b)**

- * [QP [CP For us to be invited to one of [DP **which** parties]] Q_{iQ[+]}] is an honor ?

(522) **Q-Based Theory of Massive Pied-Piping Fails to Predict (519b)**

- * [QP [CP For **whom** to be invited to one of [DP their parties]] Q_{iQ[+]}] is an honor ?

(523) **Q-Based Theory of Massive Pied-Piping Fails to Predict (520)**

- * [QP [DP A [NP [DegP **how** big] fish] Q_{iQ[+]}] did you catch?

Consequently, our Q-based theory of massive pied-piping fails to predict each of the three generalizations illustrated above.

Although none of these generalizations follow from any thus far encountered principles governing Q, we may nevertheless discern a wider generalization that they might be consequences of. Note that if we abandon the distinction between specifiers and adjuncts (cf. Kayne 1994), all three generalizations above may be derived from the following, more general statement.

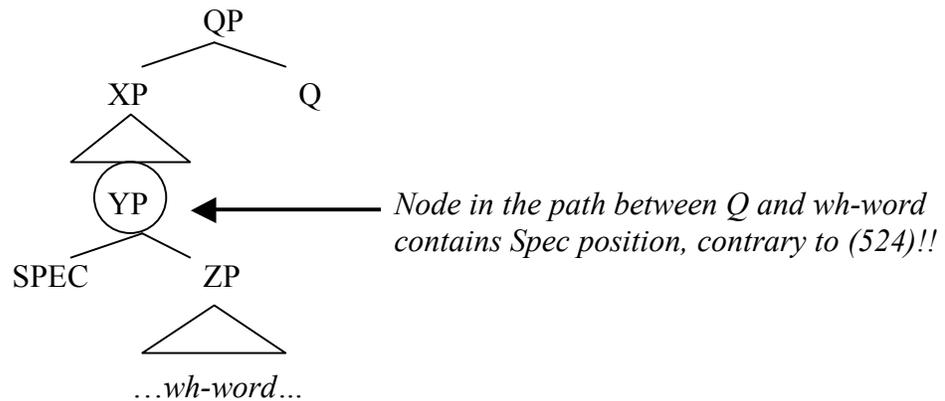
(524) **No Specifiers Along the Path of Massive Pied-Piping**

If there is no Q/Wh-Agreement in an English clause, then no node in the path from Q to the wh-word can contain a specifier position.⁶⁴

Before coming to some further predictions of (524), let us first clarify how it derives each of the three generalizations above, beginning with the generalization in (518) that specifiers block massive pied-piping. The following diagram illustrates the argument that follows.

⁶⁴ I use the term ‘path’ here in the sense of Pesetsky (1982). For a node A and a node B, where A c-commands B, the *path* between A and B is the set of nodes consisting of A, B and the nodes dominating B but not dominating A.

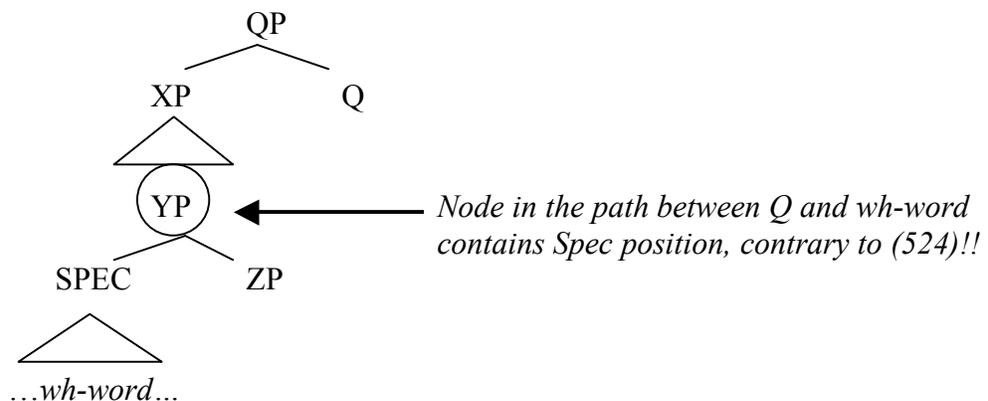
(525) Derivation of the Pattern in (518)



Assume that a wh-word W massively pied-pipes a constituent XP. By the stipulation (502), it follows that (i) XP is sister to a Q-particle, and (ii) there is no Agreement relation between Q and W. Now suppose that there is a specifier SPEC inside XP that c-commands W. Since SPEC c-commands W, the phrase YP that SPEC is the specifier of must dominate W. Moreover, since YP is contained within XP, it follows that YP does not dominate the Q itself. Thus, by the definition of ‘path’ (Pesetsky 1982), it follows that YP is in the path between the Q and W. However, since YP contains a specifier position, it follows that the principle in (524) is violated, and so the structure is ill-formed.

Next, let us confirm that (524) derives the generalizations in (519) and (520) that specifiers (i.e., specifiers and adjuncts) cannot massively pied-pipe. Again, the diagram below illustrates the argument that follows.

(526) Derivation of the Pattern in (519) and (520)



Assume that a wh-word W massively pied-pipes a constituent XP. Again, by the stipulation (502), it follows that (i) XP is sister to a Q-particle, and (ii) there is no Agreement relation between Q and W. Now suppose that W is contained within a specifier (i.e., specifier or adjunct), SPEC. Since W is dominated by SPEC, it is dominated by the phrase YP that SPEC is the specifier of. Moreover, since YP is contained within XP, it again follows that YP does not dominate Q. Thus, YP is in the path between Q and W. However, since YP contains a specifier

position, it follows again that (524) is violated, and so the structure is ill-formed.⁶⁵

We have seen, then, that the (admittedly mysterious) stipulation in (524) is able to derive each of the three generalizations in (518) – (520). Of course, despite its successes, the stipulation in (524) doesn't bear any natural resemblance to any other properties of Q that we've independently introduced. For this reason, both (524) and the data it covers remain difficult challenges to our Q-based theory of massive pied-piping. Nevertheless, let us finally conclude our discussion here by briefly observing how two additional features of massive pied-piping can follow from (524).

As noted by Heck (2004), English does not permit massive pied-piping of finite CPs, despite the fact that it does permit massive pied-piping of *non*-finite CPs (cf. (506) – (509)). The following data illustrate.

(527) No Massive Pied-Piping of Finite Subordinate Clauses in English

- a. (?) [_{CP} To hire **which** candidate] would be a mistake?
- b. * [_{CP} That we hired **which** candidate] was a mistake?

However, the inability to massively pied-pipe finite clauses in English may be a simple consequence of the generalizations in (518) and (519). Since finite clauses in English obligatorily contain subjects, a *wh*-word contained within a finite CP must either be (i) subject of the finite clause, or (ii) c-commanded by the subject. If the former is true, then massive pied-piping of the CP by the *wh*-word would violate the generalization in (519); if the latter is true, then such massive pied-piping would violate the generalization in (518). Thus, (518) and (519) together rule out massive pied-piping of finite CPs in English. On the other hand, if we assume that infinitival CPs in English are truly subject-less,⁶⁶ then (518) and (519) would fail to rule out pied-piping of infinitival CPs as in (527b). Finally, since both these generalizations follow from (524), we can view the pattern in (527) as potentially another consequence of that stipulation.

The stipulation in (524) might also be responsible for another feature of massive pied-piping in English. Curiously, unlike pied-piping in Tlingit, not even massive pied-piping in English permits the pied-piping of islands. As noted by Heck (2004; p. 389), if an English *wh*-word *W* is dominated by an island within a constituent *XP*, then *W* cannot massively pied-pipe *XP*, a condition that Heck (2004) dubs the 'One Island Condition'. The following data illustrate the inability for islands to be massively pied-piped in English.

⁶⁵ As we see from (526), the chief benefit of our abandoning the distinction between specifiers and adjuncts is that it permits us to derive both (519) and (520) from the stipulation in (524). On the other hand, this abandonment does come with a price. If we do not distinguish adjuncts from specifiers, then the generalization in (518) predicts that massive pied-piping past *adjuncts* should be as ill-formed as massive pied-piping past specifiers. As the following sentences show, however, this prediction is not so.

- (i) **Massive Pied-Piping Past Adjuncts is Possible**
 - a. (?) [To quickly fire **who**] is important?
 - b. (?) [Nice pictures of **which** president] did you buy?

Thus, unlike what we see for specifiers in (518), it is possible for massive pied-pipers to be c-commanded by adjuncts. I currently have no solution for this straightforward problem.

⁶⁶ Admittedly, this is quite a 'big if', given the strong evidence that English infinitivals contain phonologically null PRO in subject position.

(528) **The One Island Condition (Heck 2004): No Massive Pied-Piping of Islands**

- a. * [DP The book [CP that Mary gave **who**]] did you see?
- b. * Dave, [CP [DP the book [CP that Mary gave **whom**] I saw], is an avid reader.

Although the complete impossibility of structures like (528a) in English is somewhat problematic for our Q-based account, we may nevertheless understand them as a particular case of the (equally problematic) pattern in (520). Recall from the data in (520) that English does not permit massive pied-piping past adjuncts. It is worth noting that the relative clause island in (528) is an *adjunct* to NP that it modifies. Similarly, *all* the islands that Heck (2004) uses to illustrate his ‘One Island Condition’ are adjuncts of various sorts. Thus, the impossibility for wh-words to massively pied-pipe islands in English could be seen a particular instance of the generalization in (520) that English does not permit massive pied-piping of/by adjuncts. Finally, since the generalization in (520) is itself a particular instance of the broader generalization in (524), we see that (524) can predict the complete ill-formedness in English of pied-piping past islands.

In summary, the generalizations in (518) – (520) and (527) – (528) regarding massive pied-piping in English do not follow from any independently known principles of our Q-based theory. Nevertheless, we have seen that each of these facts would follow from the broader generalization in (524). Unfortunately, however, the broader condition in (524) remains a bald stipulation, and is irreducible to anything independently known about Q-particles.⁶⁷ Moreover, (524) seems to be rather parochial to English, given that pied-piping in non-Agreement languages is rather obviously not subject to it. For the moment, then, we find that our Q-based theory has no special insight to offer into the question of why English massive pied-piping is subject to the generalizations in (518) – (520) and (527) – (528). Therefore, I consider the facts discussed in this section to stand as a difficult empirical challenge for our Q-based account.

6.3 Summary

In this section, we were introduced to the phenomenon of massive pied-piping, which is the weakening in non-subordinated CPs of the stricter constraints governing pied-piping in the limited pied-piping languages. We put forth a Q-based theory of massive pied-piping, under which it stems from a (marginal) relaxation of the requirement that Q-particles Agree with wh-words. We then saw that this Q-based theory could account for several key properties of massive pied-piping, particularly the set of pied-piping constraints that it remains subject to. Furthermore, we observed that the pied-piping constraints governing massive pied-piping are (largely) those also governing pied-piping in the non-Agreement languages, and that our Q-based account correctly predicts the distribution of this natural class of constraints.

On the other hand, we also found that several interesting conditions on massive pied-piping (in English) fail to follow from our Q-based theory in any natural way. These latter conditions stand as a difficult empirical challenge to our Q-based account.

⁶⁷ Of course, at the moment, so is our QP-Intervention Condition and LP-Intervention Condition. In the next chapter, however, we will see how these two conditions might follow from a more general theory concerning the nature of Q-particles and Agreement.

7. Conclusion

This principal theme of this chapter has been the differences between the pied-piping structures of Tlingit and those of the most widely-studied wh-fronting languages. As noted in Section 2, these differences provide a *prima facie* challenge to our Q-based theory of pied-piping, since they suggest that the pied-piping structures of Tlingit may ultimately be of a quite different nature from the most commonly encountered cases of pied-piping.

Throughout this chapter, however, we have argued that these striking differences are actually rather superficial, and follow from the fact that most languages require the Q-particle to Agree with the wh-word in its domain. Consequently, the analytic burden of this chapter has been to show how many oft-made generalizations concerning pied-piping follow from the properties of this Q/Wh-Agreement. As a means of summarizing the results of this chapter, I list below those properties of pied-piping that follow from the necessity of Q/Wh-Agreement in all the most well-studied wh-fronting languages.

(529) Phenomena that Result from Obligatory Q/Wh-Agreement

- a. No Pied-Piping Past Islands (cf. (397))
- b. No Pied-Piping Past Lexical Categories (cf. (401), (413))
 - (i) Complements of Lexical Heads Cannot Pied-Pipe (cf. (403))
 - (ii) Modifiers of Lexical Heads Cannot Pied-Pipe (cf. (405))
 - (iii) Post-Nominal Possessors Cannot Pied-Pipe (cf. (406))
 - (iv) Nominative Possessors in Hungarian Cannot Pied-Pipe (cf. (407))
 - (v) Accusative Gerundive Subjects Cannot Pied-Pipe (cf. (408))
 - (vii) Wh-Words Can Only Pied-Pipe CP if They Occupy SpecCP (cf. (416))
 - (vii) Pied-Pipers Will Almost Always Be Specifiers (cf. Section 4.3)
 - (viii) Secondary Wh-Fronting (cf. Section 5)
 - 1. DegP Inversion in English (cf. (472))
 - 2. Possessor Fronting in Mayan (cf. Section 5.3)
 - 3. P-Inversion in Mayan (cf. Section 5.4)
 - 4. No Pied-Piping in Secondary Wh-Fronting (cf. (486))
- c. Pied-Piping is Subject to the CSC (cf. Section 4.5)

Of course, since our theory does not assume that Q/Wh-Agreement is obligatory in *all* languages, we predict that the phenomena above do not hold for all pied-piping structures. Indeed, in the non-Agreement languages, pied-piping structures can be observed *not* to exhibit these phenomena. On the other hand, we've also seen that our Q-based theory of pied-piping nevertheless makes certain general predictions regarding pied-piping structures in *all* human languages. That is, our Q-based theory correctly predicts that pied-piping in both Q/Wh-Agreement languages and non-Agreement languages alike should exhibit the following properties.

(530) Phenomena Independent of Q/Wh-Agreement (and thus Universal)

- a. The Relation 'X can pied-pipe Y' is Transitive (cf. Section 4.1)
- b. Main Predicates Can Never be Pied-Piped (cf. Section 4.2)
- c. Subordinate Predicates Can be Pied-Piped (cf. Section 4.2)
- d. Pied-Piping Can Optionally Vary with Sub-extraction (cf. Section 4.4)

Another environment where Q/Wh-Agreement is allegedly not obligatory are the cases of massive pied-piping in the Q/Wh-Agreement languages. Therefore, our theory predicts that massive pied-piping in such languages should exhibit only the properties in (530), and none of the properties in (529). Although this is largely true, we have also seen that massive pied-piping in English exhibits certain curious properties beyond those stated in (530). These further constraints on English massive pied-piping do not seem to follow from any principles of our Q-based account, and therefore stand as a serious challenge to our theory of massive pied-piping. Nevertheless, we have also seen that these additional constraints might all be consequences of the single generalization in (524), which stipulates that in English, specifiers cannot be found along the path between the Q-particle and the wh-word. That is, the generalization in (524) is able to derive all the following properties of English massive pied-piping.

(531) Properties of Massive Pied-Piping (in English)

- a. No Massive Pied-Piping Past Specifiers (cf. (518), (525))
- b. Specifiers Cannot Massively Pied-Pipe (cf. (519), (526))
- c. Adjuncts Cannot Massively Pied-Pipe (cf. (520), (526))
- d. No Massive Pied-Piping Past Finite CPs (cf. (527))
- e. No Massive Pied-Piping Past Islands (cf. (528))

Finally, to my knowledge, this chapter exhaustively discusses all the data and generalizations regarding pied-piping that are found in Heck (2004) and Horvath (2007), two works that extensively review the far-flung literature on pied-piping. Thus, I conclude that the

data noted to be problematic in this chapter for our theory of pied-piping are currently the only known properties of pied-piping that pose a significant challenge to the Q-based account.

Chapter 6

Conclusion:

Future Directions and Outstanding Problems

1. Introduction and Chapter Outline

Throughout the preceding chapters, we have developed and defended a particular syntactic and semantic theory of wh-questions. We have seen that this Q-based theory brings with it a variety of results, particularly the ability to eliminate ‘pied-piping’ from the theory of grammar. As these results indicate, one general message of this thesis is that the introduction of the QP structure in (18) provides a new and highly versatile analytic tool, one which the theoretician can apply to older and newer puzzles. As we have seen, many classic puzzles can be reconceived, and approached in new ways, thanks to the introduction of this element, which generally opens up many new analytic vistas for the linguist to explore. This thesis is therefore but one of potentially many future studies that could examine and reach consensus on the properties of Q-particles and the role that they play in a myriad of phenomena once thought to be specifically tied to wh-operators themselves.

In this final chapter, we will briefly explore a few ways in which the project begun with this study could be continued further. We will examine some additional empirical and theoretical questions that this Q-based theory raises, and how they might be approached within the general contours of the account advocated here.

We begin in the following section by exploring the typological claims that our Q-based theory commits us to. We first summarize the five chief syntactic parameters that the preceding chapters appeal to. Given these five parameters, we then compute the full set of 32 language-types that our combined parameters predict, noting which types have already been observed to be attested. Finally, we offer a general description of the kinds of languages predicted by our typology, as well as a brief ‘surface characterization’ of each of the 32 predicted types.

Following our typological discussion, Section 3 turns our attention to a couple additional areas of study where our Q-based theory might potentially have an impact. Perhaps the most important is found in Section 3.1. There, we explore the consequences of our Q-based theory for the analysis of *other* types of A-bar movements. The central theoretical claim of this thesis has been that a great many properties of wh-fronting result from properties of Q-particles, and not from properties of the wh-word or of the movement relation themselves. For example, the ill-formedness of left branch extractions and adposition stranding were argued to be due to the QP-Intervention Condition. Most notably of all, the possibility of ‘pied-piping’ in our system is intimately tied to the presence of the Q-particle. Importantly, however, wh-fronting is not the only kind of movement to exhibit these properties; indeed, *any* form of A-bar movement can be seen to exhibit pied-piping, as well as an inability to strand prepositions or extract ‘left branches’. It seems, then, that our Q-based theory incorrectly restricts these properties only to wh-fronting.

However, I will argue that one can capture these cross-constructional generalizations by extending our Q-based analysis to *all other* forms of A-bar movement. That is, we explore in Section 3.1 the hypothesis that, besides wh-fronting, instances of the category ‘Q’ actually underlie numerous other examples of unbounded dependencies, including focus-movement and relativization. That this idea has some independent merit can be seen from the work of Horvath (2000, 2005), who independently argues that so-called ‘focus-movement’ is actually movement not of the focused phrase, but of a focus-sensitive operator c-commanding the focused element.

One last area in which our Q-based theory might have some impact is in the analysis of free relatives. Section 3.2 discusses how the proposals made in the preceding chapters open the way to a new analysis of free relatives. Under this theory, free relatives can be analyzed simply as subordinate interrogative CPs. Crucially, because interrogative CPs bear an (uninterpretable) instance of the Q-feature, we might assume that they are as ‘transparent’ for selection as QPs themselves. Under such an analysis, then, the left-peripheral wh-operator of an interrogative CP should be able to satisfy the c-selectional requirements of the sister to the CP. In this way, our Q-based analysis might be able to solve the long-standing mystery of how free relatives can have the ‘internal syntax’ of subordinate questions while they have the ‘external syntax’ of their wh-operators.

2. A Summary of the Cross-Linguistic Typology

A central goal of the preceding chapters has been to capture certain cross-linguistic variation in the appearance of wh-questions. We have seen that nearly all the variation we’ve observed can be reduced to five core morpho-syntactic parameters. To summarize the typological claims of this thesis, I will first list below these five core parameters, and provide for each a brief description of the phenomena it is designed to explain.

One of the most important components of our theory is the ‘Projection Parameter’.

(532) The Projection Parameter: Q-Projection vs. Q-Adjunction

In some languages (the Q-Adjunction languages), a Q-particle is adjoined to its sister, and so the node minimally dominating the Q and its sister is of the same category as the sister. In other languages (the Q-Projection languages), a Q-particle takes its sister as complement, and so the node minimally dominating the Q and its sister is a QP.

This parameter is a key ingredient of our Q-based theory of wh-fronting, as all wh-fronting languages are held to be Q-Projection languages. Moreover, independent of wh-fronting, we’ve seen that this parameter holds consequences for the distribution of Q-particles in a language. Generally speaking, Q-particles have a more restricted distribution in the Q-Projection languages, given that the QP-Intervention Condition prevents QPs from intervening between functional heads and the complements of those heads (cf. Chapter 3, Section 2).

Another important component of our Q-based theory is the notion, stated below, that languages differ in whether movement of (the projection of) the Q-particle is overt or covert.

(533) The Q-Movement Parameter: Overt vs. Covert

In some languages (the Overt Q-Movement languages), the highest syntactic copy of a Q-particle is pronounced. In other languages (the Covert Q-Movement languages), the lowest syntactic copy of a Q-particle is pronounced.

Like (532), this parameter is a key ingredient of our overall theory of wh-fronting, as all wh-fronting languages are held to be Overt Q-Movement languages. Moreover, independent of wh-fronting, we've seen that this parameter plays a role in the distribution of Q-particles internal to wh-questions. In the Covert Q-Movement languages (e.g., Sinhala), the Q-particles of a wh-question remain *in-situ* within their IP-internal base positions, while in the Overt Q-Movement languages (e.g. Japanese), the Q-particles of a wh-question overtly occupy IP-external, clause peripheral positions (cf. Chapter 3, Section 2).

A third important component in our Q-based theory is claim that languages differ in whether their Q-particles are overtly pronounced.

(534) The Q-Pronunciation Parameter: Pronounced vs. Null

In some languages, the Q-particle has phonological content, and so is overtly 'visible' in the sentences where it appears. In other languages, the Q-particle has no phonological content, and so is 'phonologically invisible'.

In a certain sense, the effects of this parameter are highly superficial, given that it affects only the phonology of the Q-particle and does not interact in any substantive way with the other four parameters of our theory. On the other hand, our Q-based theory claims that it has had profound *epistemological* effects, as the ability for Q-particles to be 'phonologically invisible' has obscured their role in the best-studied wh-fronting languages, and so has led to the adoption of such erroneous concepts as 'pied-piping'.

The fourth critical component of our overall Q-based theory is the notion that languages differ in whether Agreement is required between the Q-particle and the wh-word.

(535) The Agreement Parameter: Q/Wh-Agreement vs. Non-Agreement

In some languages (the Q/Wh-Agreement languages), a Q-particle must Agree with a wh-word. In other languages (the Non-Agreement languages), Q-particles needn't undergo Agreement with any wh-word.

As we saw in Chapter 5, this parameter is crucial to our Q-based theory of pied-piping. In general, however, the role of this parameter is to regulate the allowable 'distance' between the Q-particle and the wh-word. In the Q/Wh-Agreement languages, independent conditions on Agreement entail that the Q-particle cannot be separated from the wh-word by either islands or lexical projections. Therefore, if a given Q/Wh-Agreement language is a wh-fronting language, it follows that the language will not allow pied-piping past islands or pied-piping past lexical projections. Similarly, if a Q/Wh-Agreement language is a wh-*in-situ* language, we predict that the language will not allow its *in-situ* wh-words to appear internal to syntactic islands or lexical projections. Conversely, since they do not require Q-particles and wh-words to undergo

Agreement, the *non*-Agreement languages will allow the Q-particle to be any distance from the wh-word, just so long as it c-commands the wh-word. Therefore, if a given non-Agreement language is a wh-fronting language, it follows that the language *will* permit pied-piping past islands and lexical projections. Similarly, if a given wh-*in-situ* language is non-Agreement, we predict that the language *will* allow its *in-situ* wh-words to appear internal to syntactic islands and lexical projections. In summary, then, the parameter in (535) captures both the Tlingit-English contrasts observed in (383) and (384), as well as the contrast between Sinhala and (putative) wh-*in-situ* languages where sentences like (68a) are not permitted.

Finally, although not vital to our overall Q-based approach, the following parameter figures prominently in Chapter 4's discussion of Superiority and Intervention Effects.

(536) **The Multiple Wh-Question Parameter: Multiple Qs vs. Single Q**

In some languages (the Multiple QP languages), a multiple wh-question can contain multiple Q-particles. In other languages (the Single QP languages), multiple wh-questions must contain only a single instance of Q.

As we saw in Chapter 4, this parameter is straightforwardly motivated by observable contrasts between the languages where Q-particles are overtly pronounced (cf. Tlingit (347) vs. Navajo (349)). Beyond this, however, we have seen that effects of this parameter can be felt in the distribution of Superiority Effects and Intervention Effects across languages. Regardless of whether the Q-particles can be overtly seen, the Multiple QP languages will display the following properties: they should exhibit Superiority Effects (if they are wh-fronting languages), and *in-situ* wh-words will not be subject to Intervention Effects. Similarly, a Single QP language can be identified via its displaying the following properties: they should *not* exhibit Superiority Effects (if they are wh-fronting languages), and *in-situ* wh-words *will* be subject to Intervention Effects. Therefore, as we saw in detail in Chapter 4, the parameter in (536) captures the complementary distribution of Superiority Effects and Intervention Effects across (and within) languages.

The preceding five parameters represent the core typological claims of our Q-based account. In the remainder of this section, we will tease out the typological predictions made by these claims. Specifically, we seek to determine the class of language types that these combined parameters predict. Given that each of these five parameters has two possible 'settings', we predict a total of 32 different language types. These types are cataloged in the chart under (537) below. This chart also indicates which language types are already known to be attested. If the number of a given type is followed by a language's name in boldface, then there is evidence that the language is specifically of that type. If the language's name appears in parentheses, then there is evidence that the language is of that type, in addition to possibly other types.

(537) The Language Types Predicted by Our Parametric Theory

| | Q-Projection vs. Q-Adjunction | Q-Movement: Overt vs. Covert | Pronounced Q vs. Null Q | Q/Wh-Agree vs. Non-Agree | Multiple Qs vs. Single Q |
|--------------------|-------------------------------------|------------------------------------|-------------------------------|--------------------------------|--------------------------------|
| 1 (Edo) | Q-Projection | Overt | Pronounced Q | Q/Wh-Agree | Multiple QPs |
| 2 (Edo) | Q-Projection | Overt | Pronounced Q | Q/Wh-Agree | Single Q |
| 3 Tlingit | Q-Projection | Overt | Pronounced Q | Non-Agree | Multiple QPs |
| 4 | Q-Projection | Overt | Pronounced Q | Non-Agree | Single Q |
| 5 English | Q-Projection | Overt | Null Q | Q/Wh-Agree | Multiple QPs |
| 6 German | Q-Projection | Overt | Null Q | Q/Wh-Agree | Single Q |
| 7 (Haida) | Q-Projection | Overt | Null Q | Non-Agree | Multiple QPs |
| 8 (Haida) | Q-Projection | Overt | Null Q | Non-Agree | Single Q |
| 9 | Q-Projection | Covert | Pronounced Q | Q/Wh-Agree | Multiple QPs |
| 10 | Q-Projection | Covert | Pronounced Q | Q/Wh-Agree | Single Q |
| 11 (Sinhala) | Q-Projection | Covert | Pronounced Q | Non-Agree | Multiple QPs |
| 12 (Sinhala) | Q-Projection | Covert | Pronounced Q | Non-Agree | Single Q |
| 13 (Tibetan) | Q-Projection | Covert | Null Q | Q/Wh-Agree | Multiple QPs |
| 14 (Tibetan) | Q-Projection | Covert | Null Q | Q/Wh-Agree | Single Q |
| 15 (Tibetan) | Q-Projection | Covert | Null Q | Non-Agree | Multiple QPs |
| 16 (Tibetan) | Q-Projection | Covert | Null Q | Non-Agree | Single Q |
| 17 | Q-Adjunction | Overt | Pronounced Q | Q/Wh-Agree | Multiple QPs |
| 18 | Q-Adjunction | Overt | Pronounced Q | Q/Wh-Agree | Single Q |
| 19 | Q-Adjunction | Overt | Pronounced Q | Non-Agree | Multiple QPs |
| 20 Japanese | Q-Adjunction | Overt | Pronounced Q | Non-Agree | Single Q |
| 21 (Tibetan) | Q-Adjunction | Overt | Null Q | Q/Wh-Agree | Multiple QPs |
| 22 (Tibetan) | Q-Adjunction | Overt | Null Q | Q/Wh-Agree | Single Q |
| 23 (Tibetan) | Q-Adjunction | Overt | Null Q | Non-Agree | Multiple QPs |
| 24 (Tibetan) | Q-Adjunction | Overt | Null Q | Non-Agree | Single Q |
| 25 | Q-Adjunction | Covert | Pronounced Q | Q/Wh-Agree | Multiple QPs |
| 26 | Q-Adjunction | Covert | Pronounced Q | Q/Wh-Agree | Single Q |
| 27 | Q-Adjunction | Covert | Pronounced Q | Non-Agree | Multiple QPs |
| 28 | Q-Adjunction | Covert | Pronounced Q | Non-Agree | Single Q |
| 29 (Tibetan) | Q-Adjunction | Covert | Null Q | Q/Wh-Agree | Multiple QPs |
| 30 (Tibetan) | Q-Adjunction | Covert | Null Q | Q/Wh-Agree | Single Q |
| 31 (Tibetan) | Q-Adjunction | Covert | Null Q | Non-Agree | Multiple QPs |
| 32 (Tibetan) | Q-Adjunction | Covert | Null Q | Non-Agree | Single Q |

We will later provide a rough surface description for each of these thirty-two language types. However, before we do so, let us first note the various super-ordinate language types that the thirty-two types above can be grouped into. First, we note that language types 1 – 8 constitute the *wh-fronting languages*, as they are precisely the languages where (i) *wh*-words are dominated by QPs that (ii) move overtly in *wh*-questions. All the other 24 language types constitute *wh-in-situ* languages. However, as we first noted in Chapter 3, these *wh-in-situ*

languages can be further subdivided into two fundamentally different groups. First, there are the Q-Projection languages where QP-movement is covert (i.e., types 9 – 16). In such languages, wh-questions do not at LF differ in any way from those of the wh-fronting languages. Secondly, however, there are the Q-Adjunction languages (i.e., types 17 – 32), which differ from the wh-fronting languages in a more fundamental respect. In such languages, the Q-particle does not ‘bring along’ the wh-word as it moves into the left-periphery, and so their wh-questions differ substantially at LF from those of the wh-fronting languages.

Thus far, we’ve considered the super-ordinate language types resulting from the first two parameters in (532) and (533). Although the remaining three parameters do not interact with each other or the first two, they can serve to split each of the preceding super-ordinate types into further subtypes. For example, the Q-Pronunciation Parameter in (534) does not interact in any interesting way with the other parameters or general linguistic principles. Rather, it affects only the phonological appearance of the Q-particle. Nevertheless, it serves to further divide the wh-fronting and *wh-in-situ* languages into those where the Q-particle is pronounced (e.g., Tlingit and Japanese) and those where the Q-particle is phonologically invisible (e.g. English and Tibetan).

A more interesting case, however, is presented by the Agreement Parameter in (535). As we observed earlier, this parameter divides the wh-fronting languages into two sub-types: (i) the English-like ‘limited pied-piping languages’ (i.e., types 1, 2, 5, and 6), and (ii) the Tlingit-like ‘non-limited pied-piping languages’ (i.e., types 3, 4, 7 and 8). Moreover, this parameter also subdivides the *wh-in-situ* languages into two further types: (i) the Japanese-like languages where *in-situ* wh-words can be internal to syntactic islands (i.e., types 11, 12, 15, 16, 19, 20, 23, 24, 27, 28, 31, 32), and (ii) those languages where even *in-situ* wh-words cannot be internal to syntactic islands (i.e., types 9, 10, 13, 14, 17, 18, 21, 22, 25, 26, 29, 30).¹

Finally, the Multiple Wh-Question Parameter in (536) provides a rather complex subdivision of the wh-fronting and *wh-in-situ* languages. Regarding the wh-fronting languages, this parameter divides those languages into two sub-types: (i) the English-like languages, which exhibit Superiority effects and whose *in-situ* wh-words are not subject to Intervention Effects (i.e., types 1, 3, 5, 7), and (ii) the German-like languages, which don’t exhibit Superiority Effects and whose *in-situ* wh-words are subject to Intervention Effects (i.e., types 2, 4, 6, 8). Regarding the *wh-in-situ* languages, however, the effects of parameter (536) can be rather more subtle. Of course, for those languages with overtly pronounced Q-particles, this parameter straightforwardly distinguishes between the Sinhala-like languages where multiple wh-questions can contain multiple Q-particles (i.e., types 9, 11, 17, 19, 25, 27) and the Navajo-like languages where multiple wh-questions cannot contain multiple Q-particles (i.e., types 10, 12, 18, 20, 26, 28). On the other hand, for those *wh-in-situ* languages lacking overt Q-particles, the effects of (536) are more difficult to detect. Indeed, as the reader is invited to confirm, the value of (536) will have no discernable effect upon such languages, at least with respect to the phenomena discussed in this thesis (i.e., Intervention Effects).²

¹ It is currently unknown to me whether this last sub-type of *wh-in-situ* language exists.

² First, consider those *wh-in-situ* languages that are Q-Projection languages. If such a language were of the ‘Multiple-Q’ type, then clearly its *in-situ* wh-words would not be subject to Intervention Effects. Furthermore, if such a language were of the ‘Single-Q’ type, then its *in-situ* wh-words will *still* not be subject to Intervention Effects, since the crucial single QP could be freely positioned over any wh-word in the sentence.

Next, consider those *wh-in-situ* languages that are Q-Adjunction languages. Because Q-movement is assumed not to leave a trace (cf. (240)), the *in-situ* wh-words of such languages are always predicted to be subject to Intervention Effects, regardless of whether the language is of the ‘Multiple-Q’ or ‘Single-Q’ type.

Having described some of the super-ordinate classes that our five parameters predict, let us conclude our typological discussion by providing a rough, surface description of each of the language types listed under (537).

(538) **The Language Types Predicted by Our Parametric Theory**

Type 1:

A wh-fronting language with an overtly pronounced Q-particle. A limited pied-piping language. Evinces Superiority Effects in multiple wh-questions, while its *in-situ* wh-words are insensitive to Intervention Effects.

Edo might be a Type 1 language. Mark Baker (p.c.) reports that it is a limited pied-piping language. However, Edo does not permit multiple wh-questions, and so one cannot determine its status with respect to the Multiple Wh-Question Parameter.

Type 2:

A wh-fronting language with an overtly pronounced Q-particle. A limited pied-piping language. Does not evince Superiority Effects in multiple wh-questions, while its *in-situ* wh-words are sensitive to Intervention Effects.

Edo might be a Type 2 language. Mark Baker (p.c.) reports that it is a limited pied-piping language. However, Edo does not permit multiple wh-questions, and so one cannot determine its status with respect to the Multiple Wh-Question Parameter.

Type 3:

A wh-fronting language with an overtly pronounced Q-particle. Not a limited pied-piping language. Evinces Superiority Effects in multiple wh-questions, while its *in-situ* wh-words are insensitive to Intervention Effects.

Tlingit instantiates this type.

Type 4:

A wh-fronting language with an overtly pronounced Q-particle. Not a limited pied-piping language. Does not evince Superiority Effects in multiple wh-questions, while its *in-situ* wh-words are sensitive to Intervention Effects.

No known example of this type.

Type 5:

A wh-fronting language with a phonologically null Q-particle. A limited pied-piping language. Evinces Superiority Effects in multiple wh-questions, while its *in-situ* wh-words are insensitive to Intervention Effects.

English instantiates this type.

Type 6:

A wh-fronting language with a phonologically null Q-particle. A limited pied-piping language. Does not evince Superiority Effects in multiple wh-questions, while its *in-situ* wh-words are sensitive to Intervention Effects.

German instantiates this type.

Type 7:

A wh-fronting language with a phonologically null Q-particle. Not a limited pied-piping language. Evinces Superiority Effects in multiple wh-questions, while its *in-situ* wh-words are insensitive to Intervention Effects.

Haida might be a Type 7 language. However, the relevant properties of Haida multiple wh-questions are currently unknown to me.

Type 8:

A wh-fronting language with a phonologically null Q-particle. Not a limited pied-piping language. Does not evince Superiority Effects in multiple wh-questions, while its *in-situ* wh-words are sensitive to Intervention Effects.

Haida might be a Type 8 language. However, the relevant properties of Haida multiple wh-questions are currently unknown to me.

Type 9:

A wh-*in-situ* language with covert wh-fronting. Has overtly pronounced Q-particle. Overt Q-particle cannot be separated from wh-word by islands or lexical projections. Multiple wh-questions contain multiple overt Q-particles.

No known example of this type.

Type 10:

A wh-*in-situ* language with covert wh-fronting. Has overtly pronounced Q-particle. Overt Q-particle cannot be separated from wh-word by islands or lexical projections. Multiple wh-questions can contain only a single Q-particle.

No known example of this type.

Type 11:

A wh-*in-situ* language with covert wh-fronting. Has overtly pronounced Q-particle. Overt Q-particle can be separated from wh-word by islands and lexical projections. Multiple wh-questions contain multiple overt Q-particles.

Assuming that sentences like (348) are genuine multiple wh-questions, Sinhala instantiates this type.

Type 12:

A wh-*in-situ* language with covert wh-fronting. Has overtly pronounced Q-particle. Overt Q-particle can be separated from wh-word by islands and lexical projections. Multiple wh-questions can contain only a single Q-particle.

Assuming that sentences like (348) are *not* truly multiple wh-questions, Sinhala instantiates this type.

Type 13:

A wh-*in-situ* language with covert wh-fronting. Has phonologically null Q-particle. An *in-situ* wh-operator cannot be located inside an island or a lexical projection. Its *in-situ* wh-words will display an English-like insensitivity to Intervention Effects.

Note that it is highly difficult to distinguish languages of this type from languages of Type 21 and 29. This is because, for the wh-*in-situ* languages, our tests for

distinguishing between Q-Adjunction and Q-Projection presuppose that the Q-particle is overtly pronounced (cf. Chapter 3, Section 2).

Bearing this in mind, Tibetan might instantiate any of these three types. However, the distribution of Intervention Effects in Tibetan is currently unknown to me, as is the status of the Tibetan correlates to (68a).

Type 14:

A *wh-in-situ* language with covert *wh*-fronting. Has phonologically null Q-particle. An *in-situ* *wh*-operator cannot be located inside an island or a lexical projection. Because the single QP can be located over any of the *in-situ* *wh*-words, will still display an English-like insensitivity to Intervention Effects.

Note that it is highly difficult to distinguish languages of this type from languages of Type 22 and 30. This is because, for the *wh-in-situ* languages, our tests for distinguishing between Q-Adjunction and Q-Projection presuppose that the Q-particle is overtly pronounced (cf. Chapter 3, Section 2).

Bearing this in mind, Tibetan might instantiate any of these three types. However, the distribution of Intervention Effects in Tibetan is currently unknown to me, as is the status of the Tibetan correlates to (68a).

Type 15:

A *wh-in-situ* language with covert *wh*-fronting. Has phonologically null Q-particle. An *in-situ* *wh*-operator *can* be located inside an island and a lexical projection. Its *in-situ* *wh*-words will display an English-like insensitivity to Intervention Effects.

Note that it is highly difficult to distinguish languages of this type from languages of Type 23 and 31. This is because, for the *wh-in-situ* languages, our tests for distinguishing between Q-Adjunction and Q-Projection presuppose that the Q-particle is overtly pronounced (cf. Chapter 3, Section 2).

Bearing this in mind, Tibetan might instantiate any of these three types. However, the distribution of Intervention Effects in Tibetan is currently unknown to me, as is the status of the Tibetan correlates to (68a).

Type 16:

A *wh-in-situ* language with covert *wh*-fronting. Has phonologically null Q-particle. An *in-situ* *wh*-operator *can* be located inside an island and a lexical projection. Because the single QP can be located over any of the *in-situ* *wh*-words, will still display an English-like insensitivity to Intervention Effects.

Note that it is highly difficult to distinguish languages of this type from languages of Type 24 and 32. This is because, for the *wh-in-situ* languages, our tests for distinguishing between Q-Adjunction and Q-Projection presuppose that the Q-particle is overtly pronounced (cf. Chapter 3, Section 2).

Bearing this in mind, Tibetan might instantiate any of these three types. However, the distribution of Intervention Effects in Tibetan is currently unknown to me, as is the status of the Tibetan correlates to (68a).

Type 17:

A *wh-in-situ* language, where overtly pronounced Q-particles possess clause-peripheral positions in *wh*-questions. Overt Q-particle cannot be separated from *wh*-word by islands or lexical projections. Multiple *wh*-questions contain multiple overt Q-particles.

No known example of this type.

Type 18:

A *wh-in-situ* language, where overtly pronounced Q-particles possess clause-peripheral positions in *wh*-questions. Overt Q-particle cannot be separated from *wh*-word by islands or lexical projections. Multiple *wh*-questions can contain only a single Q-particle.

No known example of this type.

Type 19:

A *wh-in-situ* language, where overtly pronounced Q-particles possess clause-peripheral positions in *wh*-questions. Overt Q-particle can be separated from *wh*-word by islands and lexical projections. Multiple *wh*-questions contain multiple overt Q-particles.

No known example of this type.

Type 20:

A *wh-in-situ* language, where overtly pronounced Q-particles possess clause-peripheral positions in *wh*-questions. Overt Q-particle can be separated from *wh*-word by islands and lexical projections. Multiple *wh*-questions can contain only a single Q-particle.

Japanese, Korean and Navajo instantiate this type. For critical information concerning the movement of Q in Navajo, in addition to the well-formedness of the Navajo correlates to (68a), I refer the reader to Perkins (2000).

Type 21:

A *wh-in-situ* language, where phonologically null Q-particles possess clause-peripheral positions in *wh*-questions. An *in-situ* *wh*-operator cannot be located inside an island or a lexical projection. Because Q-particles do not leave traces, its *in-situ* *wh*-words will display a Korean-like sensitivity to Intervention Effects.

Note that, for the reasons stated above, it is highly difficult to distinguish languages of this type from languages of Type 13 and 29. Bearing this in mind, Tibetan might instantiate any of these three types, for the reasons stated above.

Type 22:

A *wh-in-situ* language, where phonologically null Q-particles possess clause-peripheral positions in *wh*-questions. An *in-situ* *wh*-operator cannot be located inside an island or a lexical projection. Its *in-situ* *wh*-words will display a Korean-like sensitivity to Intervention Effects.

Note that, for the reasons stated above, it is highly difficult to distinguish languages of this type from languages of Type 14 and 30. Bearing this in mind, Tibetan might instantiate any of these three types, for the reasons stated above.

Type 23:

A *wh-in-situ* language, where phonologically null Q-particles possess clause-peripheral positions in *wh*-questions. An *in-situ* *wh*-operator *can* be located inside an island and a lexical projection. Because Q-particles do not leave traces, its *in-situ* *wh*-words will display a Korean-like sensitivity to Intervention Effects.

Note that, for the reasons stated above, it is highly difficult to distinguish languages of this type from languages of Type 15 and 31. Bearing this in mind, Tibetan might instantiate any of these three types, for the reasons stated above.

Type 24:

A *wh-in-situ* language, where phonologically null Q-particles possess clause-peripheral positions in *wh*-questions. An *in-situ* *wh*-operator *can* be located inside an island and a lexical projection. Its *in-situ* *wh*-words will display a Korean-like sensitivity to Intervention Effects

Note that, for the reasons stated above, it is highly difficult to distinguish languages of this type from languages of Type 16 and 32. Bearing this in mind, Tibetan might instantiate any of these three types, for the reasons stated above.

Type 25:

A *wh-in-situ* language where overtly pronounced Q-particles occupy their IP-internal base positions in *wh*-questions. However, unlike Sinhala, such Q-particles can intervene between functional heads and the phrases selected by those functional heads. Overt Q-particle cannot be separated from *wh*-word by islands or lexical projections. Multiple *wh*-questions contain multiple overt Q-particles.

No known example of this type.

Type 26:

A *wh-in-situ* language where overtly pronounced Q-particles occupy their IP-internal base positions in *wh*-questions. However, unlike Sinhala, such Q-particles can intervene between functional heads and the phrases selected by those functional heads. Overt Q-particle cannot be separated from *wh*-word by islands or lexical projections. Multiple *wh*-questions can contain only a single Q-particle.

No known example of this type.

Type 27:

A *wh-in-situ* language where overtly pronounced Q-particles occupy their IP-internal base positions in *wh*-questions. However, unlike Sinhala, such Q-particles can intervene between functional heads and the phrases selected by those functional heads. Overt Q-particle *can* be separated from *wh*-word by islands and lexical projections. Multiple *wh*-questions contain multiple overt Q-particles.

No known example of this type. However, if the Hagstrom/Kishimoto analysis in (82) were correct, and if sentences like (348) were genuine multiple *wh*-questions, then Sinhala would instantiate this type.

Type 28:

A *wh-in-situ* language where overtly pronounced Q-particles occupy their IP-internal base positions in *wh*-questions. However, unlike Sinhala, such Q-particles can intervene between functional heads and the phrases selected by those functional heads. Overt Q-particle *can* be separated from *wh*-word by islands and lexical projections. Multiple *wh*-questions can contain only a single Q-particle.

No known example of this type. However, if the Hagstrom/Kishimoto analysis in (82) were correct, and if sentences like (348) *weren't* genuine multiple *wh*-questions, then Sinhala would instantiate this type.

Type 29:

A *wh-in-situ* language, where phonologically null Q-particles undergo covert movement to clause-peripheral positions. An *in-situ* *wh*-operator cannot be located inside an island or a lexical projection. Because Q-particles do not leave traces, its *in-situ* *wh*-words will display a Korean-like sensitivity to Intervention Effects.

Note that, for the reasons stated above, it is highly difficult to distinguish languages of this type from languages of Type 13 and 21. Bearing this in mind, Tibetan might instantiate any of these three types, for the reasons stated above.

Type 30:

A *wh-in-situ* language, where phonologically null Q-particles undergo covert movement to clause-peripheral positions. An *in-situ* *wh*-operator cannot be located inside an island or a lexical projection. Its *in-situ* *wh*-words will display a Korean-like sensitivity to Intervention Effects.

Note that, for the reasons stated above, it is highly difficult to distinguish languages of this type from languages of Type 14 and 22. Bearing this in mind, Tibetan might instantiate any of these three types, for the reasons stated above.

Type 31:

A *wh-in-situ* language, where phonologically null Q-particles undergo covert movement to clause-peripheral positions. An *in-situ* *wh*-operator *can* be located inside an island and a lexical projection. Because Q-particles do not leave traces, its *in-situ* *wh*-words will display a Korean-like sensitivity to Intervention Effects.

Note that, for the reasons stated above, it is highly difficult to distinguish languages of this type from languages of Type 15 and 23. Bearing this in mind, Tibetan might instantiate any of these three types, for the reasons stated above.

Type 32:

A *wh-in-situ* language, where phonologically null Q-particles undergo covert movement to clause-peripheral positions. An *in-situ* *wh*-operator *can* be located inside an island and a lexical projection. Its *in-situ* *wh*-words will display a Korean-like sensitivity to Intervention Effects

Note that, for the reasons stated above, it is highly difficult to distinguish languages of this type from languages of Type 16 and 24. Bearing this in mind, Tibetan might instantiate any of these three types, for the reasons stated above.

3. Further Potential Applications of the Q-based Theory

In the preceding chapters, many of our arguments for the Q-based theory have been principally based upon the applications that it has within various areas of study. In this final section, we explore two further applications that our Q-based theory might have.

In Section 3.1, we discuss the consequences of our Q-based approach for the general theory of A-bar movements. Specifically, we ask whether and how it might be possible to extend the Q-based theory of wh-fronting to *other* movements that appear to exhibit pied-piping and are unable to strand adpositions or extract left-branches. Finally, Section 3.2 discusses the potential applications of our Q-based theory to the analysis of free relatives.

3.1 The Syntax and Semantics of Other A-Bar Movements

The central theoretical claim of this thesis has been that various properties of wh-fronting directly result from properties of Q-particles, rather than from properties of the wh-word or of the movement relation themselves. Amongst these various properties of wh-fronting, three in particular were offered as the ‘flagship’ examples of phenomena that ultimately follow from the properties of Q: the inability to strand adpositions, the inability to extract ‘left-branches’, and (most notably) the existence of pied-piping structures. The overarching purpose of this thesis has been to argue that those three phenomena do *not*, contrary to common belief, reflect properties of movement *per se*.

In this context, however, it is important to note that wh-fronting is not the only movement construction that exhibits these three properties. Indeed, it seems that *any* form of A-bar movement can be seen to exhibit them. For example, in English, we find that focus-movement is also able to ‘pied-pipe’.

(539) Pied-Piping in English Focus-Movement

I’ve read John’s book, but [DAVE’s book], I haven’t read.

In the underlined portion of sentence (539), the complex possessive phrase *Dave’s book* undergoes focus-movement into the left-periphery of the clause. Importantly, however, the preceding context makes clear that only the sub-constituent *Dave* bears focus in this sentence. If we assume that focus-movement as in (539) is triggered by the focus feature, then (539) is a structure where the fronted phrase properly contains the projection bearing the features triggering the fronting. Thus, we find that (539) demonstrates that focus-movement permits ‘pied-piping’. Similarly, from the ill-formedness of sentences like the following, we find that focus-movement is unable to extract left-branches.

(540) English Focus-Movement Cannot Extract Left-Branches

* I’ve read John’s book, but [DAVE’s]_i, I haven’t read [t_i book].

Furthermore, the movement of the relative pronoun in an English relative clause also seems to exhibit these two properties. Structures like the following indicate that such ‘relativization’ is able to pied-pipe.

(541) **Pied-Piping in English Relativization**

The man [_{CP} [_{DP} **whose**] father]₁ I met *t*₁]

In the noun phrase above, the relative clause has been formed by fronting the entire complex possessive *whose father*. Again, if the fronting seen in a relative clause is assumed to target the features of the relative operator, then structures like (541) demonstrate that relativization permits pied-piping. Similarly, the ill-formedness of structures like the following show that relativization in English is unable to extract left-branches.

(542) **English Relativization Cannot Extract Left-Branches**

* The man [_{CP} [_{DP} **whose**] I met [_{DP} *t*₁ father]]

Therefore, it certainly appears as if our three ‘flagship’ properties are general properties of all A-bar movement constructions, and are not simply confined to the putative QP-movement of wh-questions. Indeed, the reader might recall that this is ultimately the reason why these three properties *are* commonly believed to be properties of the movement relation itself, rather than (say) some idiosyncratic restriction on wh-fronting. One might rightly worry, then, whether our Q-based theory of these properties doesn’t incorrectly predict that they should *not* hold of any other A-bar movement constructions. That is, at first blush, our Q-based theory of left branch extractions might seem to predict that structures like (540) and (542) should be *well-formed*, since they would not be instances of wh-fronting/QP-movement. If this were the case, then our Q-based theory in (18) would seem to be a huge step backwards, abandoning the immensely successful program of cross-constructural generalizations begun by Ross (1967).

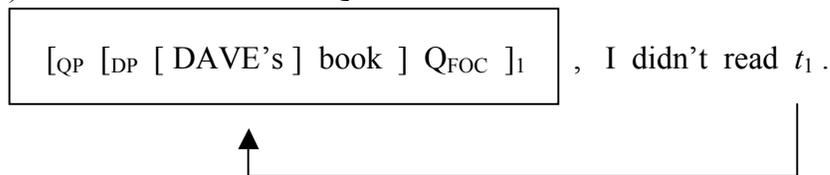
Let us ask, then, how our Q-based theory might incorporate the facts in (539) – (542). First, we should note that it is actually not clear that all movements in English are unable to extract left-branches. As noted in Section 2.3 of Chapter 4, structures like (269) suggest that QR in English is able to extract possessors, unlike wh-fronting, focus-movement and relativization. Thus, as we remarked earlier, our Q-based theory would on these grounds fare better than a theory that predicts such extractions to always be ill-formed in English.

But, what about the indisputable fact that our three ‘flagship’ properties are also properties of movement constructions besides wh-fronting? Given that our Q-based theory derives these three phenomena from properties of Q, the most natural conclusion to draw is that *any movement construction exhibiting these three properties is also an instance of QP-movement*. That is, the facts in (539) – (542) force the view that wh-fronting is not the only construction where a QP is fronted. Rather, besides wh-fronting, numerous other movement constructions – including focus-movement and relativization – are also cases where an instance of the category ‘Q’ undergoes movement.

To begin spelling out this idea more concretely, recall from our discussion of the Sinhala particle *hari* in Chapter 4 that the category ‘Q’ is rather expansive, and includes a variety of particles besides those found in wh-questions. Therefore, we might hypothesize that the syntactic category ‘Q’ also contains heads that we will dub ‘Q_{FOC}’ and ‘Q_{REL}’. Consequently, let us re-name the Q-particle found in wh-questions and wh-indefinites ‘Q’.

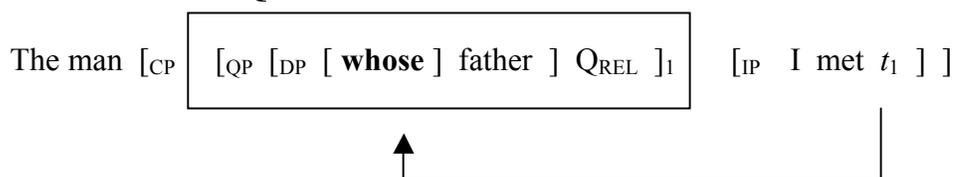
Given that focus-movement in English evinces the properties seen in (539) and (540), we will assume that such movement constructions are formed via movement of a $Q_{\text{FOC}}P$, which dominates the focused constituent of the fronted phrase, as illustrated below.

(543) **Focus-Movement as QP-Movement**



Similarly, because English relativization evinces the properties seen in (541) and (542), we will assume that such constructions are formed via movement of a $Q_{\text{REL}}P$, which dominates the relative operator, as illustrated below.

(544) **Relativization as QP-Movement**



The Q-based analyses in (543) and (544) correctly predict that both focus-movement and relativization exhibit the three ‘flagship’ properties of (i) inability to strand adpositions, (ii) inability to extract left-branches, and (iii) possibility of pied-piping structures.

The analyses in (543) and (544) illustrate a more general approach to A-bar movement that our Q-based theory entails. That is, although the arguments throughout this thesis center on wh-fronting, our Q-based theory should be more broadly understood as a general theory of *all* those movement constructions that exhibit our three ‘flagship’ properties. Of course, we will have to leave to future study the full development of this theory of movement constructions. Nevertheless, it should be apparent that our Q-based theory of wh-fronting needn't be an embarrassing step backwards from the results gained by Ross (1967). Rather, it invites a new understanding of (some of) those generalizations, one where they not are properties of the movement relation *per se*, but rather of the preconditions for movement in many of the most well-studied movement constructions.

Although the analyses sketched above demonstrate how our Q-based theory might handle the facts in (539) – (542), we might nevertheless ask whether there is any independent evidence for these Q-based analyses of focus-movement and relativization. Furthermore, what role do the putative Qs play in the semantics of these movement constructions? What, exactly, is the Q_{FOC} ‘doing’ in a focus-movement construction?

The Q-based analysis of focus-movement in (543) receives some independent support in recent work by Horvath (2000, 2005). This work is principally concerned with the question of whether the feature ‘Focus’ is present in the syntactic representation of a sentence. Importantly, however, the main empirical claim of Horvath (2000, 2005) is that so-called ‘focus-movement’ does not actually target the features of the focused phrase inside the fronted constituent. Rather,

such movement is triggered by the features of a (phonologically null) focus-sensitive operator that c-commands the focused phrase.³

The evidence that Horvath marshals in support of her analysis comes from Hungarian. According to standard descriptions, the focused phrases in a Hungarian sentence must undergo focus-movement to a special pre-verbal focus position. This is illustrated below.

(545) **Obligatory ‘Focus-Movement’ in Hungarian (Horvath 2005; p. 7)**

- Question: Kinek mutattad be Jánost?
 who.DAT you.introduced.him John.ACC
Who did you introduce John to?
- a. [AZ UNOKAHUGOMNAK] mutattam be Jánost.
 the my.niece.DAT I.introduced.him John.ACC
I introduced John to MY NIECE.
- b. * Bemutattam Jánost [AZ UNOKAHUGOMNAK]
 I.introduced.him John.ACC the my.niece.DAT

As we see above, the preceding question indicates that the capitalized phrases in (545) are understood as bearing focus. Moreover, the ill-formedness of (545b) demonstrates that such focused phrases cannot occupy post-verbal positions in Hungarian. Rather, they must undergo focus-movement to a pre-verbal focus position, as in (545a). Thus, Hungarian seems to be a language where focused phrases must obligatorily undergo focus-movement.

Because of the ubiquity of focus-movement in Hungarian, it has often been cited by linguists as evidence that movement can be triggered by the feature ‘Focus’. However, as Horvath (2000, 2005) argues at length, Hungarian ‘focus-movement’ doesn’t seem to be triggered by the feature ‘Focus’ *per se*. That is, contrary to the wide-spread impression resulting from facts like (545), *not all* focused phrases in Hungarian can undergo so-called ‘focus-movement’. For example, a focused DP that associates with the focus-sensitive operator *még...is* ‘even’ cannot undergo the movement seen in (545).

(546) **Foci Associating with ‘Even’ Can’t Undergo Focus-Movement (Horvath 2005; p. 13)**

- a. Mari elkésett még [AZ ESKŰVŐJERŐL] is.
 Mary.NOM she.was.late yet the her.wedding.from also
Mary was even late to HER WEDDING.
- b. * Mari még [AZ ESKŰVŐJERŐL] is késett el
 Mary.NOM yet the her.wedding.from also she.was.late

³ However, unlike our analysis in (543), Horvath (2000, 2005) claims that this focus-sensitive operator is *adjoined* to the fronted phrase, rather than heading that phrase. Thus, the analysis in Horvath (2000, 2005) differs from our proposal in (543) in that it must still appeal to some mechanism of pied-piping.

As we see above, even though the phrase ‘to her wedding’ is focused in (546a), it needn’t undergo focus-movement to the preverbal focus position. Indeed, as we see in (546b), such a focused phrase *can’t* undergo such movement, despite the fact that it bears the feature Focus.

Further evidence that so-called ‘focus movement’ does not directly target focus comes from wh-questions. Contrary to the common understanding of the facts in (545), it is not always the case that the focused answer to a wh-question in Hungarian must undergo focus-movement. Indeed, if the wh-question is given a so-called ‘mention some’ reading, where the answer to the wh-question needn’t be exhaustive, then the focused phrase in the answer *can’t* undergo the movement seen in (545). The following illustrates.

(547) **Partial Answers Cannot Undergo Focus-Movement (Horvath 2005; p. 14)**

- a. Question: Hol tudhatnám meg a vonatok menetrendjét?
 where I.can.know the train schedule.ACC
Where can I find out about the train schedule?
- b. Answer: Megtudhatod (például) [AZ INTERNETEN]...
 you.can.know for.example the internet.on
You can find out about it, for example, on the internet...
(in addition to possibly other places as well)

As we see above, the phrase *az interneten* in (547b) is understood as the answer to the wh-question in (547a), and therefore bears focus. However, unlike what we saw in (545), this focused answer is not required to appear before the verb. Horvath (2000, 2005) argues that what distinguishes the well-formed (547b) from the ill-formed (545b) is the way in which the answer to the question is interpreted. Because of the pragmatics of the implicit situation, sentence (545b) must be understood as providing an exhaustive listing of the true answers to the wh-question. On the other hand, the answer in (547b) can be understood as giving only *one* of the many possible true answers to the question. Therefore, it seems that the movement seen in (545) is not obligatory when the focused phrase is understood to be only a *partial* answer to the question. Indeed, if the focused phrase in (547b) were fronted to the pre-verbal focus position of (545a), then the sentence would be understood as an exhaustive answer to the wh-question.

Therefore, from the data in (546) and (547), we find that the mere presence of the feature ‘Focus’ on a given phrase XP is not sufficient for XP to trigger so-called ‘focus-movement’ in Hungarian. Therefore, we must conclude with Horvath (2000, 2005) that so-called ‘focus-movement’ does not target the feature ‘Focus’ *per se*. Of course, this conclusion immediately raises the question “what features and/or phrases *does* ‘focus-movement’ target?”

Although many possible answers are imaginable here, the one pursued by Horvath (2000, 2005) is strikingly akin to our Q-based theory of focus-movement in (543). Horvath observes that the phrases undergoing focus-movement are always understood to exhaustively identify the entities of which the remainder of the sentence is true. Thus, a sentence like (545a) is true *iff* the speaker’s niece is the only individual to which the speaker introduced John. Crucially, such ‘exhaustivity’ seems to be necessary for focus-movement to take place. Whenever a focused phrase is not understood to exhaustively identify in this way – such as in (546) and (547) – then focus-movement becomes impossible. In this sense, it appears as if focus-movement takes place *iff* the focus is interpreted as if it associates with a phonologically null version of ‘only’.

According to Horvath (2000, 2005), this is more than a matter of appearance. That is, Horvath proposes that Hungarian does indeed possess a phonologically null variant of the particle *csak* ‘only’, which she dubs ‘EI-OP’ (for ‘Exhaustive Identification Operator’). Most importantly, Horvath proposes that so-called ‘focus movement’ is actually triggered by the features of this EI-OP, and has nothing to do with the Focus feature itself. Thus, the movement of the focused phrase in (545a) receives the analysis below.

(548) **Focus Movement as Movement of EI-OP in Horvath (2000, 2005)**



According to the analysis in (548), the movement seen in (545a) actually targets the features of the EI-OP, which c-commands the focused phrase. Because of the semantics of EI-OP, the fronted phrase in (545a) is understood to exhaustively identify the true answers to the wh-question. Of course, just as with its overt cousin *csak* ‘only’, a focused phrase in Hungarian needn’t necessarily be c-commanded by EI-OP. Therefore, Horvath’s analysis in (548) predicts that some focused phrases in Hungarian needn’t undergo ‘focus-movement’, and that such unmoved foci will be interpreted non-exhaustively. Thus, the analysis in (548) correctly predicts that so-called ‘focus-movement’ correlates not with focus *per se*, but with an exhaustive interpretation of the focused phrase (cf. (546), (547)).

Finally, what about the *prima facie* appearance that focus-movement is triggered by the feature Focus? According to Horvath (2000, 2005), this is ultimately due to the special relationship between EI-OP and Focus. Because EI-OP is simply a null version of *csak* ‘only’, it is a focus-sensitive operator. Therefore, it must always c-command some focused phrase, and so movement of the EI-OP will always entail movement of a focused phrase. Therefore, because of the phonological invisibility of EI-OP, linguists have incorrectly concluded that the movements triggered by its features are triggered by the Focus feature itself.

In this context, it is important to note the strong similarity between the analysis in (548) and our own Q-based theory of focus-movement in (543). Indeed, if we were to simply identify our Q_{FOC} with Horvath’s EI-OP, the two analyses would be the same. More acutely, if we just assume that Q_{FOC} possesses the exhaustive semantics of *only* (and EI-OP), then our analysis in (543) could account for the Hungarian facts above in precisely the way that (548) does. In this sense, then, we find that the evidence discussed in Horvath (2000, 2005) provides interesting support for our Q-based analysis in (543).

Therefore, Horvath (2000, 2005) answers the important question of whether there is any independent evidence for our theory of focus-movement in (543). Furthermore, it also provides an answer to the equally important question of what role the putative ‘Q_{FOC}’ plays in the semantics of the focus-movement construction.⁴

⁴ We will have to leave to future study any attempt to answer the similar questions regarding the Q-based analysis of relativization in (544).

In this context, we might also note that it will be difficult to extend a Q-based analysis to topicalization, even though such movement also exhibits our three ‘flagship’ properties. This is because of our fundamental

More generally, we have seen in this section that it is possible and productive to view other A-bar movements as also being instances of the QP-movement postulated for wh-fronting in (18). Under such analyses, the A-bar movement in question is ultimately phrasal movement of a focus-sensitive Q operator. Importantly, such analyses allow us to provide a uniform account of the facts under (539) – (542), one where they receive the same analysis as the parallel facts for wh-fronting discussed throughout this thesis. Thus, our Q-based theory needn't commit us to the patently false claim that these properties will hold only of wh-fronting.

3.2 Free Relatives

One final area where our Q-based theory of wh-fronting might yield further results is in the theory of free relatives.

A fundamental question in the theory of free relatives concerns the apparent ‘disconnect’ between their internal syntactic form and their external syntactic distribution. Across languages, free relatives tend to have the internal appearance of subordinate questions, rather than of adnominal relatives (Rooryck 1994, Jacobson 1995, Bury & Neeleman 1999, van Riemsdijk 2007; but cf. Citko (in press)). For example, in English, the wh-word *what* can function as the wh-operator in a free relative (549a) and in a subordinate interrogative (549b), but not in a normal, adnominal relative clause (549c).

(549) Similarities Between Free Relatives and Subordinate Questions in English

- a. I ruined [*what* you were cooking].
- b. I know [*what* you were cooking].
- c. * I ruined [the food [*what* you were cooking]].

Other languages provide more striking examples of the alignment between free relatives and subordinate interrogatives. Indeed, one rather clear example comes from Tlingit. The following sentences illustrate the free relatives, subordinate questions and adnominal relatives of Tlingit.

(550) Free Relatives in Tlingit

- a. Du tuwáa sigóowu át a káa yan ayawsikáa, **daa sá ash tuwáa sagoowú.**
his spirit be.glad.REL thing for.it he. asked.him what Q his spirit be.glad
He asked him to get what he needed, whatever he needed.
(Dauenhauer & Dauenhauer 1987; p.230; line 263)
- b. Át gasa.aaxí **aadooch sá has du een kawuneegí.**
to.them let.them.listen who.erg Q them.with they.speak
Let them listen to whoever tells them.
(Dauenhauer & Dauenhauer 1990; p. 224; line 207)

assumption in (191) that Qs are focus-sensitive operators. By definition, the fronted phrase in a topicalization construction contains no foci for a putative ‘Q_{TOPIC}’ to associate with. Therefore, any Q-based analysis of Topicalization must involve some weakening of the principle in (191).

(551) **Subordinate Questions in Tlingit**

Hél has wuduskú [**waa sá has kawdayaayí**]
not they.know how Q it.happened.to.them
No one knew what happened to them.
(Dauenhauer & Dauenhauer 1987; p. 294; line 65)

(552) **Adnominal Relative Clauses in Tlingit**

a. Waa sá yatee [**wé [I goodéi sá woogoodi] káa**]?
how Q he.is that nowhere he.went.REL man
How is the man who didn't go anywhere?

b. **Du tuwáa sigóowu át** a káa yan ayawsikáa, daa sá ash tuwáa sagoowú.
his spirit be.glad.REL thing for.it he.asked.him what Q his spirit be.glad
He asked him to get what he needed, whatever he needed.
(Dauenhauer & Dauenhauer 1987; p.230; line 263)

As discussed in detail by Cable (2005c, 2006c), there are numerous ways in which Tlingit free relatives (550) pattern with Tlingit subordinate interrogatives (551) rather than Tlingit adnominal relatives (552). The most obvious concerns the presence of a wh-operator. As we see in (550), free relatives in Tlingit are formed via movement of an overt wh-operator. Of course, such an overt wh-operator is also a crucial component of Tlingit subordinate interrogatives, as shown in (551). Importantly, however, overt wh-operators do *not* appear in Tlingit adnominal relatives like (552). Rather, adnominal relatives in Tlingit are formed via null relative operators, and do not contain the overt wh-operators of either free relatives or subordinate questions. Furthermore, it should be stated that the verb in a Tlingit free relative bears morphology that is otherwise characteristic of verbs in subordinate interrogatives, and it lacks the morphology characteristic of verbs in adnominal relative clauses. I refer the reader to Cable (2005c, 2006c) for more details.

We find, then, that free relatives across languages have the internal syntactic form of subordinate questions. Crucially, however, free relatives do *not* have the external syntactic distribution of subordinate questions. Generally speaking, the external syntactic distribution of a given free relative will ‘match’ that of the phrase fronted into its left-periphery (Bresnan & Grimshaw 1978, Groos & van Riemsdijk 1981). For example, when the fronted phrase of the free relative is a DP, the free relative will be able to appear in all and only those positions where a DP is permitted, as illustrated below.

(553) **Categorical Matching Effects in Free Relatives**

- a. I visited [**[DP whatever city]** you went to] .
b. * I went [**[DP whatever city]** you went to] .

Thus, as we see above, the fronted phrase in the free relative *whatever city you went to* is the DP *whatever city*. Consequently, the entire free relative can follow the verb *visit*, which selects for a

DP, but not the verb *go*, which requires an adverbial. On the other hand, if the fronted phrase of the free relative is a PP, then it will have the opposite distribution from that in (553).

(554) **Categorical Matching Effects in Free Relatives**

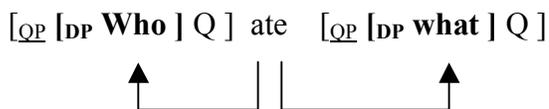
- a. * I visited [[PP to whatever city] you went] .
- b. I went [[PP to whatever city] you went] .

Thus, as we see above, the fronted phrase in the free relative *to whatever city you went* is the PP *to whatever city*. Consequently, this free relative *cannot* be complement to the verb *visit*, which selects for a DP, but it can appear with the verb *go*, which can be modified by an adverbial PP.

In summary, then, free relatives exhibit the following curious combination of properties: they possess the internal syntactic form of *wh*-questions, but they have the external syntactic distribution of whatever phrase is fronted into their left periphery. Understanding this combination of properties is perhaps *the* fundamental problem in the theory of free relatives. Thus, the fundamental question that the theory of free relatives must address is the following: *how* can something with the internal appearance of a subordinate question have the external syntactic distribution of whatever happens to be in its left-periphery?

There are, of course, a wide variety of answers to this fundamental question (Bresnan & Grimshaw 1978, Groos & van Riemsdijk 1981, Rooryck 1994, Jacobson 1995, Bury & Neeleman 1999, van Riemsdijk 2007, Citko (in press)). Nevertheless, our Q-based theory of *wh*-questions in (18) might provide a novel perspective on this issue, one where the two ‘curious’ properties exhibited by free relatives are intimately connected. First, recall that our QP-Intervention Condition in (155) entails that QPs are (in certain cases) ‘transparent’ for selection. That is, a ‘core property’ of QP projections is that they may intervene between heads and the phrases that those heads select for.

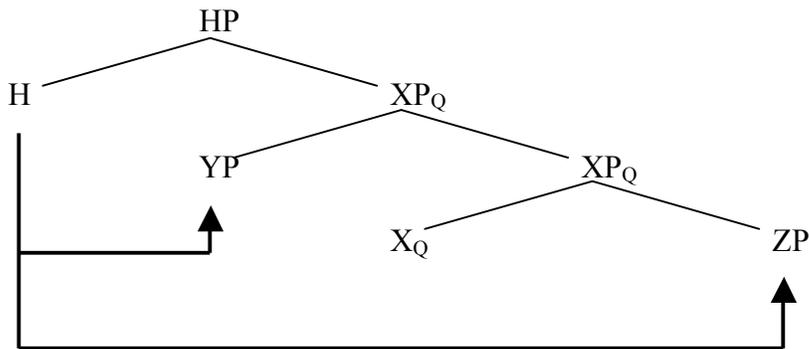
(555) **QP Projections are Transparent for Selection**



Now, let us entertain the hypothesis that, just as QPs are ‘transparent’ for selection, any phrasal node containing the feature ‘Q’ will likewise be transparent. That is, let us suppose that any phrase XP bearing the feature ‘Q’ will be able to intervene between a head H and the phrases selected by H.⁵ This possibility is illustrated below.

⁵ Note that this hypothesis would *not* follow from the theory of the QP-Intervention Condition sketched in Footnote 71 of Chapter 2. Thus, the proposals made below must assume a different theory of why the QP-Intervention Condition holds.

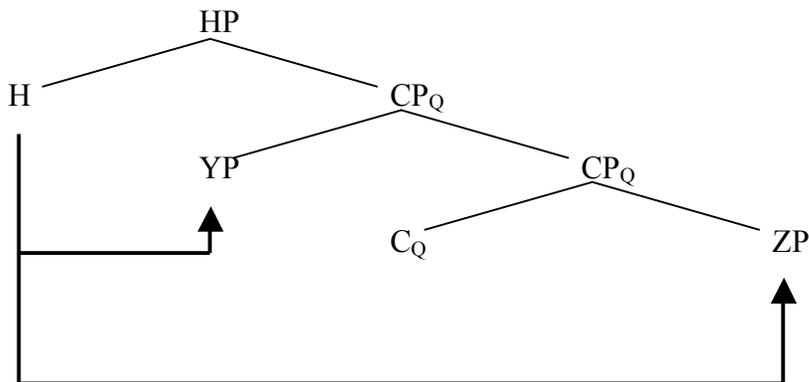
(556) **The Q-Feature Renders Any XP Transparent for Selection**



*XP_Q is 'Transparent' for Selection –
Selection Possible Between H and Either YP or ZP*

Let us now consider what the general picture sketched in (556) would predict regarding subordinate interrogative CPs. Following our analysis of *wh*-questions in (18), all such CPs would bear the 'Q' feature. Thus, the hypothesis in (556) would entail that *subordinate questions will be transparent for selection*. This is illustrated below.

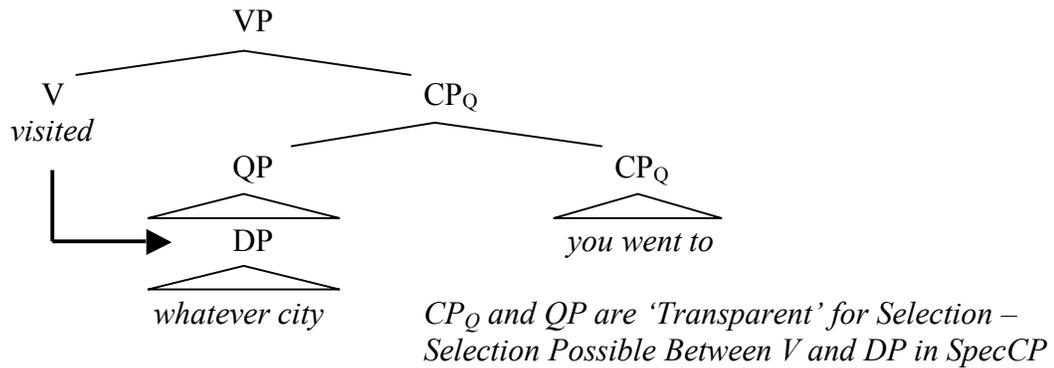
(557) **Interrogative CPs Will Be Transparent for Selection**



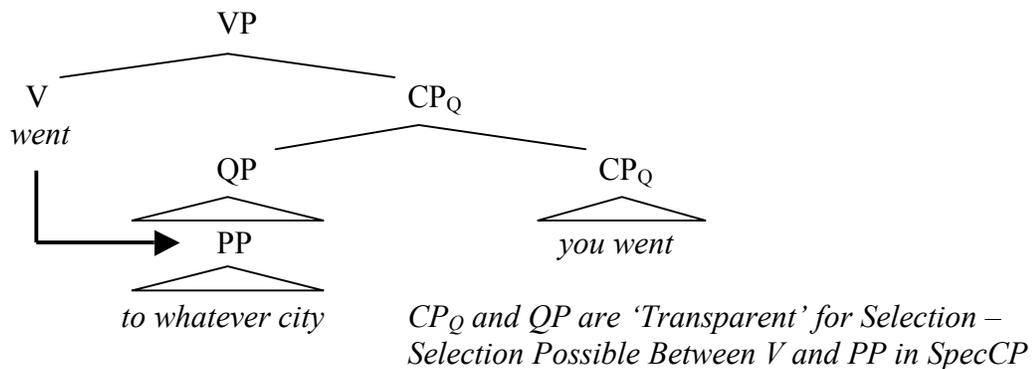
*CP_Q is 'Transparent' for Selection –
Selection Possible Between H and Either YP or ZP*

We find, then, that the hypothesis in (556) predicts that any given head should be able to enter into a selectional relation with a phrase occupying the left-periphery of a subordinate question. Therefore, we predict that the left-peripheral phrase in an interrogative CP should be able to satisfy the selectional requirements of the sister to CP. Finally, if we assume that the distributional properties of a phrase follow entirely from what selectional requirements it can satisfy, we predict that subordinate questions will be able to appear in any position that their left-peripheral phrases can appear in. This is illustrated in (558) and (559) below.

(558) **The Nature of Matching Effects in Free Relatives**



(559) **The Nature of Matching Effects in Free Relatives**



In summary, the hypothesis in (556) combined with our Q-based theory of wh-questions predicts that subordinate questions should be able to exhibit the external syntactic distribution of the phrases occupying their left-periphery. Of course, the very existence of free relatives could be taken as evidence that this prediction is born out. That is, the hypothesis in (556) could provide a new analysis of free relatives, one that offers a unique answer to the ‘fundamental question’ regarding these structures. Under this analysis, free relatives have the internal syntactic form of interrogative CPs because they *are* interrogative CPs (cf. Rooryck 1994, Jacobson 1995, van Riemsdijk 2007). However, because such CPs bear instances of the feature ‘Q’, they can exhibit the external syntactic distribution of their left-peripheral phrases. Thanks to the special property of Q-particles illustrated in (555) and (556), the specifiers of Q-bearing CPs are able to satisfy the selectional requirements of heads external to the CP. Consequently, interrogative CPs will appear to ‘match’ the external behavior of their left-peripheral specifiers.

Of course, any serious attempt to work out the analysis sketched here will have to provide some explanation of the principle stipulated in (556). Assuming that this can be done, we find that our Q-based theory in (18) might provide a syntactic theory for free relatives, one where they may be analyzed simply as interrogative CPs, and where their ‘curious’ external distribution follows entirely from independently motivated principles.

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Áyá shayadihéin,
Haa shayadihéin.
Ax' ch'a yeisú áa yéi haa yatee.
Haa x'éináx yoo has x'ali.átk.
Yéi áyá yándeí shukgwatáan.

Shaadaax'
"Táax'aa"

There are many people there.
We are many.
We are still there.
They speak our language.
This is how I'll end it.

Robert Zuboff
"Mosquito"

(Dauenhauer & Dauenhauer 1987; p. 80; lines 146 – 154)