

Aristotle on coming-to-be: *Physics* Book I

The ingredients of change (“coming-to-be”)

1. Contraries

In chapter 5, Aristotle argues that change involves **contraries**. “How could something come to be pale from being musical, unless musical were a coincident of the not-pale or dark thing?” (188a35).

The argument seems to be: something that is musical cannot become pale unless it is previously dark, or at least non-pale. That is, suppose that x is musical (at time t_1) and that x is pale (at some later time t_2). Is this a case of coming-to-be? Not necessarily. For if x is both musical and pale at t_1 and ends up being both musical and pale at t_2 , there has been no change at all.

So the relevant fact about the musical thing that makes it a candidate for becoming pale is that it is (also) a non-pale thing. As Aristotle puts it, the musical thing and the non-pale thing must “coincide.”

2. Subject

In chapter 6, Aristotle argues that change requires more than just contraries: there must also be a **subject**. Without this third ingredient, he says, a puzzle or perplexity (*aporia*) would arise (189a27ff).

What is the puzzle? Aristotle does not make it very clear. Contraries are not *substances*, he says, and “a principle must not be said of any subject.” But contraries obviously *are* said of a subject (there is something—some substance—that is musical, or pale). And, as we have learned in the *Categories*, and Aristotle reiterates here, “a subject [is] a principle of, and prior to, what is predicated of it.”

Pale and *dark* and *musical* are qualities, not substances, and so if they exist, there must be some substances that they inhere in. So there must be some third ingredient in change, in addition to the contraries.

What Aristotle does not say, but clearly intends, is that without a subject, the contraries do not just by themselves really provide us with cases of change. Thus, suppose that at t_1 there is darkness and at t_2 there is paleness; does that provide us with a case of change? Not really—both darkness and paleness might have existed all along, at both times.

We cannot guarantee a case of change even if we add this condition: at t_1 there is darkness, but not paleness, and at t_2 there is paleness, but not darkness. For that condition could be satisfied in this rather odd way: the darkness that existed at t_1 goes out of existence by t_2 , and the paleness that exists at t_2 did not exist at t_1 . But **nothing has undergone any change!** Paleness has **replaced** darkness (or a dark thing has been replaced by a pale one) but nothing has darkened or paled—that is, nothing has **become** dark or pale. So if there is to be change, there must be a subject as well as a pair of contraries.

Here's an analogy that may help to make the point. Imagine a sequence of white spots, $\langle s_1, s_2, s_3, s_4, \dots \rangle$, appearing on a screen. Each one endures for a short interval of time; s_1 appears at t_1 and disappears at t_2 ; s_2 appears at t_2 and disappears at t_3 ; etc. In fact, if all the spots appeared at the same place on the screen, we would never detect their comings and goings—all we'd see is a single white spot making an appearance at t_1 and lasting until the last t_i .

Now imagine that each s_i appears in a slightly different location from its predecessor—offset to the right, say, by a very small distance. Then it would **appear** as if a white object is moving across the screen from left to right. (This is more or less the way motion picture projectors work.) But, in fact, **nothing is moving** at all—we just have a sequence of white spots winking on and off on the screen. For there to be motion, there has to be more than just an object at point a and then, later, a similar object at point b . There has to be an object at point a and then, later, the **same** object at point b . And that object has to **get from** a to b .

Another way to put Aristotle's point is this: there is no motion unless there is something that moves. More generally, **there is no change unless there is something that undergoes the change.**

The account of coming to be: chapter 7

In this chapter, Aristotle gives his own account of coming to be, incorporating the three ingredients identified in chapters 5 and 6, with some further refinements.

Aristotle points out that there are lots of different ways to describe the same change. Thus, consider the case in which someone becomes musical. (We may suppose that some man, say Callias, takes many guitar lessons and eventually becomes a guitar player—a musician.) We have these variant descriptions of the phenomenon:

- a. A man becomes musical.
- b. An unmusical <thing> becomes musical.
- c. An unmusical man becomes a musical man.

1. What is the thing that comes to be?

One of the problems Aristotle is dealing with here is that we might with equal justice describe **any** of these items as “the thing which comes to be” (*to gignomenon*). We might say the **man** is the thing that comes to be, since the man comes to be musical; but we might also say the **musical** is the thing that comes to be, since it is the musical, or something musical, that comes into being. And we might also say that it is the **unmusical** that comes to be, since it is the unmusical that comes to be musical.

Evidently the phrase ‘the thing coming to be’ (*to gignomenon*) is ambiguous, and might be used for any of the three items Aristotle has distinguished—the thing that undergoes the change, the thing that results from the change, and the thing that underlies the change. To avoid misunderstanding, we can mark them off as follows:

Initial object

This is the item that **undergoes** the change—the *terminus a quo* as it is traditionally called. In Aristotle’s example, it would be the unmusical, or the unmusical man.

Resultant object

This is the item that **results from** the change—the *terminus ad quem* as it is traditionally called. In Aristotle’s example, it would be the musical, or the musical man.

Persisting object

Aristotle calls this the *hupokeimenon* (lit., “underlying thing”). This is the item that was there at the start of the change, **persists through** the change, and remains at the end of the change. In Aristotle’s example, it would be the man.

In fact, Aristotle uses the phrase *to gignomenon* in all three ways, although he is almost always able to make clear in which sense he intends it.

- At 190a2, he uses *to gignomenon* to mean the **initial** object, contrasting it with *ho gignetai* (‘the thing that comes into being’), the resultant object.
- At 190b11, he uses *to gignomenon* to mean the **resulting** object, contrasting it with *ho touto gignetai* (‘the thing that comes to be this’), which he says might be either the underlying subject or the initial object (“the contrary”).

- At 190a15, he uses *to gignomenon* to mean the **underlying subject** (“in every case there must be some subject that comes to be”).

2. Simple and compound

In the three descriptions Aristotle gives of the coming-to-be of the musical man, he notes that we have three ‘simple’ items—man, musical, unmusical—and two ‘compound’ items—musical man, unmusical man.

So we can describe the initial object either as a man or as unmusical or as an unmusical man. And we can describe the resultant object either as a musician (something musical) or as a musical man. This gives us:

Simple initial object

The man, the unmusical.

Simple resultant object

The musician (the musical <thing>).

Compound initial object

The unmusical man.

Compound resultant object

The musical man.

3. The point of these distinctions

What is the point of all this? Aristotle seems to be groping toward some kind of canonical formula for describing change. Even commentators who agree on this disagree about what that formula is. Some (e.g., Loux) say it is (a) (“man becomes musical”), which confines itself to simple descriptions of the components; others (e.g., Lewis) say it is (c) (“unmusical man becomes musical man”), which uses the compound descriptions.

In any event, Aristotle insists that we must pay attention to the question of what **remains** throughout the change vs. what does not remain. By ‘what remains’ Aristotle is referring to a way of characterizing an ingredient in the change that holds good of it both before and after the change.

And we can see that of all our ingredients, both simple and compound, only one remains—the one picked out by the simple term for the **subject** of change. In the case of our example, it is the man that remains, since we had a man at t_1 (who was then unmusical) and we have a man at t_2 (who was then musical). None of the others remain. At t_1 we didn't have either a musical man or a musician; at t_2 we didn't have either an unmusical man or a non-musician.

Hence, Aristotle reaches a preliminary conclusion at 190a13:

“Now that we have made these distinctions, here is something we can grasp from every case of coming to be, if we look at them all in the way described. In every case there must be some subject that comes to be <something>; even if it is one in number it is not one in form, since being a man is not the same as being an unmusical thing. ... The thing that is not opposite remains, since the man remains; but the not-musical thing, or [sc. i. e.] the unmusical thing, does not remain. Nor does the thing compounded from both (for instance, the unmusical man) remain.”

So the subject of the change is the thing that undergoes the change, and that is still there at the end of the change, and it is not either one of the contraries that are essentially involved in change.

Qualified vs. unqualified coming to be

The changes looked at so far are what Aristotle will go on to describe as ‘alterations’. These are changes of the kind envisaged in the *Categories*, changes whose subject is a substance and in which the contraries involved are opposed qualities. (In the case of the musical man, the subject is a substance—a man—and the contraries are the qualities *musical* and *unmusical*.)

But we would also fit certain other kinds of changes under the same general rubric. Take what Aristotle calls ‘locomotion’ (change of place). The subject is a substance, which changes from being *here* to being *there*.

All of the cases looked at so far are what Aristotle would call cases of ‘qualified’ coming to be’ (“coming to be *something*”). None would count as what he would call ‘coming to be without qualification (*haplôs*)’. “Only substances are said to come to be without qualification,” he says (190a32).

Why is this? Aristotle doesn't say, but it is easy to figure out a rationale. Suppose Callias becomes musical. Have any new entities come into the world? Has its population increased? It seems not. Suppose Socrates gets married, and so is no longer a bachelor. Has a bachelor ceased to exist? Has the population decreased? Again, it seems not.

Aristotle's way of putting this would be to say that the musician does not come to be "without qualification" (*simpliciter*), nor does the bachelor simply cease to be. Rather, the underlying subject (a man) undergoes a change—one man comes-to-be-musical, and another man ceases-to-be-a-bachelor.

Substantial change (unqualified coming to be)

It would appear at this point (190b1) that the coming to be of substances will not fit the pattern Aristotle has laid out. For that pattern requires as its subject a persisting object, and the persisting object cannot be the resultant object, for the resultant object is what comes **into existence** and, unlike the persisting object, was not there at the start. (E.g., in the case of the coming to be of the musician, the man is the persisting object, but the man is not the resultant object—the thing that comes to be.) So it appears as if substantial changes—those that result in the coming into being of a substance—must not involve an underlying subject.

But Aristotle immediately corrects this misimpression at 190b2:

"However, substances—the things that are without qualification—also come to be from some subject. This will become evident if we examine it. For in every case there is something that is a subject from which the thing that comes to be comes to be, as plants and animals come to be from seed.

"Some of the things that come to be without qualification do so by change of figure (for instance, a statue); some by addition (for instance, growing things); some by subtraction (for instance, Hermes from the stone; some by composition (for instance, a house); some by alteration (for instance, things changing in accordance with their matter). It is evident that everything that comes to be in this way comes to be from a subject."

After setting out this survey of examples, Aristotle draws an important consequence: in all cases of change, including substantial change, **what comes to be** (*to gignomenon*) **is composite** (190b11).

Non-substantial change

The point is obvious. Take alteration as an example, say when the man becomes musical. The initial object is the unmusical man; the resulting object is the musical man. Both are compounds, even if we sometimes describe these objects with simple terms (a man, a musician).

Substantial change

This point is less obvious, but Aristotle gives us this example (190b15): “... the lack of figure, shape, and order is the contrary, and the bronze, stone, or gold is the subject.” He clearly has in mind the coming into being of a statue, and he wants to fit it into his scheme. So the statue must be a compound, but of what? Aristotle’s answer: **matter** and **form**. Matter is the subject and form or shape, and the lack thereof, play the role of the contraries. This forces a slight revision in his account.

Revisions to the account

The inclusion of substantial change under the general rubric (tripartite analysis) that Aristotle has laid out now forces some revision to the general account. For in the initial account, the “simple” initial and resultant entities were characterized as *contraries*. For example, *musical* and *unmusical*, *pale* and *dark*. But in the case of the coming to be of a substance, the simple resultant entity will be, e.g., a *man* or a *horse*. And as Aristotle told us in the *Categories*, substances don’t have contraries—nothing is the contrary of a man or a horse.

So in the case of the generation (and destruction) of substances, the role of the contraries gets taken over by a new pair of entities—*form* and *privation* (lack). There does not have to be a property that is the *contrary* of the form of a statue in order to describe the coming to be of a statue. All we need is the *lack* of the form of a statue, and the matter (e.g., bronze) which underlies the both the form (after the statue comes to be) and the lack of that form (before the statue comes to be).

Consequences of this account

There are two important consequences. The first, which Aristotle explicitly draws, is that he can give a response to the Parmenidean argument against the possibility of coming to be. The second is one that he does not explicitly draw, but that nevertheless looms large in his subsequent thinking—it is one that concerns his ontological analysis in the *Categories*.

Response to Parmenides

Aristotle gives his answer in chapter 8. He begins (191a28-29) by summarizing the Parmenidean argument against coming to be:

What is cannot come to be (since it already is), while nothing can come to be from what is not.

The idea of this argument seems to be this: in a case of coming to be, the resulting object is clearly a being, something that **is**. From what initial object does it come to be? Parmenides offers us only two choices: either *what is* or *what is not*. But if the initial object is *what is*, and the resultant object is also *what is*, we don't really have a case of coming to be—there is no change. And if the initial object is *what is not*, we have another kind of impossibility, for nothing can come to be from what is not (*ex nihilo nihil fit*).

Aristotle's response is to reject the Parmenidean dilemma "that something comes to be from what is or from what is not" (191a30). He does so, characteristically, by drawing a distinction where his opponents did not. At 191b4 he says:

"... we speak in two ways when we say that something is or comes to be something from what is ..."

Is the initial object a being or a not-being, Parmenides asks? Aristotle's answer is: in a way it's a being, and in a way it's a not-being. And in a way, it's not a being, and in a way it not a not-being.

In effect, the trouble with the Parmenidean argument is that it treats the initial and resultant objects as if they were simples: not being and being. But, as Aristotle has shown, both are compounds. The initial object, for example, might be an unmusical man. And this is both in one way a being and in another way a not being: the initial object is something that *is* (for it is a man) and something that *is not* (for it is not musical).

As for Parmenides' claim that *nothing can come to be from what is not*, Aristotle agrees that, on one reading, this is perfectly correct (191b14):

"We agree with them in saying that nothing comes to be without qualification from what is not ..."

That is, the musician does not come into existence out of thin air, out of sheer nothingness. (We should probably take "without qualification" here to modify "what is not" rather than "comes to be"—"comes to be from what is unqualifiedly not" or "comes to be from what is simply a not-being.") But this leaves room, Aristotle says, for the musician to come to be from what *in a way* is not (191b15).

"... but we say that things come to be in a way—for instance, coincidentally—from what is not. For something comes to be from the privation, which in itself is not and does not belong to the thing <when it has come to be>."

(Similarly, we should take “in a way” to modify “what is not” rather than “comes to be.”) In other words, since the musician comes to be from the compound *unmusical man*, what he comes to be from is in one way a not-being, since he comes to be from a privation—the unmusical. But in a way, what he comes to be from is a being, as well, for the initial object is something that *exists*, a man. Parmenides, in other words, offers us a false dilemma: that the initial object is either being or not being. But since the initial object is a compound, in a way it is both.

The primacy of substances is threatened

So much for the good news. The bad news is that the simple and unanalyzed substances of the *Categories*—this man, that horse, this tree, etc.—have been analyzed in the *Physics* as matter-form compounds. But if they are compounds, how can they be basic ontological ingredients?

Example: a builder is not a basic individual, for Aristotle. A builder is a compound of a subject and a property: a substance (a human being) and a characteristic (s)he happens to have: the knowledge of building. How, then, can a tiger retain its status as a basic individual? After all, it, too, is a compound of a subject and a property: matter and a form that supervenes, a form that the matter happens to have.

In the *Categories*, the primary substances were the subjects of change par excellence (4a10):

“It seems most distinctive of substance that numerically one and the same thing is able to receive contraries. In no other case could one cite something numerically one that is able to receive contraries.”

But now in the *Physics*, it seems that the **matter** of which a substance is composed is also something that can “receive contraries,” i.e., remain one and the same through a change. So it would appear that the primary substances of the *Categories* are now being treated as compounds of matter and form. But Aristotle’s view seems to be that if x is a compound of components y and z , then y and z are prior to x —the compound is secondary to its components. The conclusion seems to be that primary substance of the *Categories* is a compound and therefore secondary.

Although Aristotle does not explicitly draw this conclusion here, he indicates that he is aware of it. At the end of chapter 7, after summarizing his tripartite solution to the problem of coming to be in terms of matter, form, and privation, he says (191a20):

“It is not yet clear, however, whether the form or the subject is substance.”

Notice that the compound is not even a candidate here; the candidates are “form and subject.” The subject, of course, is matter. So the question of the relative priority of matter and form has been left unanswered in this chapter. We will confront it again in *Metaphysics VII*.