

# Adam Smith: A Classical Behavioral Economist?•

[VERSION 1.2]

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## ABSTRACT

*Proposed by Herbert Simon, Classical Behavioral Economics (CBE) can be seen as an alternative way (to rational choice theory) for modeling and studying human behavior. Although there are several distinctive features of CBE (which will be briefly mentioned here), I should pay attention to two elements closely related to the CBE approach: procedural rationality and emotions. Following Herbert Simon, I claim that procedural rationality is a basic principle behind CBE and that emotions constitutes one of its salient features. Using these two central attributes to characterize CBE, I want to explore the extent to which the so-called father of economics, Adam Smith, can be read through Classical Behavioral Economic lenses. In particular, I want to ask the following two questions: (i) Can Smith be read as having some form of a procedural rationality approach in mind? and, (ii) Can Smith's – and the Scottish Enlightenment's – ideas about emotions offer any insights or lessons to the CBE approach? If these two questions could be answered affirmatively, then reading Adam Smith in the form suggested should provide us with some valuable insights. The plausibility of answering these two questions affirmatively comes, I argue, from the notion of the impartial spectator and the notion of sympathy. The spectator involves elements of introspection and imagination, which are concepts associated with the contents of the mind and with the idea of procedural rationality in Herbert Simon's sense. I also argue that the concept of sympathy, so central to Smith and to the Scottish Enlightenment in general, is connected to a theory of emotions that can be helpful for modeling behavior under a CBE approach. The essay is divided into two parts: Part I makes an effort to briefly distinguish CBE from the traditional approach used in microeconomics and modern behavioral economics – when studying human decisions. Part II attempts to answer the two questions related to Adam Smith and CBE.*

## Introduction

Social scientists have always been interested in understanding human behavior and it hardly could be otherwise. As a social science, economics cannot possibly be an exception. In fact, an important part of economic theory is an attempt to understand and predict human behavior – under its different roles (i.e. consumer, entrepreneur, worker, etc.) – when acting on the economic scene. Following Herbert Simon and Vela Velupillai, I argue that the standard economic model used for such a purpose is not sufficient to understand human behavior in economics at the individual level, and that Classical Behavioral Economics (CBE) seems to offer an alternative approach worth exploring and

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• This is a first draft of a **Work-in-Progress**. Please do NOT circulate. Comments and suggestions are welcome. A version of this draft is planned to be presented (for the first time) at the New School-UMass workshop 2013. I would like to thank Mishan Hing for his valuable help on making an earlier version of this draft a little bit more readable. Duncan Foley, Luis Villanueva and Vela Velupillai also provided some valuable comments through informal and brief conversations. The usual disclaimer applies.

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studying. The first part of this essay tries to answer the question “*Why Classical Behavioral Economics?*” Although this question has already been answered by Simon and Velupillai, I stand in their shoulders to present my own response to the very same question. I am far from claiming that I add any argument of substance that may contribute to Simon’s and Velupillai’s answers, but I do try to illustrate the same points brought by them by using a slightly different strategy. The second part of this essay tries to inquire whether or not Adam Smith’s *Theory of Moral Sentiments* can be read from a CBE perspective and, if so, I intent to explore the extent to which Smith’s ideas can contribute to the research efforts of classical behavioral economists.

## PART I

*There is no general principle that prevents the creation of an economic theory based on other hypothesis than that of rationality”.*

**Kenneth Arrow**

*“Too much consistency is as bad for the mind as it is for the body. Consistency is contrary to nature, contrary to life. The only completely consistent people are the dead. Consistent intellectualism and spirituality may be socially valuable, up to a point; but they make, gradually, for individual death”.*

**Aldous Huxley**

### 1.- Behavioral-Olympian-Rational Maximizer (BORM)

Following Herbert Simon’s strategy, I start by briefly characterizing the way in which human behavior is studied in standard economic theory in order to explain how CBE intents to depart from it (and why). According to Ariel Rubinstein (2007), microeconomic theory is a “...collection of formal models in which the primitives are details about the behavior of units called economic agents”<sup>1</sup>. Standard economic theory tries to accomplish this task by endowing the human actor – or economic agent – with certain characterization of rational behavior known as *rational* choice. The point of departure of rational choice is a well-defined set of alternatives (**A**) and a preference relation  $\succsim$  over the set **A**. Preferences simply express the attitudes of the agent towards the

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<sup>1</sup> Rubinstein, A, *Lectures Notes in Microeconomic Theory*, Princeton University Press, 2007, p. x-xi.

elements that are presented to him (or her) in the set  $\mathbf{A}$ . It is further assumed that the order of preferences are consistent, namely, a preference relation must be *complete, transitive and independent of irrelevant alternatives*<sup>2</sup>. These three axioms serve to provide analytical tractability to the idea of preferences, analogous to the idea of ordered sets that can be found in any introductory text of mathematical analysis<sup>3</sup>. From these preferences, the agent then deliberates what the feasible options are (i.e. given some set of constraints, it finds a feasible set  $A$ , where  $A \subseteq \mathbf{A}$ ) and then chooses the most desirable (or optimal) elements from subset  $A$ . It is worth mentioning that ‘Independence of irrelevant alternatives’ serves the agent to avoid disrupting the consistency of choice among the two sets, namely between set  $A$  and set  $\mathbf{A}$ . That is, if we use  $C(\cdot)$  to represent the choice made by the agent on a particular set, the independence of irrelevant alternatives property means that for all  $A_1 \subseteq A_2 \subseteq \mathbf{A}$ , if  $C(A_2) \in A_1$ , then  $C(A_1) = C(A_2)$ . Finally, by the most desirable (or optimal) elements from  $A$  is meant that the agent chooses some  $x^* \in \mathbf{R}^n$  in  $A$ , such that  $x^* \succeq x$  for  $\forall x \in A$ <sup>4</sup>.

The preference relation is generally replaced by some utility function  $u : A \rightarrow \mathbf{R}$ , where the expression  $u(a) \geq u(a')$  would be equivalent to  $a \succeq a'$ . Quite often, preferences have a more detailed structure. For example, preferences can be chosen based on the calculations of consequences yielded from a set of alternative actions in  $A$ . According to this view<sup>5</sup>, the agent perceives a causal dependence of consequences for some selected alternatives which can be described by a consequence function  $f : A \rightarrow C$ . As before, he then just solves an optimization problem for finding the best option under a set of given constraints. The model can go even further in some ‘elegant form’, by taking into account the role of uncertainty. For instance, when the connection between the alternatives and the consequences have some elements of uncertainty, the model would be enriched by adding a space of states  $\Omega$ . Then the consequence function can be expanded as  $f : A \times \Omega \rightarrow C$ . This expansion gives room to subjective probability theory and expected utility theory,

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<sup>2</sup> I cannot possibly go into explaining these concepts here. For more information: See, for example, Gintis, H. (2009), Jehle, G., and Reny, P.; (2001),

<sup>3</sup> See Rudin, W., Principles of Mathematical Analysis, McGraw Hill, 3<sup>rd</sup> edition, p. 3.

<sup>4</sup> I follow Rubinstein’s notation and his general structure of explanation. (2007).

<sup>5</sup> See Rubinstein, A, Lectures Notes in Microeconomic Theory, Princeton University Press, 2007, p. x-xi.

including the quite interesting Bayesian approaches<sup>6</sup>. Indeed, there is more much to say about decision and rational choice theory, but here I am only interested in providing a general description. This general description should suffice as an illustration of how economic agents are endowed with a set of ‘powerful’ analytical tools, which serve well for a certain kind of deliberation process<sup>7</sup>.

Decision theory and rational choice theory have both descriptive and normative aspects attached to them. On one hand, they are interested in predicting how people actually make decisions (or at least in explaining actual behavior) and, on the other, they sometimes seek to “...yield prescriptions about what decision makers are rationally required – or ought – to do”<sup>8</sup>. The normative aspect can easily be detected in the work of decision theorists and statisticians who are studying how an *ideal rational* decision-maker would reason under conditions of uncertainty<sup>9</sup>. Parenthetically, statisticians are generally well-aware that, in essence, their models are prescribing and not describing rational behavior. For example, in one of his seminal papers, Savage (1963) wrote “It is important to keep clear the distinction between the somewhat idealized consistent personal probabilities that are subject of this paper and the usually inconsistent subjective probabilities that can be inferred from real human choices among bets...”<sup>10</sup>. On the other hand, economists – while following this normative aspect which is present in decision theory – quite often also want to describe human behavior in the real world. As Lionel Robbins pointed out in his Richard T. Ely Lecture at the American Economic Association in 1981, “...it is important to recognize that the proposition of economics, as it has been developed as a science, are positive (descriptive) rather than normative”<sup>11</sup>. That is to say, if economists want to be ‘scientific’ according to this view, they ought to rely on facts and evidence rather than on ‘subjective’ speculation. According to Walsh and Putnam (2012),

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<sup>6</sup> I believe that Bayesian approaches can be integrated, to some extent, with CBE

<sup>7</sup> “In most of current economic theory, the deliberation process is what is called rational choice”. (Rubinstein, 2007, xi).

<sup>8</sup> Peterson, M., *An Introduction to Decision Theory*, Cambridge University Press, 2009, p. 3

<sup>9</sup> The elements of a decision problem in statistical decision analysis consists of some space of possible actions ( $A = \{a\}$ ), some space of states of nature or parameters ( $\Theta = \{\theta\}$ ), a family of experiments to acquire information about  $\Theta$  ( $E = \{e\}$ ), and a sample space or a space of possible experimental observations ( $X = \{x\}$ ).

<sup>10</sup> Edwards, W., Harold, L.; Savage, L.; *Bayesian Statistical Inference for Psychological Research*, Psychological Review, Vol. 70, No. 3, May 1963, p. 197.

<sup>11</sup> Robbins, L., “Economics and Political Economy”, *The American Economic Review*, Vol. 71, N.2, Papers and Proceedings of the Ninety-Third Annual Meeting of the American Economic Association (May, 1981), p. 4. The word descriptive in parenthesis is mine.

Robbins remarks comes from the brief encounter that economics had with logical positivism. The main idea that economists had taken away from positivism "...was, of course, the claim that science answered questions about what *is*, but was utterly silent as to what *ought* to be"<sup>12</sup>. Albeit the relation between positive and normative economics turns out to be much more complex than the picture generally provided in elementary textbooks; I'd like to simply point out that economics has been traditionally viewed – in both positive and normative aspects – as the study of 'rational' behavior<sup>13</sup>.

But, are the normative and positive aspects of rational behavior good enough to understand human behavior? Well, when it comes to the positive side of economics we know that the picture provided by rational choice has been proved to be descriptively problematic in several instances. After the work of Ward Edwards (1954) , "Seminal papers by Allais (1953), Ellsberg (1961), and Markowitz (1952) pointed out anomalous implications of expected and subjective expected utility. Strotz (1955) questioned exponential discounting. Later scientists demonstrated similar anomalies using compelling experiments that were easy to replicate (Kahneman and Tversky 1979, on expected utility; Thaler 1981, and Loewenstein and Prelec 1992, on discounted utility)". Kahneman and Tversky started to publish around 1974 articles where they showed a wide range of systematic departures from expected utility theory. They were able to identify, through a set of interesting experiments, things like *framing effects*, *loss aversion* and *endowment effects*. The critical point of this trend of thinking came with Kahneman and Tversky's proposal of prospect theory in 1979, which was deliberately conceived to find the minimal modifications of expected utility theory (EUT) while making room for properly describing human choice behavior according to their experimental findings<sup>14</sup>. This helps to explain why prospect theory 'was considered to be a satisfactory replacement of expected utility theory'<sup>15</sup>.

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<sup>12</sup> Putnam, H.; Walsh, V.; eds., *The End of Value-Free Economics*, Routledge, 2012, p. 1

<sup>13</sup> See Herbert Simon, *Methodological Foundations of Economics, Models of Bounded Rationality*, Vol. 3., 1997

<sup>14</sup> See Oaksford, M, Charter, N., Stewart, *Reasoning and Decision Making*, in *The Cambridge Handbook of Cognitive Science*, Cambridge University Press, 2012.

<sup>15</sup> Selda, K, Velupillai, V., *Behavioral Economics: Classical and Modern*, Discussion Paper Series, Algorithmic Social Sciences Research Unit, 14-2011/II, p. 8

After prospect theory, the empirical work of behavioral economists during the last 30 years or so, have given room to some complementary and additional interesting concepts like, for example, altruism, reciprocity, probability assessments, hyperbolic discounting, and rational inattention which were not deduced from – and are not always fully compatible with – the basic rational choice structure used in standard economic theory. Hence, it is not a platitude to say that behavioral economists have concentrated most of their efforts in improving a descriptive side of economics. Nevertheless, they have been doing this by trying to make the smallest possible set of modifications to EUT – as it was mentioned before – and by relying on a particular kind of empirical work. By a particular kind of empirical work, in this case, I mean that behavioral economists rely mostly on experiments that simulate choices through games in the lab (there is also an increasingly use of field data as well), in order to identify observed behavior that deviate from the expected choices provided by the implications of the rational choice framework<sup>16</sup>. We should bear in mind that behavioral economics is not the only area that does empirical work about behavior in economics. Neuroeconomics – a field that has been growing in influence during the last years – have been also working on this same topic but from a slightly different perspective<sup>17</sup>. At any rate, it can be said that behavioral economics and neuroeconomics are two of the – if not the two – most common and active empirical approaches in the discipline today regarding the study of individual decisions. However, and before going any further on this point, it is worthwhile to take a look first at what role psychology has played in economics.

Psychology has been, traditionally, *the* academic discipline whose main focus lies in the understanding of human behavior at an empirical-descriptive level. In fact, the trend of empirical work in modern behavioral economics was initiated by psychologists (and not economists), where Ward Edwards, Amos Tversy and Daniel Kahneman are paramount examples. Nevertheless, at least initially, economists were highly suspicious of psychology: “The rejection of academic psychology by economists, perhaps somewhat paradoxically,

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<sup>16</sup> Something similar is done in experimental economics, although they frequently focus at the level of aggregate behavior or market behavior to test economic theories.

<sup>17</sup> For more information about neuroeconomics the reader may look at Fehr, E., Rangel, A., *Neuroeconomics Foundations of Economic Choice – Recent Advances*, Journal of Economic Perspectives, Volume 25, Number 4, Fall 2011, pp. 3-30. Camerer, C., Loewenstein, G., Prelec, D., *Neuroeconomics: How Neuroscience Can Inform Economics*, Journal of Economic Literature, Vol. XLIII, March 2005, pp. 9-64, Rubinstein, A. *Comments on Neuroeconomics*, Economics and Philosophy, 24 (2008), pp. 485-494.

began with the neoclassical revolution, which constructed an account of economic behavior built up from assumptions about the nature—that is, the psychology—of *homo economicus*. At the turn of the twentieth century, economists hoped that their discipline could be like a natural science. Psychology was just emerging at that time and was not very scientific. The economists thought it provided too unsteady a foundation for economics”. As it has been pointed out by Sen (1973) and Lewin (1996), this paradoxical attitude of economists towards psychology arises from the fact that economists cannot avoid making psychological assumptions since rationality itself is, by its very nature, a psychological interpretation that we place on observed behavior. At any rate, the ‘scientific inclination’ of economists to avoid any type of explorations into the mind and the severe critiques formulated against utility theory<sup>18</sup>, seem to have favored the attention and support among American economists of behaviorism – a research program in psychology which rose to prominence during the 1920’s. There were certainly isolated voices that tried to raise critiques against this move, like for example Frank H. Knight who “vigorously undermined the adoption of behavioristic psychology in economics”<sup>19</sup>. But, by and large, behavioristic psychology came to stay in the minds of most economists, as I would try to suggest in the following lines.

As a methodology, behaviorism finds his most well-known exponent in B.F. Skinner (1904-1990) who rejected any reference to mental states or to any effort in understanding the mind via internal information processing accounts of behavior, making the whole purpose of psychology the scientific study and analysis of observable behavior<sup>20</sup>. In other words, behaviorism asserts that behavior can be explained without making any reference to internal mental states since the sources of behavior are external (in the environment) and not internal (in the mind)<sup>21</sup>. Behaviorism was for a long period, like

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<sup>18</sup> See the work of Lewin, S., Economics and Psychology: Lessons For Our Own Day From the Early Twentieth Century, Journal of Economic Literature, Vol. XXXIV, Sept. 1996, pp. 1293-1323.

<sup>19</sup> See Asso, P., Fiorito, L., “Waging war against mechanical man. Frank H. Knight’s critique of behavioristic psychology”, Quaderni, Università degli Studi di Siena, Dipartimento Di Economia Politica, n. 340, 2001.

<sup>20</sup> However, it is worth mentioning that “Psychological behaviorism does not deny that there is a mind. Rather, it declares that questions about the mind are irrelevant to scientific psychology” (Rosenberg, 2008, p. 69). It is also worth noting that the ideas of stimuli and response so central to behaviorism have some connection with the notions of incentives widely used in economics. I am not arguing, however, that incentives are not important to the understanding of human behavior.

<sup>21</sup> See Graham, G., (2010)

positivism<sup>22</sup>, a fashionable term considered to be a ‘respectable’ scientific practice, so it did not bear the weight of heavy scrutiny and criticism that other trends of psychological study – like psychoanalysis – suffered<sup>23</sup>. The influence of positivism in economics has been discussed, among others, by Nell and Hollis (1975) and Walsh and Putnam (2012); and the influence of behaviorism in economics by Nell and Hollis (1975), Lewin (1996), Asso & Fiorito (2001) and Rosenberg (2008). Moreover, for our purposes, it is not difficult to find in economics clear traces of behaviorism. As argued by Lewin (1996), the idea that motivations or internal considerations of the mind are suspicious and that economics need to look solely at observable behavior can be found in Paul Samuelson (1938) and Ian Little (1949)<sup>24</sup>. Sir John Hicks stated that “the econometric theory of demand does study human beings, but only as entities having certain patterns of market behavior; *it makes no claim, no pretence, to be able to see inside their heads*”<sup>25</sup>. In addition, the influential work of Milton Friedman (1953), ‘The Methodology of Positive Economics’, helped to avoid questions about the realism of the assumptions by giving exclusive priority to predictive power, an argument that ends up – inevitably – by looking only at the aggregate-observable data<sup>26</sup>.

Notwithstanding these intellectual inclinations in standard economics, psychological behaviorism is no longer the only or the dominant paradigm in psychology. The trends and perceptions have changed in the community of psychologists during the last 40 years, particularly after the 1970’s, and yet economists do not seem to have taken much notice of this fact. Even today, when psychology have expanded into different trends of empirical research, most of the empirical work developed by economists continues to be, more or less, around a behavioristic type of approach<sup>27</sup>. Hilton (2008) and Rosenberg

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<sup>22</sup> Positivism was closely related to behaviorism in psychology so this is not a disconnected comment at all! For additional information see, for example, Bergman, G., On Some Methodological Problems of Psychology, *Philosophy of Science*, Vol. 27, No. 2, Apr. 1940. See also Graham, George, "Behaviorism", *The Stanford Encyclopedia of Philosophy* (Fall 2010 Edition), Edward N. Zalta (ed.), URL = <<http://plato.stanford.edu/archives/fall2010/entries/behaviorism/>>.

<sup>23</sup> See Rosenberg, *Philosophy of Social Science*, Duke University Press, 2008.

<sup>24</sup> Amartya Sen (1973) provides a philosophical critique of the Revealed Preference idea in “Behavior and the Concept of Preference” based partly in a critique of behaviorism.

<sup>25</sup> From Sen, A., (1973), *Behavior and the Concept of Preference*, p. 242. Italics are mine.

<sup>26</sup> In fact, this methodological inclination was found many times by Herbert Simon when presenting his ideas to economists. Anwar Shaikh (2012) have argued quite interestingly against Milton Friedman methodology by showing that there are different ways to explain the same aggregate data by making different assumptions at the micro-level. See his working paper titled “Rethinking Microeconomics: A Proposed Reconstruction”, Working Paper, NSSR, 2012.

<sup>27</sup> I’ll have some more to say about behaviorism in the following lines.



(2008) have, separately, called this approach in economics ‘rational behaviorism’<sup>28</sup>. For them this is partly associated with the ‘revealed preference’ assumption which basically continues to take a behaviorist approach to measurement and, partly, with the rationality assumption of behavior which was briefly described at the beginning of this essay.

From what has been said, the traditional – and I would add dominant – approach in economics for studying human behavior at the individual level appears to be based, more or less, on a process of deliberation called rational choice (along with its implications), and on a certain methodology to understand and explain behavior which it is not unreasonable to call behaviorism. To characterize this type of approach on both counts, I would like to call it – by standing in the shoulders of other thinkers – “*Behavioral Olympian-Rational-Maximizer*” (**BORM**). By ‘Olympian’ I mean, following Simon (1990) and Velupillai (2010), that the agent is endowed with unlimited computational capabilities to calculate an adequate solution to the decision problem at hand. By ‘maximizer’ I mean, following Simon (1978), that the economic agent will settle for nothing less than the best. By ‘rational’ I mean, following standard advanced microeconomic texts<sup>29</sup>, that the agent is in the presence of a well-defined set of alternatives and is capable of ranking her preferences consistently as defined by the well-known axioms of choice<sup>30</sup> (preferences that are later translated into some utility function). By ‘behaviorist’ I mean that the agent’s attitudes are understood solely in terms of observed choices (i.e. revealed preferences). ‘Behaviorist’ is a word that I am using here as a synonym of Behaviorism which is, broadly speaking and as it has been mentioned before, a doctrine committed to systematizing observable behavior. I must say that the phrase *Olympian-Rational Maximizer* was originally coined by Velupillai (2003), and I have simply added the word ‘Behaviorism’ to it in order to exploit some of the *empirical assumptions* behind the standard model of human behavior used in economics at the individual level.

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<sup>28</sup> See Nell and Hollis (1975), Rosenberg (2008), Hilton (2008). Some people have argued that there are different types of behaviorism. I am referring here to psychological behaviorism which claims that psychology should only be concerned with the behavior of organisms and not with mental states or any other event that constructs internal information processing accounts of behavior.

<sup>29</sup> See Mas-Colell, Whinston & Green (1995), Varian (1992), Kreps (1990), Jehle & Renny (2001), Romer (2011).

<sup>30</sup> e.g. completeness and transitivity, just to mention two.

The reader might now reasonably wonder, “to what extent the interesting findings made by behavioral economists have changed the BORM-approach just described?” I’d like to argue, along with Selda and Velupillai (2013), that not much. Ultimately, it seems to me that the empirical findings have led to modifications of some auxiliary hypothesis, but have kept the ‘core’ of the BORM-‘research program’ intact. In modern behavioral economics the decision maker is still seen as an Olympian optimizer and maximizer, except that some restrictions are added to the structure in order to incorporate some of the interesting empirical findings made by behavioral economists. This claim should not appear as ‘controversial’ or in need of a major justification. After all, behavioral economics (BE) is defined by Peter Diamond (2003) as an umbrella of approaches that seek to extend the standard characterization of man to account for those relevant features of human behavior which are absent in the standard economic framework. Notice that, according to this definition, the standard characterization of man is extended but not changed. In other words, behavioral economists continue to work under the standard framework, except for certain ‘secondary assumptions’ that are ‘stretched-out’, modified or adapted in order to account for a set of relevant “behavioral-empirical” findings<sup>31</sup>.

I am not arguing that the BORM approach is completely useless. I believe that the BORM approach, by providing analytical tractability and overall consistency at the level of preferences, probably has led to the understanding of some important and relevant features of economic behavior. This approach is also part, at least to some extent, of research done in the cognitive sciences on reasoning and decision making. But when it comes to empirical testing that helps to provide further understanding of how decisions are actually made, this approach has proved to possess several limitations. Such limitations lie in the idea that only paying attention to observable behavior does limit the way in which we understand decision making. Ignoring what goes on our minds implies that the only source of information depends on what choices we get to observe (from which derives the construction of some utility function), and this limited piece of evidence cannot tell us much about how people arrive at their decisions and why. “The key point is that the processes and mechanisms of the mind cannot be understood purely on the basis of

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<sup>31</sup> A good example of this is Prospect Theory as it was mentioned before. See also Selda & Velupillai (2013), p. 11, and Camerer, Lowenstein, Rabin, *Advanced in Behavioral Economics*, Princeton University Press, 2004.

behavioral experiments, with tests that inevitably amount to probing only relatively superficial features of human behavior, which are further obscured by individual/group differences and contextual factors. It would be extremely hard to understand the human in this way, just like it would be extremely hard to understand a complex computer system purely on the basis of testing its behavior, if we do not have any a priori ideas about the nature, inner working, and theoretical underpinnings of that system”<sup>32</sup>. The a priori ideas of rational choice, as argued by Simon (1997), are not enough since they do not help to explain the origins of the alternatives, nor the content of the utility function, nor how items are placed on the agenda for decision, nor by what computational means the economic actor connects alternatives with their consequences. This is probably at the heart of Herbert Simon’s critique to traditional approaches in economics and it was formulated by him based on empirical (descriptive) grounds, not just on the basis of philosophical speculation.

In distinction to the avoidance from economists of inquiring about the contents of the mind, there are other reasons that might help to explain why economics stayed on the path of behaviorism and rational choice. For example, one could think of the mathematical apparatus behind standard economic theory as another source of influence. Since the notion of preferences helps to provide economic theory with an axiomatic and ‘sound’ analytical framework, it is sensible to speculate that this type of analytical ground can be hard for some to resist – or even to abandon. Duncan Foley (2008) has called the samuelsonian-vice the situation where the problems at hand are taken to be those that fit the mathematical tools available, instead of finding the appropriate set of mathematical tools to deal with the particular problems at hand. I suspect that there has been some sort of samuelsonian-vice when it comes to the study of behavior in economics, which is implicit in Herbert Simon’s and Velupillai’s critical voices against the mathematical apparatus that sustains standard microeconomic theory. Furthermore, as Velupillai’s (2010, 2012) work has nicely shown – the mathematical apparatus of standard microeconomic theory does not seem to take into account the very important lessons brought up by the work of monumental figures like Alonzo Church, Kurt Gödel, Stephen Kleene, Emil Post

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<sup>32</sup> Sun, R., Introduction to Computational Cognitive Modeling, in “The Cambridge Handbook of Computational Psychology”, Cambridge University Press, 2008, pp. 4-5.

and Alan Turing – among others<sup>33</sup>. The main lesson, motivated from David Hilbert's *entscheidungsproblem*, is that not all mathematical problems are computable. A mathematical problem is computable if it can be solved, in principle, by a computing device. Seen in this light, optimization is then just a very special case of solvability of a computable problem and cannot occupy, as it does in most standard economic theory, the whole mathematical apparatus of a decision procedure. In other words, the mathematical apparatus used in rational choice appears to ignore the limitations for computation studied in the computer sciences and in modern mathematics. I cannot possibly go into the details of this interesting and relevant point – which has been studied in depth by Velupillai (2010a, 2010b, 2011, 2012) – but it does give room to the claim that we have both empirical and mathematical reasons to seriously reflect on the limitations of this type of analytical framework used in economics to study human decisions.

To conclude: my claim is that If we want to give more empirical tractability to our models (following Herbert Simon) and if we want take into account the relevant mathematical arguments of computability (following Vela Velupillai), as a way to better understand some relevant aspects of behavior in decision making, we then have good reasons to explore alternative ways for studying and modeling economic behavior. As Herbert Simon (1997) pointed out, it is not “...sufficient to construct a theory of perfect rationality, and then to annex to it some modifications to take account of search behavior or response to uncertainty”<sup>34</sup>.

## **2.- Is there an Alternative? – A Brief Introduction to Classical Behavioral Economics**

According to Selda and Velupillai (2013), behavioral economics as it has been described in this paper – and which these two authors call *Modern Behavioral Economics* – finds its origins in the work of Ward Edwards in 1954. One year before, in 1953, Herbert Simon began pioneering a different approach called by Velupillai (2003), *Classical Behavioral Economics* (CBE). “The two streams are clearly distinguishable on the basis of

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<sup>33</sup> This is something completely ignored in the mathematics of rational choice. In any case, I cannot possibly go into this topic here. For further explanation from the point of view of mathematics, see Vela (2010, 2012), and Selda and Velupillai (2013).

<sup>34</sup> Simon H., “Methodological Foundations of Economics” in *Models of Bounded Rationality*, Vol. 3: Empirically Grounded Economic Reason, The MIT Press, 1997, p. 320.

their methodological, epistemological and philosophical aspects”<sup>35</sup>. It can be said that the CBE approach is not based on a behaviorist insistence around a consistent order of revealed preferences – as it can be found in the BORM approach – nor in any notion of optimization or equilibrium, but instead is based on the study and understanding of the process under which behavior is conducive to decisions. While the BORM model focuses on some attributes of choice without incorporating limitations to computation, the CBE approach pays attention to the internal processes of the mind that help behavior to adapt and respond to the environment in which decisions are made. In other words, the BORM approach pays attention only to the decisions that are reached or to the outcomes (what Simon called substantive rationality), while CBE is also interested in the decision-making process itself as ‘one of the objects of our scientific curiosity’ (this is called by Herbert Simon procedural rationality).

As it was mentioned before, the core argument is that by also paying attention to the process can offer a more accurate description of the actual way in which we make decisions. For example, CBE takes into account the cognitive limitations of the agents – limitations of both knowledge and computational capacity. It also allows us to incorporate, explicitly, a wide variety of quantitative and qualitative features of human behavior that are diluted (and sometimes lost) in the so-called utility function. For instance, things like memory, attention (recently studied in behavioral economics through Chris Sim’s idea of rational inattention), learning processes, selective search or heuristics – it should be mentioned that there are some examples in other disciplines, like Polya in mathematics and Gigerenzer in psychology – , beliefs, information processing, multiplicity of goals, multiple criteria and (under some particular form) emotions, can all be modeled and studied under CBE.

The term CBE was coined by Velupillai (2003) to refer to the relevant aspects of Simon’s approach, which include the following central concepts: *bounded rationality, satisficing, heuristics, information processing systems and problem solving*<sup>36</sup>. Albeit these

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<sup>35</sup> Selda & Velupillai (2013), Behavioral Economics: Classical and Modern, The European Journal of the History of Economic Thought, Published online on 26 Sep. 2013, p. 4.

<sup>36</sup> See Velupillai, V., Notes for a Seminar on: Foundations of Herbert Simon’s Behavioral Economics, The New School for Social Research, 2003.

concepts are what define CBE, I have decided for the purpose of this paper, to exclusively focus on procedural rationality and on emotions. This does not mean that procedural rationality and emotions are extra-ingredients (or mutually exclusive) from the list proposed by Velupillai (2003), and that I am choosing these two concepts over the others according to some type of criteria. On the contrary, PR and emotions are not in conflict with the five concepts listed above, nor in conflict with each other. PR is a general principle which gives room to all the five concepts proposed by Velupillai (2003) and emotions is an element that can be integrated into all of these concepts without any major disruption.

The reason why I focus on procedural rationality (PR) is because this notion is at the heart of a CBE approach. As it was mentioned, PR is a basic principle that permits to derive all the five concepts developed by Herbert Simon and used by Velupillai (2003) to define CBE. In addition, PR also serves to highlight one of the empirical trends that have appeared in psychology and the cognitive sciences since the 1970's which has been ignored by most economists. After all, it is not a coincidence that Herbert Simon is one of the key intellectual figures of the cognitive sciences and of experimental psychology. Although emotions is not a concept that explicitly appears in Velupillai's (2003) definition, Herbert Simon (1990) did consider the interaction between affect and cognition as central to all information processing theories. Today, emotions is one important ingredient or topic of attention in some of the research done in artificial intelligence, computational psychology and the cognitive sciences. Therefore, it is in this sense that emotions can be safely considered as an important ingredient of CBE<sup>37</sup>. Last, but not least, both concepts – PR and emotions – were chosen because they represent two convenient and powerful aspects that can help to link Adam Smith (and the Scottish Enlightenment) with the CBE approach. Since I have already touched upon PR, I should now turn my attention into the difficult concept of emotions.

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<sup>37</sup> Emotion is also part of my current and planned research within the tradition of CBE, so is quite important for me to explore this notion in the context and purpose of this essay.

### 1.1.1.- Emotions

Emotions are a central aspect of our mental life with tremendous implications for human behavior and to our social life in general. It is not surprising to find that people have been studying emotions for thousands of years. In the East, we find philosophical studies on the psychology of emotions in the *Upanishads* and – in its literary style – in the *Bhagavad Gita*, some 3,000 years ago. In western civilization, philosophers have been concerned about the nature of emotions since the pre-Socratics<sup>38</sup>. Great classical philosophers like Plato, Aristotle, Spinoza, Descartes, Hobbes and Hume had recognizable theories of emotion<sup>39</sup>. Yet, in the history of modern economics, emotions have been – largely – a neglected topic. The work of Albert O. Hirschman (“The Passions and the Interests” for example); Jon Elster (1996), George Loewenstein (1995) and Robert Schiller (1990) are among the very few voices of the late 20<sup>th</sup> century to have – somehow – acknowledged this strange fact<sup>40</sup>. It is not uncommon to notice that emotions have been sometimes seen, at least by economists who follow the BORM-approach, as irrational behavior that needs to be avoided. Other times it has been seen as some intangible concept ‘unworthy’ of ‘scientific analysis’. Nevertheless, as the famous case of *Phineas Gage* have shown us<sup>41</sup>, the scientific work of neuroscientists on emotions for the past 20 years makes clear that we cannot ignore emotions anymore (nor even separate them) from human decision-making. We also have other fascinating examples of this same point in current neuroscience research and the cognitive sciences like, for instance, the idea that emotions do not only play a negative role in decision making (as is generally believed by some economists)<sup>42</sup>, but they frequently play a positive role<sup>43</sup>. (Another fascinating research in neuroscience and cognitive sciences, perhaps worth mentioning here due to his connection with Smith, has been around emotions and moral judgments<sup>44</sup>).

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<sup>38</sup> Solomon, R., *The Philosophy of Emotions*, in the *Handbook of Emotions*, 3rd edition, 2008

<sup>39</sup> Certainly they are not the only ones!

<sup>40</sup> With the exception, of course, of Herbert Simon. More recently, Deirdre McCloskey has also been another powerful voice. See for example, “The Economics of Caring” available at <http://www.theeuropean-magazine.com/deirdre-mccloskey--2/877-rationality-and-human-emotion>.

<sup>41</sup> See the work of Antonio Damasio on emotions in *Descartes Error* where he explains in detail the case of *Phineas Gage*.

<sup>42</sup> Gary Becker and Eugene Fama, for example.

<sup>43</sup> See the work of Damasio, Moll, Oliveira-Souza, among others.

<sup>44</sup> See for example “*Moral Psychology, Volume 3, The Neuroscience of Morality: Emotion, Brain Disorders and Development*”, edited by Walter Sinnott-Armstrong, MIT Press, 2008.

It is true that during the last 15 years or so, emotions have been increasingly receiving more attention from the interdisciplinary work of economists and psychologists. For example George Loewenstein, an economist interested in psychology who is now at Carnegie Mellon, has been paying attention to the role of emotions in the context of decision theory. Loewenstein and some of his colleagues have proposed some interesting and illuminating ideas about the role of emotions in decision making. They have called their approach 'Affective Decision Theory'<sup>45</sup>. Behavioral Economists (which includes work on prospect theory) and Neuroeconomists have also paid some attention to emotions. But after recognizing their important and interesting work, I should say that my interests lie in exploring how a study of emotions from a Classical Behavioral Economics perspective can contribute, differently, in illuminating certain aspects of emotions and human behavior in economics. This partly comes out of the claim that behavioral economics and neuroeconomics fit more closely into the BORM-approach than into the CBE framework.

Emotion is not the privileged province of any one discipline, so the literature on emotions is vast. If one reviews the literature of how emotions have been roughly treated in five main disciplines: Philosophy, psychology, neuroscience, cognitive sciences, and economics; it is not hard to realize that there has been, and still are, controversies in most fields about how to define, analyze and classify emotions. The answer to the question "What is an emotion?" seems to be simple, but it is in fact riddled with ambiguity and "...do not enjoy the more consensual, transparent meanings of such concepts as velocity and heat"<sup>46</sup>. Part of the reason for such a lack of consensus lies in the fact that, as neuroscientists like Antonio Damasio (2005) have pointed out, emotions have many components involved. Emotions frequently have physiological, cognitive, behavioral, evaluative, cultural, sensorial and perceptual elements that obstruct any easy or straightforward answer. In fact, this helps to explain why there are different theories of emotions which then depend on the type of research questions and on the particular aspects of emotions that are going to be studied.

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<sup>45</sup> See, for example, Loewenstein, G., Lerner, J., The Role of Affect in Decision Making In: Davidson R, Goldsmith H, Scherer K Handbook of Affective Science. Oxford: Oxford University Press; 2003. p. 619-642. See also Rick S., Loewenstein G., The Role of Emotion in Economics Behavior, in the Handbook of Emotions, 2008; and the work of psychologist Barbara A. Mellers from the University of Pennsylvania.

<sup>46</sup> Kagan, J., What is Emotion?, Yale University Press, 2007, p. 4



It is possible to find that there are – grossly speaking – five or six different approaches to the study of emotions. For example, Solomon (1984)<sup>47</sup> provides the following classification: (i) Physiological theories, (ii) Sensation theories, (iii) Behavioral theories, (iv) Evaluative theories, and (v) Cognitive theories. One can find other types of classifications but the main content does not seem to change substantially. For example, Jerome Kagan (2007) talks about provocative events, brain states, detected feelings, appraisals, semantic labels and actions. Nevertheless, these ideas are not really that different from the five models mentioned above. For reasons of space I cannot explain each of these theories, but it could be said what some of these theories speak of by mentioning some of the different types of research that abound. For example, just to mention a few, some studies are interested in associating emotional reactions with changes in the physiology of the human body, other studies are interested in locating central organs in the brain that control or regulate emotions, others are interested in how emotions are related to judgment, and others focus their effort in trying to understand the role of emotion and cognition (e.g. emotion and memory, emotion and learning, emotion and attention, etc.).

Although emotions cannot be fully explained by any reductionist approach, there is room for studying particular aspects of emotions without falling in the futile conviction that some theories are superior than others. Keeping this in mind, Herbert Simon (1967) considered emotions to be a central feature of CBE and believed that it was necessary – and quite important – to explore and study them in more detail,

*“Information-processing theories, however, have generally been silent on the interaction of cognition with affect. Since in actual human behavior motive and emotion are major influences on the course of cognitive behavior, a general theory of thinking and problem solving must incorporate such influences” (Simon, 1967, p. 29)*

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<sup>47</sup> What is an Emotion?: Classical Reading in Philosophical Psychology, Ed. By Calhoun, C., and Solomon, R.C., Oxford University Press, 1984, p. 16

Emotions in Simon's framework are better suited for approaches that follow cognitive theories of emotions, just as it can be seen in the work of computational psychologists today<sup>48</sup>. I shall develop this argument in some more detail in Part II of this essay.

## **2.- Final Comments on PART I**

I have tried to make a distinction between the BORM and the CBE approach for studying human behavior in economics. It must be said that although this distinction has already been made by Velupillai (2010, 2012, 2013), I have tried to put some more emphasis on the importance of the internal process of the mind by means of the influence of behaviorism in economics, and on the role of emotions. I also have suggested, based on the work on Simon (1979, 1982, 1997) and Velupillai (2003, 2010, 2012, 2013), some relevant reasons for paying attention to the CBE approach and for extending its use in economics<sup>49</sup>. Since the focus has been on procedural rationality (as opposed to behaviorism) and emotions, the basic idea in Part II is to explore to what extent Adam Smith followed a non-behavioralist approach, and to the importance that he (and the Scottish Enlightenment) gave to the role of emotions in the study and understanding of human behavior. The notion of the impartial spectator, it shall be argued, involves elements of introspection and imagination which are concepts associated with the contents of the mind and with the idea of procedural rationality in Herbert Simon's sense. The concept of sympathy, so central to Smith and to the Scottish Enlightenment in general, is connected to the idea of emotions, that can be useful from the point of view of a CBE perspective. Can it be that Smith probably still have something else to teach us?

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<sup>48</sup> See for example Sun, Ron and Mathews, Robert (2012)

<sup>49</sup> I am currently starting to work on modeling decisions from a CBE perspective in two directions: one theoretical model (with Jacinto Davila) using a simulation platform based on Prolog and Java, and the other directed towards a practical-economic application.

## PART II

"We are not thinking-machines. We are feeling-machines that think"

**Antonio Damasio**

"Estamos sufriendo en esta época las consecuencias de una filosofía estrictamente racionalista y tecnológica que ha llevado a la cosificación del hombre. A un hombre abstracto que no existe en la realidad. El hombre debería tener siempre nombre y apellido".

**Ernesto Sábato**

### 1.- Initial plausibility of reading Adam Smith through CBE lenses

Adam Smith is most famously known for his work on political economy, but these efforts are only one part of his comprehensive philosophical system which centers around human action in general. Perhaps his most important philosophical work is the *Theory of Moral Sentiments* (TMS) which appeared in 1759, 17 years before the publication of the *Wealth of Nations* (WN), and of which six authorized editions appeared during Smith's lifetime. Much scholarly discussion has surrounded the apparent dichotomy between self-interest and sympathy in Smith (the so called *Das Adam Smith Problem*), since it was put forward by the *German Historical School* as an apparent inconsistency between Smith's two most famous texts. The *Das Adam Smith Problem*, which is 'still relevant for anyone attracted to Smith scholarship'<sup>50</sup>, has allow economists to get acquainted with richer definitions of human behavior in Adam Smith's work. When taken seriously, this has served economists as a source for enriching theories or lines of enquiry. For example, Ashraf, Camerer and Loewenstein (2005) found that "...The Theory of Moral Sentiments suggests promising directions for economic research that have not yet been exploited"<sup>51</sup>.

One direction that I have not yet encountered in the literature, is an exploration of Smith's ideas of human action in relation to Herbert Simon's concepts of substantive and procedural rationality. Simon (1993) somehow pointed out into this direction at the beginning of his book *"An Empirically Based Microeconomics"*, but it was an argument he

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<sup>50</sup> See Montes, L., *Das Adam Smith Problem: Its Origins, The Stages of The Current Debate, and One Implication for Our Understanding of Sympathy*, Journal of Economic History, Vol. 25, No. 1, 2003, pp. 63-90.

<sup>51</sup> Ashraf, Camerer, Loewenstein, "Adam Smith, Behavioral Economist", Journal of Economic Perspectives, Volume 19, No. 3, Summer 2005, p. 132.

proposed by relying on passages of *The Wealth of Nations* and not by reading *The Theory of Moral Sentiments*. Hence, I'd like to inquire here if it is possible – or not – to read Adam Smith's *Theory of Moral Sentiments* as situated in the path of Classical Behavioral Economics, attending two central concepts: *procedural rationality* and *emotions*. For this purpose I would be relying on Smith's fundamental notions of the '*impartial spectator*' and '*sympathy*'.

## 2.- Sympathy and the Impartial Spectator

### 2.1.- The Impartial Spectator

The concepts of sympathy and spectatorship, which are central to the *Theory of Moral Sentiments*, were already part of the intellectual work of the Scottish Enlightenment. In particular, these concepts had already been put to work by Francis Hutcheson (1694-1746) and David Hume (1711-1776)<sup>52</sup>. The idea of the spectator can be seen as the exercise of imagining how somebody would feel (the spectator) if put into the same situation of the agent that is being observed. "*As we have no immediate experience of what other men feel, we can form no idea of the manner in which they are affected, but by conceiving what we ourselves should feel in the like situation*"<sup>53</sup>.

There seems to be two main features that help to inform such an exercise: (i) the experiences and faculties of the spectator and her (ii) imagination. As Smith (1759) argues, the faculties and experiences are the only elements that the spectator has for judging the actions of the agents. "*Every faculty in one man is the measure by which he judges of the like faculty in another. I judge of your sight by my sight, of your ear by my ear, of your reason by my reason, of your resentment by my resentment, of your love by my love. I neither have, nor can have, any other way of judging about them*"<sup>54</sup>. On the other hand, because our faculties and experiences are finite and cannot possibly resemble the very same circumstances and feelings of the agent, the spectator relies on imagination to rectify

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<sup>52</sup> Smith, however, took these concepts in a slightly different form.

<sup>53</sup> Smith, A., *The Theory of Moral Sentiments*,

<sup>54</sup> Smith, A., *Theory of Moral Sentiments* (1759)

such inevitable lack of information. This discrepancy between the spectator and the agent do not invalidate the importance of the exercise, according to Smith (1759), since this is precisely the way in which we come to develop our own moral virtues.

The relevant question we must ask ourselves though, given what has been said in Part I, comes down to the following: according to Smith, '*Is the spectator judging the agent in terms of observed choices?*', and/or '*Can the spectator judge the agent by only observing his (or her) choices?*' According to Fleischacker (2013) some authors considered the TMS as a work devoid of systematic arguments, and this is not difficult to conceive as Smith (1759) does not develop a theoretical structure of the spectator in the TMS, but rather his arguments are based upon illustrations of how the work of moral sentiments takes place. "To some, this provides the detail and psychological acuity that they find lacking in most moral philosophy; to others, it seems something more properly taken up by novelists or empirical psychologists, not the business of a philosopher. Indeed, one prominent view of TMS is that it is a work in descriptive psychology or sociology, not a contribution to normative moral theory (Campbell 1971; Raphael 2007)."<sup>55</sup>. Independently of whether or not Smith's work is a contribution to normative moral theory<sup>56</sup>, it is precisely the psychological acuity – or empirical psychological-approach – that helps to define the idea of the spectator. That is to say, by getting into the process by which the agent was compelled to decide is how the spectator can form a moral judgment. To put it differently, and according to Smith (1759), it is by recreating the agent's experience that the spectator can form a sentiment of sympathy. As Alexander Broadie (2006) wrote, "so in sympathizing with the agent's anger or joy, he himself also has anger or joy. In that respect, knowledge of the spectator's sympathy does not imply knowledge of the spectator's feeling but, rather, knowledge of the way he came by the feeling".

What all this amounts to is that the spectator is not concerned with the final decisions of the agent as such; instead he is also – and fundamentally – concerned with the process of decision itself. In fact, this could be part of the reason why authors like Fleischacker (2013) and Robert Shaver (2006) argue about Smith's distanciation from

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<sup>55</sup> Fleischacker, Samuel, "Adam Smith's Moral and Political Philosophy", The Stanford Encyclopedia of Philosophy (Spring 2013 Edition), Edward N. Zalta (ed.), URL = <<http://plato.stanford.edu/archives/spr2013/entries/smith-moral-political/>>.

<sup>56</sup> I do believe that by having a better descriptive picture then the normative arguments are, immediately, enhanced.

Hume's utilitarianism. For utilitarians, like Jeremy Bentham, John Stuart Mill and Henry Sidgwick, an act would be morally right if and only if the act maximizes the good of society. In contrast, Adam Smith argues in book II and IV of the TMS that attending the (*observable*) consequences should not be the only moral consideration, but that we also need to pay attention to the intrinsic motivations of the agent if we want to come up with a virtuous moral judgment. We find part of these arguments in book IV of the TMS: *"But that this fitness, this happy contrivance of any production of art, should often be more valued, than the very end for which it was intended; and that the exact adjustment of the means for attaining any conveniency or pleasure, should frequently be more regarded, than that very conveniency or pleasure, in the attainment of which their whole merit would seem to consist, has not, so far as I know, been yet taken notice of by any body"*.

Smith's emphasis in paying attention to the process of decision making itself – which derives on an improved empirical description of behavior –, his consideration of the motivations and intentions of the agent, and his distance from utilitarianism, speak in favor of reading Smith from the point of view of *procedural rationality* in Herbert Simon's sense. For instance, it seems to me that there is no coincidence between the idea of preferences and the respective derivation of a utility function from observed choices that we find in the BORM approach, and the philosophical influence exerted by classical utilitarianism over neoclassical economics. From this point of view is interesting to pay attention to Smith's rejection of utilitarianism, in the sense of being against arguments that reduce the idea of justice – or moral virtue – solely to their useful effects. As Fleischacker (2013) argues, Smith "rejects the idea that our assessments or decisions should aim at the greatest happiness for the greatest number of people...Smith sees meeting the demands of the impartial spectator as intrinsic to happiness; there is no happiness independent of morality". It follows that for Smith deriving a utility function from a set of well ordered preferences is not enough. At least not in the moral sense!

For obvious historical reasons Smith was not seeing the notion of procedural rationality from a computational perspective as Simon did. But, it seems clear that the emphasis given to some form of inquiry about the process of decision making – as a fundamental tool for understanding behavior or moral judgment – can be easily found in

both authors. In the case of Smith, the exercise was left to the spectator himself by means of his imagination, critical observation and virtuous considerations to form certain moral judgment about the agent; whereas in the CBE approach the exercise seems to be in the hands of the 'social scientist' to replicate and empirically test – by means of a computer model – the agent's behavior. Last, but not least, both approaches are also interested in recreating the circumstances of the environment in which the agent operates.

There seems to be, however, a fundamental difference between Smith's and Simon's approach that must be acknowledged right away. While Smith was referring to moral judgments, Herbert Simon was concerned with understanding how people actually solve problems. But, if one can consider moral judgments as a particular type of problem, then there should not be any strong reason that may justify major departures between both approaches. It is true that there might be some differences between solving the *Tower of Hanoi*<sup>57</sup> and forming a moral evaluation. Notwithstanding, it is quite difficult to find a general principle in Smith that leads us to reject the idea of moral judgment as a particular type of problem solving. On one hand, there is no contradiction between emotions and problem solving since Simon thought that allowing motivational and emotional controls of cognition can – and must – be incorporated into information processing theories to explain wider ranges of behavior<sup>58</sup>. In other words, we should not reject a moral judgment as a type of a problem solving on the bases of sympathy. On the other hand, there are similarities between solving a problem in the general sense described by Simon and what the spectator is required to do. Both have to face computational and informational limitations, both rely on heuristics and satisficing principles to guide their behavior, and both are affected by the environment.

This latter point speaks to the fact that both Smith and Simon are concerned with actual behavior, as opposed to ideal behavior. Smith (1759) wrote, "[T]he present inquiry is

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<sup>57</sup> "The Tower of Hanoi (also called the Tower of Brahma or Lucas' Tower,[1] and sometimes pluralised) is a mathematical game or puzzle. It consists of three rods, and a number of disks of different sizes which can slide onto any rod. The puzzle starts with the disks in a neat stack in ascending order of size on one rod, the smallest at the top, thus making a conical shape. The objective of the puzzle is to move the entire stack to another rod, obeying the following simple rules: (1) Only one disk may be moved at a time. (2) Each move consists of taking the upper disk from one of the stacks and placing it on top of another stack. (3) No disk may be placed on top of a smaller disk. With three disks, the puzzle can be solved in seven moves. The minimum number of moves required to solve a Tower of Hanoi puzzle is  $2^n - 1$ , where  $n$  is the number of disks." Simon used the Tower of Hanoi as a type of decision problem to be studied by information processing theories.

<sup>58</sup> See Simon, H., *Motivational and Emotional Controls of Cognition*, Psychological Review, 1967, Vol. 74, No. 1, pp. 29-39

*not concerning a matter of right . . . but concerning a matter of fact. We are not at present examining upon what principles a perfect being would approve of the punishment of bad actions; but upon what principles so weak and imperfect a creature as man actually and in fact approves of it. (TMS, II.1.5.10).* In a similar spirit as Smith, Simon (1997) wrote, *"Theories of bounded rationality are more ambitious in trying to capture the actual process of decision as well as the substance of the final decision itself. A veridical theory of this kind can only be erected on the basis of empirical knowledge of the capabilities and limitations of the human mind; that is to say, on the basis of psychological research"*<sup>59</sup>.

## 2.2.- Sympathy

Sympathy can be defined as the 'feeling' that the spectator gets once she places herself on the shoes of the agent being observed<sup>60</sup>. "The feeling that the spectator comes to have by these means is not necessarily one of pity or compassion; it may instead be of delight or happiness or, indeed, any passion whatever"<sup>61</sup>. Hence, sympathy can account for a wide variety of fellow-feelings or emotions. I do not get here into the difficult task of differentiating between emotions, passions, feelings, sympathy, empathy, etc. There is a long and interesting history about the different uses and meanings of these terms, and I do recognize that such conceptual distinctions are quite important. However, just for the purpose of this essay, I shall treat them as similar or interchangeable terms.

Smith's account of sympathy was somewhat different than Hume's account. For Hume, sympathy consists of what *others actually* feel in their circumstances while for Smith the spectator is not required to match her own feelings to those of the agent<sup>62</sup>. *"What they [the spectators] feel, will, indeed, always be, in some respects, different from what he [the agent] feels, and compassion can never be exactly the same with original sorrow; because the secret consciousness that the change of situations, from which the sympathetic*

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<sup>59</sup> Simon H., *Models of Bounded Rationality*, Vol. 3, MIT Press, 1997, p. 293

<sup>60</sup> A rich discussion of Smith on sympathy can be found in Griswold (1999), ch.2.

<sup>61</sup> Broadie, A., *Sympathy and the Impartial Spectator*, *The Cambridge Companion to Adam Smith*, Cambridge University Press, 2006, p. 164

<sup>62</sup> Hume notion of sympathy has to do more with communicating and sharing rules. However there are some relevant points of view which makes the differences more subtle and complex. I cannot mention them here for obvious imitations of space. For more information, see *The Cambridge Companion to David Hume*, Cambridge University Press, 1993.



*sentiment arises, is but imaginary, not only lowers it in degree, but, in some measure, varies it in kind, and gives it a quite different modification” (TMS, I.i.4.8).* That is to say, Smith leaves room for discrepancies between the feelings of the spectator and that of the agent. Not in the sense that their fellow-feelings are not exactly the same, as that may be inevitably the case, but in the sense that the feeling of the spectator and that of the agent may be completely different from each other. As Broadie (2013) reminds us, Smith offered us two spectacular examples of cases where the spectator has a sympathetic feeling that does not correspond to the agent. One is related to sympathizing with somebody who has lost his reason. In this case the spectator may feel the tragedy of the agent while the agent, completely unaware of the situation, could feel quite happy. In this case is reasonable to suppose that the spectator only takes the happiness of the agent as evidence of his tragic situation. The other example comes from sympathizing with objects or persons that are not ‘there’. The most famous case is perhaps that of sympathizing with the dead (TMS, I.i.1.13). The dead are deprived of company, sunshine and conversation so the spectator could arrive at some feeling that may have no relation whatsoever with the “feelings” of the dead.

When Smith acknowledges the possibility for discrepancies between the agent’s and the spectator’s ‘feelings’, then there is no longer a contagion account of sympathy as it may be derived from Hume’s treatment of the concept. This can lead us to the conclusion that whatever emotions may arise out of the exercise of spectatorship in Smith, these come (at least to some extent) from the mind of the spectator and not merely from outside stimuli. That is to say, sympathy is mediated by the set of values, beliefs and imaginative elements already present in the spectator’s mind. The set of beliefs and values may be shaped by cultural and religious heritage, but the contents are nevertheless located ‘inside’ the spectator’s mind. Hence, it seems to me, this strongly suggests that for Smith emotions have, in some way, a cognitive content. Before going further into this argument, I shall briefly explain what do I mean by a cognitive theory of emotion.

Cognitive theorists characterize emotions primarily in terms of their associated cognition or interpretative activity. Emotions are seen as, wholly or partially, forms of cognitions or as being logically or causally dependent on cognitions. For example, one

may find studies that focus their efforts in studying how emotions are caused by thoughts, or studies that focus on how beliefs may affect the way in which we interpret and perceive some situations at an emotional level. "Hope and joy, for example, depend on different assessments of the probability of an event. One can be joyous about an event that actually has happened or is very likely to happen, but not about one that one sincerely doubts will happen"<sup>63</sup>.

To continue with the previous line of argument, emotions in Smith could be considered as having a cognitive form. After all, the feeling of sympathy that comes about in the spectator is mediated by the contents of the mind which include, of course, beliefs values and the exercise of imagination. In other words, it is thoughts what seem to cause and shape the arouse of emotions in the spectator. Having said this, emotions seem to operate at a cognitive level in two ways: on one hand, as a passive force in the sense that is just reacting to what our thoughts are and, on the other, emotions can potentially be changed and managed since we could modify and alter some of the ways in which we think. It should be remembered that Smith, who was quite influenced by Aristotle, gives more a picture of virtue ethics than a ruled-based moral system as it was suggested by Kant or the utilitarians. In fact, the exercise of spectatorship is for Smith *the* way in which we develop our own moral virtues. As pointed out by Griswold Jr. (2006), *"That one type of passion is guided by an 'idea' of the imagination already indicates that for Smith the emotions are in some way cognitive; beliefs are part and parcel of emotions, and beliefs may be true or false, adequate or inadequate. Smith could therefore speak of erroneous or inadequate emotions; indeed, the whole notion of rational criticism of an actor's emotions from the standpoint of a spectator is supported by this interpretation of the emotions, and he certainly speaks of our amending such emotions to better meet the standards of virtuous character and action. The proper degree of its passions is not determined by appeal to nature as much as by the judgments of the impartial spectator"*<sup>64</sup>.

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<sup>63</sup> What is an Emotion?: Classical Reading in Philosophical Psychology, Ed. By Calhoun, C., and Solomon, R.C., Oxford University Press, 1984, p. 16

<sup>64</sup> Griswold, Jr., C., *Imagination, Morals, Science and Arts*, The Cambridge Companion to Adam Smith, Cambridge University Press, 2006,

But emotions not only have a cognitive element in Smith. It also has an evaluative form because sympathy is how the spectator judges an agent's act as proper or not. Sympathy is what allows the spectator to approve the agent's performance and such approval is mediated through 'feelings' or 'moral sentiments', just as it can be found in the first chapters of the TMS. Hence, Smith's notion of emotions have both cognitive and evaluative aspects.

In the cognitive sciences and in computational psychology, emotions are frequently studied as influencing information processing as envisioned by Herbert Simon (1967, 1979, 1997). For example, according to Prinz (2012), "There can be effects on memory, attention, problem solving, and perception. One well-studied pair of memory effects is emotion-congruent encoding and recall (Bower 1981). Emotion-congruent recall refers to the fact that people will more readily encode information that is consistent with a current emotion or mood"<sup>65</sup>. This type of research belongs to the cognitive approaches and, consequently, are congruent with Smith's approach to emotions. On the other hand, Simon does not seem to have proposed a study of emotions from an evaluative approach as Smith's TMS implies. Nevertheless, it is worth mentioning that there are interesting studies in moral psychology and neuroscience that are dealing with emotions in this sense<sup>66</sup>.

### **3.- Does Smith's work can offer any lessons to Classical Behavioral Economists?**

I believe that there are important lessons we may extract from reading Smith's TMS through the lenses of CBE. I have yet to complete this work, so I would only adventure myself to suggest the directions in which – I think – I should be working on in order to complete this section: (1) The idea of socialization process in Smith offers, I would add compellingly, one way to think about how the interaction of agents with others can affect their respective decision process. This is one aspect that I am hoping to explore through the use of a simulation platform using a computer model where bounded rational agents interact (with Jacinto Davila) with each other, using some definition of emotions at an information processing level. It seems to me that Simon's treatment of emotion as a

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<sup>65</sup> Prinz, J., Emotion, in *The Cambridge Handbook of Cognitive Science*, Cambridge University Press, 2012, p. 204

<sup>66</sup> See, for example, ed. Sinnott-Armstrong, *Moral Psychology, The Neuroscience of Morality: Emotion, Brain Disorders, and Development*, Volume 3, MIT Press, 2008.

cognitive and motivational variable was not designed, at least initially, to suffer changes in the model. Emotions, for Simon, appear to be given either by affecting our attention or by changing the priorities or hierarchies of behavior. Smith, on the other hand, seems to offer a more complex picture by considering emotions as variables that do change through a process of interaction. (3) Imagination is one element that could serve as a source of research in its psychological and cognitive aspects which is not mentioned much in the work of Herbert Simon.

#### **4.- Preliminary Conclusions**

By enriching our descriptive models of human behavior we are, at the same time, enriching the normative models for decision making. One of the great lessons we must learn from Smith's and Simon's interesting ideas, it seems to me, has to do with this fundamental point. I would be expanding on this and summarizing the findings of section 3 of part II as the main content of the conclusion...

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