

## ECONOMICS AND INTENTIONALITY

Robert Nadeau

Département de philosophie  
Université du Québec à Montréal

### 1. The Pervasiveness of intentionality in economics

A good way of characterizing what is usually called the 17th-century "revolution of modern science" is to focus on Galileo Galilei's theory of explanation. As is well known, he set aside three of the four Aristotelian causes (material, formal and final causes) in order to base all sound scientific explanations in terms of efficient causes. In the second half of the 19th century a new scientific revolution occurred, with Darwin's theory of evolution. As it has been stated repeatedly, Darwinism also has something to do with the abandoning of teleology in science, as speciation is explained without any appeal to final causes. But in the last quarter of the 19th century a third scientific revolution occurred, this time in the social sciences. Many philosophers of science fail to notice or understand this intellectual event. This third scientific revolution is usually called the "marginalist revolution." The transformation of political economy into pure economics, and progressively, into mathematical economics had at least two distinctive features. First, this revolution broke out simultaneously but independently in three different European countries: with Carl Menger (1840-1921) in Austria, with William Stanley Jevons (1835-1882) in England, and with Léon Walras (1834-1910), who, in 1870, was the first to hold the Chair of Political Economy at the University of Lausanne in Switzerland.<sup>1</sup>

What is striking and should not be overlooked here is that this third scientific revolution did not reject teleology or the legitimacy of giving scientific explanation by making reference to final causes. In the realm of economic action (microeconomics), it even seemed to be theoretically sound to think that any individual economic agent, be it a personal or an institutional one, was guided by

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<sup>1</sup> Carl Menger published in 1871 his seminal book *Grundsätze der Volkswirtschaftslehre* [*Principles of Economics*]. Léon Walras is known for his independent development of the marginal utility approach to the theory of value in 1873, and he also created what is now called the "General Equilibrium Theory" (*Éléments d'économie politique pure*, 1874-7). But Stanley Jevons has claim to priority for having first expounded the marginal utility approach to value in 1862.

his “preferences” and was trying to maximize what is now called a “utility function.” In a sense, this new conceptual framework was emerging because in the field of economics, theoreticians were working with a new, plainly subjective, theory of “value.” Joseph von Neumann and Oskar Morgenstern further emphasized this point in their *Theory of Games and Economic Behavior* (1944), a theory which is held to be applicable to situations of risk, and which takes as its most central explanatory principle the rule of the maximization of expected subjective utility. To put it in a nutshell, one could say that this very basic principle simply asserts that any rational economic agent behaves as if he would sum up all individual utilities, each utility being weighted or pondered by its probability of occurrence. As a result of this crucial turn of neoclassical economics, intentional language came to form an essential part of the main conceptual framework of this scientific domain.

What exactly do we mean when we say that after the marginalist revolution, economics began to speak the language of intentionality? It may seem that a fundamental link to the idea of “intention” is to be found in the “consumer’s choice theory,” where it is related in the first place to the concept of *preference*. In this theoretical context, a choice is always assumed, as a matter of axiomatic definition or postulation, to express a preference, and all preferences held by one economic agent are transitive. It may be more accurate, however, to say that intentionality is the hallmark of the new theory of value propounded by the marginalist approach. As the marginalist revolution erects a brand new theory of economic value that is explicitly subjectivist (value is the result of a mental act, and utility is not an objective property of things in themselves but a preference relation), one can say that neoclassical economics is a theoretical framework thoroughly based on intentional concepts. Now, there are at least two radically different ways of looking at this situation. One can start with some preconception concerning what a “legitimate empirical science” must look like and try to see whether the neoclassical theory passes the test, or one can choose to deal somewhat more directly with the epistemological specificity of economic reality as captured by neoclassical theory.

Today Alexander Rosenberg is an eloquent and persuasive advocate of the first option. Rosenberg maintains that economics’ epistemological backwardness can be largely explained by its unjustifiable complicity with common sense. According to this argument, the main epistemological defect of economics is that it does not cut nature at its joints or, in other words, it fails to identify variables that are “natural kinds”.<sup>2</sup> For Rosenberg and many other philosophers, it would seem that

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<sup>2</sup>. This argument was exposed on many occasions by Rosenberg. See for instance Rosenberg 1980a, 1980b, 1988 and 1992.

the "mind" has no place in social science. For a lot of empiricist philosophers and positivist social scientists, the category of mind that must inevitably be used when doing the kind of economics neoclassical theorists have propounded is apparently one which only a kind of "unscientific" psychology still accepts. Such thinkers thus attack microeconomics' dependency on "folk psychology," arguing that it stems from a pseudoscientific or merely ideological point of view. According to Rosenberg's analysis, for instance, not only is the neoclassical theory of the consumer's choice the cornerstone, even the "paradigm" of the dominant trend in economics, but all ulterior microeconomics, and even game theory, is in fact nothing but "formalized folk psychology."

At the risk of failing to do justice to Rosenberg's dense and daring argumentation, I would like first to examine its central tenet. According to Rosenberg, fundamental economic theory posits that human action is entirely a function of the "desires" and "beliefs" of agents, and it does so to such an extent that, *ceteris paribus*, desires and beliefs causally explain all economic action. The only "law" cited in this theory could be formulated in the following way:

[L] = "Given any person  $x$ , if  $x$  wants  $d$  and  $x$  believes that  $a$  is a means to obtain  $d$ , then, under the circumstances,  $x$  does  $a$ ".<sup>3</sup>

For Rosenberg, the problem here is that the microeconomic theory that provides the foundations for the whole scientific enterprise refers to "intentional" variables such as desires and beliefs, which are for all intents and purposes impossible to determine independently of the theory advanced by hypothesis. In other words, these variables are impossible to determine without first assuming that [L] is true. However, [L] which roughly corresponds to what is usually called the "Rationality principle" does not seem to be testable, since in social science, and especially in economics, any attempt to do so inevitably takes the principle for granted. Rosenberg's analysis echoes in many ways the arguments of all those who have questioned the apparently "almost empty" empirical content and the proto- or pseudo-nomological status of this principle, which is apparently indispensable in explaining economic action.<sup>4</sup> However, his argument takes a very special and singularly important turn because it aims at challenging the conceptual framework which has helped constitute economics as it is known today.

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3. Rosenberg, 1988, p. 25.

4. For a discussion of what is at stake here, see my 1993 paper.

What does it mean to argue that the terms designating the functional variables of [L] belong to the intentional vocabulary? In essence, this claim implies that there is no way to establish scientifically--in other words, on the basis of controlled experimental observations--that the beliefs and desires of an agent are in fact what make that agent act exactly as she does in a given situation. Since beliefs and desires cannot be described in terms which would make empirical control possible, these concepts have little informative value and the theory which puts them in a functional relation with the action to be explained or predicted can never have any serious explanatory power and can never succeed in increasing its predictive power.<sup>5</sup> Likewise, this theory proves uncontrollable, untestable, even entirely irrefutable. Thus it would be best to discard it and replace it with another founding conceptual framework that would not simply be expedient. The replacement could be provided by experimental psychology but, according to Rosenberg, surely not by the behaviorist approach since it does not seem to be entirely free of intentional language. Perhaps should we think that it could come from neurophysiology. I will discuss this topic in section 3 below. For the time being, I would like to get a closer look at the fact of the matter, i.e. at what, more precisely, we have in mind when we speak of the intentional language of neoclassical economics, and with it, all theoretical economics that adopts the subjective theory of value originating from the marginalist revolution.

It seems to me that there is no need to attack Rosenberg's severe and rather negative observations: his analysis is in a sense correct and the factual part of his conclusion difficult to dispute. Certainly we should be grateful to Rosenberg for not having limited his remarks to a criticism of what he considers to be the rather "quaint" concepts of contemporary microeconomics, even if, in the end, his exploration of other possible avenues of research seems to provide only a very dubious solution to the theoretical and conceptual dead end in which he finds economics. My question is directed at a gap between the two main parts of Rosenberg's argument, namely, his observation of microeconomics' apparent failure, and his proposals for new avenues of research. Everything hinges on this part of the argument, that is the moment when the phenomenon of intentionality and its role in economics is apparently taken into consideration and examined. For Rosenberg, the mental is simply unwelcome in economics, but this thesis requires a more careful consideration.

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5. Rosenberg's whole argumentation is now fully developed in his 1992 cleverly argued and much challenging book. Previous steps in the same direction had already been taken in his 1980 and 1983 papers. In the latter case, Rosenberg was surely right to argue in his 1986 paper that Wade Hands had not properly understood his main point (see Hands 1984).

I believe, unlike Rosenberg, that the phenomenon of intentionality is not transient and that it is here to stay in economics. I would even go so far as to assert that this reality is *constitutive* of the domain of economic theory and that its discovery marked the entrance of economics into the twentieth century. In order to establish this thesis, I would like to assert that Rosenberg's argument does not do justice to this phenomenon. Rosenberg rejects "intentionalist" terminology on the pretext that it lacks sophistication. One might say that to him it constitutes a kind of picturesque mythology without any real explanatory value. In fact, it might be asked whether, in condemning intentional language as he does, Rosenberg is not throwing the baby out with the bath water. What would be the point in giving up concepts of need, preference, and utility if, in so doing, one ended up giving up what these concepts were used, with varying degrees of success, to reveal, namely the irreducibility of social phenomena to pure physical phenomena? We might also ask whether Rosenberg is right to hold that the intentional terminology he denounces under the pretext that it is epistemologically laughable corresponds to the psychologizing language of common sense, and that the concepts used in microeconomics, far from being technical concepts the definition of which is not obvious, designate mental entities the existence of which is dubious.

Let us begin with the last point. Rosenberg easily recognizes the formal value of microeconomic conceptualization. It is rather the *empirical scope* of intentional concepts which he questions. However, if he is ready to recognize that the axiomatic of microeconomics is logically valid and mathematically faultless, then should he not also recognize that the first virtue of an axiomatic approach comes from the fact that it allows one to neutralize all the usual connotations of the terms used in the various axioms? If this axiomatization truly constitutes a system of implicit definitions, should one not consider that, far from having their traditional or "popular" meaning, the concepts used in economics, though they are expressed using terms apparently belonging often to ordinary language, have virtually nothing to do with what they usually mean from the point of view of common sense?<sup>6</sup> It is, in my view, extremely dubious that contemporary economists use those terms in exactly the same sense as we do when we speak the language of common sense.

In spite of this fact, it is also important to see that all economic concepts are thoroughly intentional, whether we are talking, for example, about "marginal value," "order of preferences," "individual agent," "transaction cost," or "expected utility." Certainly, in any system of postulates, some terms are undefined, and it must seem entirely acceptable that those terms, insofar as they are

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<sup>6</sup>. I should add that for Rosenberg, expectations and preferences "are just cognates for the beliefs and desires that figure in [L]" (Rosenberg 1988, p.27).

given a basic or primitive status, remain indefinitely open to theoretical interpretation through other axiomatic or axiomatizable systems. In the history of economics, it is the marginalist revolution and its subjectivist approach to economic value that seems to have made it necessary to recognize the intentionality of economic phenomena. The adoption of such a subjectivist point of view, a point of view which seems to me inevitable and of which we have certainly not yet finished learning the inescapable consequences, appears to me to complicate matters in economic methodology a great deal. Allow me to explain. One way to understand the meaning of the subjectivist perspective in economics is to see precisely how it contrasts with the "objectivism" of classical thinkers, an epistemologically naïve and methodologically ingenuous perspective which is still widespread in some circles. To be a subjectivist in economics is above all to opt for an analysis in terms of market processes. However, the market, far from being describable as a "mechanism" in the physical sense, that is as a machine that would operate automatically to allocate rare and uncertain resources, should be seen, as Hayek asserts, as the most efficient way for each person to discover the way in which he should employ his resources. Thus, to adopt subjectivism is equivalent to recognizing that it is impossible for anyone to make long-term, infallible predictions about the future state of her own needs, and also about the future state of real supply and demand, or the future state of the quantity of truly available goods and services, just as it is impossible to know now which technology will be available tomorrow and what scientific knowledge will determine its fine tuning.

This is because the cornerstone of subjectivist economics is the theory of subjective value. Here, value appears from the start as an undeniable mental fact since, far from boiling down to a pure and simple question of average production costs, the value of a given good is a function of the marginal utility which the person who acquires it ascribes to it. However, it must be noted that with such a concept of value, the notion of "cost" is also radically transformed.<sup>7</sup> For a given economic agent, any good has essentially an "opportunity cost," which theoretically corresponds to the value of the alternative choices one foregoes when one makes a particular choice. Since this is measured completely subjectively and privately, it seems useless, or even impossible, to attempt to quantify this value in any precise way. Thus we conceive of it from the outset as something inaccessible to external observers. Of course, there is an undeniable and crucial methodological problem when it comes to understanding how an economic agent makes a price correspond to this subjectively measured value. Nonetheless, given such a point of view, all economic phenomena appear from the start as "manifestations of individual mind." If individuals have economic life analyzable in terms of

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7. See Vaughn 1980.

relations between ends pursued and means used to reach them, which are in turn further analyzable in terms of mathematizable relations between costs and expected benefits, if there are such phenomena as the supply and demand of goods and services, if there are exchanges between individuals, and if there are things like money, appreciation, salaries, annuities, interest, or such macroeconomic phenomena as unemployment levels, inflation rates, trade balances between states, this is because there are individuals who try to maximize their well-being, who analyze their respective situations as well as they can, who process the information which comes to them, who make decisions, and who, finally, act in accordance with what they consider important, what they prefer, and the situation in which they find themselves. Thus, social existence appears to be fundamentally based on individual and subjective perceptions, which are themselves functions of the global situation in which each person finds herself, but to which no other person has direct access.

If this analysis is sound, then a very crucial epistemological fact that needs recognition is that *most if not all theoretical terms used in economics are intentional*. So, not only the most obvious ones are openly intentional, such as "preference," "incertitude," "utility," "value," "information," "rational expectation," "cost," and "risk aversion," but also those that we would not count spontaneously as intentional, such as, to name a few, "credit," "stock," "debt," "supply," "demand," "inflation," "price," "returns," "transaction," "capital," "interest," and, as I will try to show in my next section, even "money." If this is true, the problem is not simply that of saying how economists provide explanations in using L or the rationality principle based on beliefs and desires. The problem is that of assessing the fact that the "objects" or the "things" that economics agents and theoreticians as well are referring to in economics are not, at least not all of them, physical objects or material things but mental realities or intentional entities. This issue is at once an ontological and an epistemological one and can hardly be limited to an isolated methodological topic.

Now let me assume, for the sake of argument, that Rosenberg is right in stating that the predictive power of the theory propounded by neoclassical economists cannot be improved. I will even assume furthermore that the reason for this methodological mess can, as Rosenberg argues, be traced back to what really causes this theoretical framework to be a blatantly "empirical failure," namely the fact that all of its explanations are hopelessly based on "the intentional stance." Instead of directly challenging the main philosophical arguments that are generally aimed against any "intentionalist brand" of economic methodology, I will now try to give a *reductio* argument against the very possibility of having both an economic theory and an exclusively non-intentional

conceptual framework for pursuing scientific research in the field of socio-economic life. By a '*reductio*', I mean the kind of argument that would lead anybody interested in pursuing research in the economic field to conclude that it would be foolish or totally absurd for her to stop talking about certain phenomena if it were granted that in order to be able to speak about those phenomena she must use an intentional language. So, if it could be established that certain very peculiar phenomena are "in themselves" or *per se* intentional, then we would be confronted with the crucial choice of either totally ignoring them and giving up on trying to explain them, or endorsing the language required to do exactly that.

Let me give an example of what I take to be a *reductio*. If we grant, for example, that teleology is a hard fact of human action in society, in political or economic action for instance, then a *reductio* directed against any philosophy of social science that would deplore and condemn the use of intentional language would run as follows. If one wants to be able to make any sense of social life, one must adopt the only language that is adequate for talking about teleological action, i.e. a language of reasons, and not only of physical causes, a language that includes finality and not only causality (or a language that counts reasons among possible causes). This is exactly what resorting to an intentional language is meant to permit in economics.

This argument rests on just one basic principle: we must first have an idea of what it is we want to speak about before we fix the semantics and vocabulary of our descriptive and explanatory language. The opposite approach, i.e. one in which we weigh rigid constraints on the language then go from there to the objects is unscientific: in science, reality comes first, and methodological constraints on language come second. What I have been arguing for in this first section is that intentionality should be acknowledged as the trademark of all important economic concepts since the marginalist revolution. Indeed, intentionality is pervasive in economics and as such completely inescapable. In the next section I argue that the most central economic phenomenon, money, is a thoroughly intentional phenomenon and that, as such, it makes no sense to try to reduce it to something merely physical. If we cannot do economics without talking about money and if we do not want economics to be an unscientific activity, we must agree to rely on this kind of non physical phenomenon and we do it in a non-physicalist language like the language of intentionality.



## 2. Money as an intentional reality

We all think we know what money is. One could perhaps say, *mutatis mutandis*, about money what Saint Augustine says in his *Confessions* about time: when I don't think of it, I know what it is; but when I come to think about it, I do not know any longer. As a very first and also a very crude approximation, I suppose that for each and every one of us, money is something that we can have in our hands, something that we can touch, smell, bite, and inspect. Money is something real, something that we can put into our pockets or wallets. One can toss a coin or play with it, just as one can count dollar bills and make a pile of them. For sure, one can count coins and bills as easily as one counts many other physical objects. Money, then, looks and behaves like a certain sort of "thing." Money is something we can accumulate, put under a mattress or in a bank account. It is something we accept in exchange for our work, something we can use to pay back what we owe, something we can borrow, lose in a poker game, invest, and loan; it is even something that some of us can cherish above everything else. Ultimately, money is something that we can exchange for goods and services, something no one ever says he has enough of.

So, in a sense, money is something like many other things in the world we live in, i.e. a physical thing with physical properties. A coin or a bill has, as such, a certain weight, a certain color, and even two faces on which human figures, landscapes and such are depicted. And, of course, one cannot fail to see that these physical properties are of crucial importance if we ask whether the money we now have in our possession is "real," as opposed to toy money, or "legitimate," as opposed to counterfeit money. This being so, it is then out of the question to challenge the fact that money presents itself as something that we can speak about in a physical language, or what Rudolph Carnap, seeking to characterize the kind of language we could use to do science in general, called a "thing-language."<sup>8</sup> It is obvious, then, that the first thing to say about money is that, from a certain perspective, it is part of common sense reality. Everybody seems to know what money is, what can be done with it, where it can be put, and so on. In a sense, people experience money as being a mere physical thing. Far from being a strange reality for them, money is a rather familiar one and for that matter people can be very friendly with it--especially if it's not theirs--and give it many odd nicknames (for example in French: "fric," "oseille," "pognon," "blé," and in English: "cash," "dough," "lolly," "moola,").

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<sup>8</sup>. See Carnap 1956.

So, if money is like anything else, then we should be able to speak of it the same way we speak of any other part of our everyday physical environment. But, when we think more wisely about it, we rapidly see that a “thing-language” of the kind Carnap was constructing in the hope of clarifying “the methodological character of theoretical concepts” in natural sciences is not adequate to the economists’ tasks. The reason for this is that for them, precisely, money is not just a “thing”. It is not a kind of entity like any other physical entity. Money is not a natural kind and economists would surely think it odd to try to transform it into one by means of some ingenious conceptual reduction. But how can that be? Would economists be completely mistaken in this regard? How can something that we experience as being “something” not be, in the final analysis, a material reality? How can money be something real and not be either one of the components of matter or a materialized compound of those bits? How can something be part of the furniture of our world and not ultimately be something that can be used as a building block of our physical environment? This, of course, has to be accounted for. Maybe money is just another fiction; but if money is a fiction, it is a fiction that works! Those who really think that money is not something real enough to be worthy of scientific explanation are invited to skip to the next essay in this anthology, for in what follows I shall assume the contrary.

When economists speak of money, they can hardly be said not to refer to exactly the same thing as ordinary people do. But if they use the same token term, this does not mean that they have the same concept of money as ordinary people. Theirs is a much sophisticated, elaborate, and refined concept, for it is a technical one. One could say that their concept of money is in fact a physical concept since economists speak of “liquid money” and of a “mass” that expands or shrinks. In fact, they distinguish between three very different monetary aggregates and take into account different kinds of assets (coins in circulation, savings deposits, etc.). To be sure, when economists speak of money in a narrow sense, they see it as a pure medium of exchange, and when they speak of it in a broader sense, they see it as an overall store of value.

So, ultimately, when economists talk of money, they presuppose what I alluded to in my first section as the “marginalist theory of subjective value.” Every consideration of the value of money must presuppose a state of society in which exchange takes place and must take as its starting point individuals acting as independent economic agents within such a society, that is to say, individuals engaged in valuing things, i.e. transforming them into economic goods. This “economic valuation” is a sort of mental activity. What people accept as money in fact, and the value they attach to it, are essentially matters of individual valuation; as such these phenomena depend on the entire complex of economic activity in which individual valuations are made. This is the case even if we accept the

somewhat mechanistic approach of Irving Fisher in his famous book entitled *The Purchasing Power of Money* (1911) in which he revived the old 'quantity theory' of money, arguing that the purchasing power of the money supplied could be predicted according to a simple formula in which the principal variable was the amount put in circulation. This approach was, as is well known, further developed by Milton Friedman, but I need not go into the details to make my central point.

I shall limit myself to asking the following question: what is the purpose of money? An answer to this question must inevitably say what kind of thing money ultimately is. As noted above, these questions are not of merely methodological but also of ontological and epistemological import. In this regard, money is a very unusual entity, since it is not a good that is produced or consumed, but a commodity that is acquired by people to facilitate the exchange of goods. Thinking about it, money does not produce things; indeed, the entrepreneur must give it away in exchange for production goods before any output can be generated. Nor can money be consumed: the sole function of money is to be once again given away in exchange for consumable goods and services, a rare exception being perhaps the miser who wants to accumulate money for its own sake. But even in that special case, money is cherished for the purchasing power it represents in fact, and for nothing else. The sole purpose of money, oddly enough, is, then, to be exchanged. Money is purely a medium of exchange. But it can serve as such only because people value it for what it stands for.

This is why the emergence of money in the economic system is easy enough to understand. The production and consumption goods which people want to acquire have different degrees of marketability: for some it is easy to find customers, while others have a narrower appeal that makes it difficult to find customers willing to offer (or vendors willing to accept) a mutually agreeable compensation at the right time and in the right place. So what is the hungry barber to do? It is a waste of time to search around for bakers in need of haircuts, but perhaps there are plenty of bakers who would be prepared to accept something else. The more marketable that 'something else' is, the more likely are bakers (and for that matter, butchers and professors) to accept it as payment even when they do not want the barber's special services. So even the bald baker will accept a commodity that he knows can be readily exchanged for the meat and lectures and other goods that he might want in the future. To be more technical about it, we could observe that the person who cannot instantly acquire what he or she needs because of this difficulty in finding a ready market can nevertheless improve matters by exchanging a less marketable good he or she wishes to trade against a more marketable one. The more marketable good can then be traded, more easily, for whatever is needed. Similarly, a person who wants to dispose of some commodity quickly (because it is perishable or expensive to store, or because a fall in its market value is anticipated) acts wisely to

trade it against a more marketable good, even if this good does not satisfy his or her own needs directly.<sup>9</sup>

This system of indirect exchange becomes much more important as the division of labor grows. In our advanced and well-developed economy which is reaping the gains of a very high degree of specialization, individuals might well find themselves engaged in the manufacture of goods that are aimed at a very small and specific market and which have no interest or value for anyone other than those few buyers. It is not surprising, therefore, that the greater the division of labor, the more important is it to seek out intermediary goods that are more readily acceptable in the widest range of markets and so able to act as a medium of exchange that facilitates the very widest range of transactions. A medium of exchange is a good which people acquire neither for their own consumption nor for use in their own productive activities, but *with the intention* of exchanging it at a later date against those goods they want to use either for consumption or production. Eventually the competitive use of different intermediary goods will sort out one or a group of commodities that prove most acceptable as a medium of exchange. When an intermediary good becomes generally accepted, so that it operates as a common medium of exchange, we normally call it 'money.'

Exactly what will be used as money will depend on how generally acceptable it is for all potential agents on the market. It will then depend upon the individual valuations of those in the marketplace at that time. Today, we often imagine that only the government chooses what will count as money; but while the state has the power to decide what will be the legal medium of payment, only the fact of what people are prepared to accept will decide what is the common medium of exchange. If the government's own bank notes were to become worthless, people would certainly decide to deal illicitly using cigarettes, brandy or some other commodity as money. In both planned and free market economies governments cannot make something the common medium of exchange if people do not accept it as such. The essential characteristic of money, then, is to be a

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<sup>9</sup>. The point of view I am defending here is closely akin to André Orléan's approach to money (see Orléan, 1991 and 1992). For instance, describing the modern form of money, he writes: "For any agent, *i*, that agent's acceptance of a worthless sign, money, in exchange for a commodity, depends on that agent's expectations about the future acceptance of the same sign by another agent, *j*. The particular qualities of the sign hardly matter, for what is essential in determining agent's *i* decision is *i*'s expectation about the behavior of *j*. Agent *i* will only take the money if he knows that *j* will accept it in turn one day. But, to the extent that *j*'s acceptance of the money also depends on *j*'s expectations about a new agent, *k*, *i*'s acceptance of money depends on *i*'s expectations about *k*'s acceptance of the monetary sign. It should be obvious that this reasoning hardly stops with agent *k*. Thus, the acceptance of money depends on an infinite chain of expectations about the expectations of other agents. 'Specularity' is the name we give to this kind of situation where the agent's behavior is based on their reciprocal expectations about each other's behavior" (Orléan 1992, pp. 123-4).

good acquired for the purpose of exchange. Money is not a factor of production, acquiring its value like other goods of production from the value of the goods it produces; it is not a good of consumption because the value to its holder consists in its being exchanged, not in being consumed; it is not even capital because it produces no benefits until it leaves the holder's hands. Its only function is as a medium of exchange, and all the other functions which are popularly ascribed to it are just particular aspects of this function.

This characteristic of money stands in stark contrast to the commonsense view. Even if we were emphasizing the need for media of exchange to be durable and divisible, these physical properties would have to be seen only as incidental features of money, desirable as such, but secondary. They might, of course, help particular commodities such as gold and silver to become the common medium of exchange. When we are considering the economic issues surrounding money, however, we should not be misled by these incidental traits. The key characteristic of money is that it exists to facilitate exchange, nothing else. Although it is unusual, money is nevertheless an economic good. It is scarce, and there is a demand for it. People hoard it because they would like to be able to exchange it for the goods they will need in the future. And like all other commodities, money can be traded against other goods at a certain exchange ratio--a 'price.' In the case of money, the price is normally expressed a little differently, however, not in terms of the volume of goods or services that will exchange for a unit of money (e.g. how many apples to the dollar), but in terms of the number of units of money which exchange against another good (e.g. how many cents for an apple). In other words, a rising price of money means that what we call its "purchasing power" has increased. Despite the terminological differences here, the principle is the same for money as it is for other goods. And to complete the equation, the demand people have for money, whether they choose to hold greater or smaller amounts of a medium of exchange, will affect its purchasing power, just as changes in the demand for any good will have a bearing on its price.

For the commonsense view, money is and probably always will be a certain commodity: something solid that can be acquired and hoarded. From that perspective, the value of the commodity money stems firstly from its physical properties, for instance for its industrial and commercial uses. Thus, the value of gold and silver seems to derive exclusively from their use as personal and household ornaments or in industry. This, of course, is plainly mistaken for economic theory. The exchange value of a commodity money derives, in a sense, both from the industrial *and* the monetary uses for which people demand it; as a factor of production or an elegant ornament *and* as a medium of exchange. Plainly, the fact that people want a good because it can be exchanged widely will certainly have a bearing on its market price, and this effect will be supplemental to the

effect of its demand for consumers' and industrial uses. But economic theory is interested only in the commodity's character as a medium of exchange, and the value of commodity money is of importance for monetary theory only in so far as it depends on the peculiar economic position of money, and on its function as a common medium of exchange.

Money has no meaning whatsoever for economics unless it ultimately represents a certain amount of purchasing power that will be accepted or that economics agents *believe* will be accepted by somebody else. To underscore the fact that money is an intentional entity (an entity related to the fact that we humans have minds and for that reason can form intentions and share beliefs), we note that money works only because it stands virtually for something other than what it is materially speaking; money works because it has an *intrinsic relation to something else* and because it is nothing but this relation. And this relational property of "standing for" is precisely what economic theorists have to focus on when explaining what money is. They cannot succeed in doing this unless they speak of money in an intentional language. And this argument about money could be generalized as it surely applies to many if not all other economic phenomena. For this reason, intentionality seems unavoidable in economics.

### **3. The Neutrality of economics with regard to the ontology of mind**

Economics simply has no effective and efficient social engineering that would prove beyond reasonable doubt that this science is empirically sound. As a result, it is tempting to think that if economics could do away with mind and the language of mental life, it would accomplish the only scientific revolution that could finally free it from folk psychology and allow it to enter the pantheon of those sciences considered more prestigious because they are founded on experimental observation. Since, whether we like it or not, the concepts and theories of economics ontologically commit us to the existence of the mind, perhaps we should only hope that with a change in the status of psychology itself, economics would also benefit from a fundamental turnaround. The question of economics' apparent dependence on psychology thus becomes acute. It would be easy to believe that, from what was said above, economics is, in its foundations, at the mercy of theories which are now debated in psychology and philosophy of mind.

Furthermore, it could be thought that the conceptual foundations of economics are even weaker since this discipline is inevitably affected by future developments in scientific psychology. In any case, to accept this argument comes down to claiming that economics is obliged, whether it

likes it or not, to take the side of a particular research program in psychology, and that it is obliged, unwillingly perhaps, to settle a debate in which it has no control over the parties involved, but in which certain results could have consequences in its own domain. Should we take it for granted, then, that the economist should, as an economist, either be a behaviorist, or be a cognitivist, or perhaps even more radically, a disciple of neural science? It could be claimed indeed that because it is committed to the existence of the mental life of human beings, economics risks being inevitably affected by the present upheaval in philosophy of mind. Must we agree that the orientation, and even the future, of economics risks being seriously affected by the result of a debate which, at the present time, pits dualists of all sorts against hard-line monists? Must the economist pledge his or her allegiance to the epiphenomenalism, the parallelism, or interactionism, the anomalism of the mental, eliminative materialism, physicalist materialism, or emergent materialism? This is the final question I wish to take up.<sup>10</sup>

We must immediately acknowledge that if the economist takes an interest in what I have tried to show is a thoroughly intentional phenomenon, this is above all because she wants to understand something which presents itself, as paradoxically as it may seem, as “unintentional.” In effect, the economist is not interested in explaining human voluntary and conscious thought, nor is she interested in explaining the psychological processes by which individuals produce their deliberations and calculations. She is even less interested in revealing the mechanisms of the central nervous system that lead individuals to make the decisions that seem to suit them. Thus, economic theorization should be considered independent of research in behavioral psychology, cognitive psychology and even in neurophysiology. I would like to argue that economics is not only independent of those issues, but also simply *neutral* with respect to the possible results of the scientific debates and philosophical controversies at the present time in this domain of research.

In effect, the economist is, by definition, only interested in individual action because he is interested in the phenomena of social existence, in other words, human life in groups insofar as it gives rise to institutions and organizations. The economist must explain the collective behavior of individuals who bring about, through their reciprocal interactions, the existence of those institutions and organizations. Financial organizations, monetary systems, and markets are all paradigmatic examples of interactions and coordination processes between individuals. Each one forms a kind of more or less “spontaneous order,” to use Friedrich von Hayek’s phrase, and if it is true to say that

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<sup>10</sup>. For an excellent survey of these points of view and the psychological stakes involved, see Bunge and Ardila 1987.

none of these institutions and organizations would have seen the light of day without conscious and deliberate interventions by individual or collective agents, it is also true to say that none of them in fact represents the system of expected consequences and desired results of any one of those agents.<sup>11</sup> If individual human action is indispensable for order to appear in the social grouping of a multitude of individuals, the goals that each individual consciously pursues inevitably run up against other converging or diverging wills. Institutions are born out of the effect of coordination which occurs when wills collide. All of society, in each of its temporal states, is nothing but the result of individual undertakings. Certainly, while such an analysis is well-adapted to the goal of explaining economic phenomena, it is not very promising as far as practical spin-offs are concerned. Perhaps we should even go so far as to grant that, as an empirical science, economics has a precarious, or at least a very ambiguous, status. Even if economic analysis can certainly be used, for example, in developing monetary or fiscal policies, and thus even if economics is clearly related to empirical states of affairs, it is difficult to consider the statistical examination of public finances to be as rigorous and precise a test for economic theories as are clinical and experimental studies for the physical and biological sciences. But experimentalism is not the sole criterion of a science's empirical status.

However, I must at this point address myself to a line of thought that might be tempting to some. One may still ask whether economics will be sooner or later faced with a *fait accompli*, which would be the case should "mentalism" disappear from scientific psychology. If psychology were more or less absorbed by biology, would economics, which, as I have said, is committed to the existence of the mind, lose its reason to exist? Should we believe that it would then lose its object and its legitimacy? I don't think so. Even if we would come to consider the *mind* as something "material" or physical, it would still be spurious to think of a mental phenomenon like money as being a mere physical and not a thoroughly intentional reality. However, this said, no economist has to endorse philosophical dualism since the mind does not constitute for him something like an irreducible substance. The kind of dualism that seems to be forced upon economics, if it is a genuine dualism, has to do with the logic of science: it is "in practice" that the economists, the monetary theorist for instance, finds herself forced into a kind of dualism, since the language in which she can speak of physico-chemical things, Carnap's "thing-language, is not at all adequate for speaking about the intentional reality of economic phenomena.

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<sup>11</sup>. See Hayek 1967.



It is thus easy to claim that economics has taken up the fight for a mentalist psychology which thinks of the human mind as an autonomous entity irreducible to the system of functions and processes which neuroscience reveals. It is altogether possible to reproach economics for methodologically presupposing the existence of the mind without effectively proving its causal efficiency. It is fair enough to say, finally, that economics suffers the same deadly defects as all intentional psychology which only seems interested in cognition, which neglects emotion as a possible source of behavior and action, and which tends to compartmentalize the mind in order to structure it into independent abilities. This might be so. But suppose it were true to say that the will is seated in the brain, more precisely in the frontal cortex, as is proved by the fact, known since the 1930's, that lobotomized patients lose the ability to plan and make decisions. Suppose, thus, as Mario Bunge suggests, that "will power can be excised with a scalpel" and that it can be concluded, as he does preemptively, that "intention is a process which takes place in the brain."<sup>12</sup> Does this change anything for economics? Maybe it would if economists were trying to explain causally mental events and to make theories about the psychogenesis of beliefs and desires. However, I believe that this view is incorrect and stems from the illusion that economics *presuppose* psychological theories, when in fact it does not. It would then be plainly erroneous to claim that, since economics is committed to the existence of the mind, it would lose its privileged viewpoint on reality the day it is shown that intentional phenomena can be completely explained in terms of neurons. The reason is that fundamental economic theory, though it supposes the existence of individual utility functions and subjectively held information, leaves open the question of how these intentional processes are realized in the human organism. The fact that economics uses concepts called "intentional" neither presupposes that they are unanalyzable, nor requires that they be analyzable (i.e. explainable away) in psychological or biological terms.

The pertinence of this argument can be better seen when it is emphasized that microeconomics does not only posit intentional entities: it also posits, of course, the existence of material objects and of so-called "objective" constraints, which are in fact subjectively evaluated, and which influence agents and their decisions. The technology available at a given time is an example of one kind of constraint. While, then, it can be argued that in their domain, economists refer more or less naively to the existence of a "world of physical things," it would be completely wrong to reproach them for not seeing that this macroscopic universe of substances is in fact illusory and that it would be better to adopt immediately the concepts of the new physics of elementary particles, as

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<sup>12</sup>. Bunge and Ardila 1987, p. 215.

if that had any bearing in economics. I argue that in this case economists, insofar as they are economists, remain entirely neutral on the question of what constitutes the ultimate nature of physical matter. Indeed, neither is it an economist's goal, nor is it within his competency, to take a position on the structure of matter, for example continuous or discontinuous, corpuscular or undulatory. Furthermore, he has no need to do this in his own work. The only thing which really counts is that his theories be and remain compatible with any physical theory the scientific community decides to endorse today and in the future. This argument can be used to reveal that economists can just as well dispense with taking a position on the ultimate nature of mental life and the right way to explain theoretically human behavior. While economists are expected to respond to the question of the nature of money or explain how the market functions, which might entail an explanation of how agents make economic decisions, they are never required to take a stance in debates taking place elsewhere, and with respect to which, in spite of any interest manifested by economists, insofar as they are economists, they remain entirely neutral. Thus, whatever advances are made in biology and psychology, the economic phenomena which we are trying to understand and which we now explain with more and more complex mathematical models (I have in mind phenomena such as value, cost, money, price formation, market coordination, financial speculation, rational anticipations, etc.), will never become biopsychological phenomena or, even more radically, structures explicable in neurophysiological terms. Even if, due to revolutionary discoveries in neuropsychology, psychophysical dualism definitively gave way to psychoneural monism, the epistemological status of a science like economics, compared with that of particle physics, population genetics, molecular biology, or brain chemistry, would not be affected one iota: its scientific task would remain the same, and its ontological view would remain absolutely intact. It would still be moved by an epistemological conception of reality that presupposes the existence of human mental life. This is why, unless it abolishes itself as a scientific enterprise, economics need not renounce speaking the language best suited to the objects it has chosen to scrutinize, in other words, that of intentionality.

#### 4. Conclusion: intentionality is inevitable in economics

Thus, what forces economics to adopt intentional language is the fact that economics is "subjectivist" from the very beginning: this discipline supposes the existence of the individual human being as a "mind," and this is why the intentional vocabulary of mental life has appeared, and still appears today, to be indispensable in economic theory. The very first objects of economic analysis, such as the perception of the strategies of other economic actors, the planning of an action oriented toward the attainment of a goal, deliberation, calculation, and decision--all these conceptual objects that the economist must try to hold together in a network of theorizations forming a system--require the fine tuning of an entirely specific language which cannot be reduced to the language of the natural sciences. This is what largely explains why, compared with practitioners of the physical and biological sciences, the economist finds herself in a much more complex and difficult methodological situation. The object of these theorizations are certain phenomena of the subjective mental life of individuals living in society, and these phenomena can be virtually considered properly publicly unobservable as such. It is thus not surprising that these phenomena seemed at first accessible only through direct knowledge or introspection. This theoretical stance has now been replaced by Paul Samuelson's theory of revealed preferences, which relies completely on the choices actually made by economic agents.

Here a comparison between the social and physical sciences reveals nonetheless an important epistemological asymmetry. As Hayek has shown, the physicist, like the economist, is obliged to resort to unobservable entities to be able to explain adequately the phenomena which concern him. This is how he is led to postulate the existence of electrons, quarks and other elementary particles, as well as that of electro-magnetic fields, gravitational fields, etc.. Similarly the economist postulates, for the needs of her own analyses, preferences, individual values, rational deliberation processes, calculations, but also costs, markets and partial equilibria. However, while the physicist can have only indirect and impersonal knowledge of what he uses as explanatory principles, the economist is in a wholly different position; in the end, she can only know what it is to be a rational economic agent directly, by acquaintance, as Russell would say, but I would add "by acquaintance with herself," i.e. through personal experience. What the economist talks about, and what she attempts to objectify, to some extent at least, in the mathematical language of the models she constructs, is something which cannot be properly analysable in terms of physical events. For it is an intentional reality, not a physical one. Because this subjective mental reality constitutes the ultimate empirical basis for economics, intentional language was finally adopted by economists. It is also for

this reason that it is impossible to dispense with it, even today, in this scientific discipline, and perhaps also in all other social sciences. Consequently, economics' complicity with "folk psychology" is not a nuisance and it is not just a methodological constraint. It is both an ontological necessity and an epistemological requirement.<sup>13</sup>

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