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AUSTRIAN ECONOMICS MEETS BEHAVIORAL ECONOMICS

THE PROBLEM OF RATIONALITY

by

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> In the discussion of conduct we cannot separate description from teleological interpretation – the "what" from the "why" in this sense – what is done from what is achieved or expected to be achieved.
>
> Frank H. Knight [1944: 307]

INTRODUCTION

The relationship between Austrian economics and behavioral economics is a complex and multifaceted one. On the one hand, behavioral economics rejects the positive claims of modern, standard neoclassical economics and yet accepts its normative standards. Thus behavioral economics is itself a hybrid; it is part psychological economics and part neoclassical economics. Furthermore, many behavioral economists accept the methodological restriction that the new experimental or behavioral insights must be incorporated into the fundamental axiomatic structure of contemporary economic theory. Thus, in at least two respects behavioral economics is less revolutionary than it might at first seem. Both the method and normative view of rationality are neoclassical. Therefore for these reasons our topic also involves the relationship between Austrian economics and neoclassical economics.

On the other hand, the story of neoclassical economics over the past century or so has been captured, in important part, as "an escape from psychology" [Giocola, 2003, book]. We see this quite clearly, for example, in Joseph Schumpeter's long-untranslated 1908 book *Das Wesen und der Hauptinhalt der theoretischen Nationalökonomie.*[1] Schumpeter makes clear that economic theory should begin only from the outward or objectively manifested actions of individuals: prices and quantities and their movements. There is no need to speculate on the psychological origins of economic behavior. It is notable, however, that Schumpeter restricted this view to

[1] This has now been translated as *The Nature and Essence of Economic Theory*.

what he regarded as static theory. The theory of economic development or change involved entrepreneurship which clearly involved institutions and psychological factors.

With respect to the role of psychology in economic theory the Austrian tradition is nuanced. It has attempted to steer a difficult middle course between, on the one hand, the abolition of mental or, as Lionel Robbins put it, "psychical" elements and, on the other hand, the incorporation of detailed insights from experimental psychology [Robbins, 1934, Remarks] in the manner of behavioral economics. Indeed, it is one of the ironies of intellectual history that at the dawn of Austrian economics even a relatively sympathetic interpreter of the Austrian theory of value, should caution that the subjective value approach threatened to convert economics into a branch of psychology [Bonar, 1888:24]. The distinction between subjectivism and psychology was not seen as sharp. Indeed, as soon as we begin taking the perspective of the agent it is not easy to say where subjectivism ends and psychology begins.

Thus for Austrians the issue is not so much whether there should be any "psychological" insights in economic theory but just what they are and what role they should play. We must distinguish the detailed findings of experimental psychology from the fundamental mind-dependency of economic theory. Then we must decide where, if anyplace, the specific findings of psychology belong. Do they affect the basis of economic theory or do they have a role only at the level of applications? The difference is that the former may require alteration in the semi-permanent structure of economics (axioms) while the latter may simply require "adjustments" to account for particular kinds of phenomena in particular areas.[2]

These are large issues. To make the task of this article manageable, we shall concentrate specifically on the problem of rationality in individual behavior. We are ignoring such important questions as: To what extent do institutional constraints function as substitutes for the rationality of individual behavior? To what extent it is desirable to incorporate psychological findings, especially about learning, into the analysis of the social transmission of knowledge. We are dealing only with what Hayek [ ] called the "pure logic of choice."

THE PLAN

In Part One we establish the rationale and substance of the Robbinsian middle ground – the psychical or mind-dependent character of economics. To accomplish this we explore three post-Wiseserian frameworks for Austrian economics: (1) the phenomenological social science of Alfred Schutz; (2) the structure of mind analyzed by Hayek in *The Sensory Order*; and (3) the later Wittgenstein's logical analysis of thought. While there are no doubt differences among

[2] Of course, some economists are, for methodological reasons, extremely sensitive to the possibility of ad hoc adjustments because they think the structure of economic theory is complete or should be so. For them the distinction between theory and applications may not be so clear.

these approaches we find that they are broadly consistent way of establishing the essential mind-dependency of economics.

In Part Two we directly examine the basic issues involved in the characterization of human behavior as rational or irrational. Most important is the ascertainment of the meaning individuals express in their behavior. We then go on to examine the roles played by criteria of rationality in logic, belief and preferences.

Part One: The Mind-Dependency of Economics

WHAT DO ECONOMISTS STUDY?

In 1891 Friedrich von Wieser challenged the characterization of the Austrian school of economics as "the abstract school" in contrast to the historical school's emphasis on facts and observation [1891 in Kirzner 1994, vol. 1]. He said that both schools seek "their highest laurels on the fields of observation." Austrians "are wholly set on being experimentalists." [Wieser, 1891, 1994: 237]. The interpretation often given to statements like these is that Wieser and others were talking about introspective observation or introspective facts. To a certain extent this is true, but the interpretation is, in terms of today's philosophies of science, highly misleading.

Wieser's analysis of the contrast between "objective exchange value" (relative prices) and "subjective value" is illustrative. The former is concerned with the relation between commodities while the latter is concerned with the relation between commodities and human valuation.

> Theory has to examine both phenomena. I will restrict myself to showing why it may not neglect subjective values. The reason is, that it would thereby leave unexplained all individual decisions in economic matters, e.g. it would not even explain why any one buys. For by objective standards wares and prices have the same value; by objective standards we always give equals for equals, for which there should be no motive [Wieser, 1891, 1994: 247].

Nevertheless, the buyer values, say, the apple more than the two pears which he has and the seller values the two pears more than the apple he has. Differences in the subjective values of buyers and sellers are an explanation of exchange at a given price. If we admit this, Wieser believed, we would simply be reporting the observation of an exchange. Nevertheless, it is no part of the *theoretical* structure of economics to specify the reasons for the subjective valuations of each party, but simply to say that a difference in such valuations provides the motive for each party to engage in exchange.

And yet we can say more. What is an exchange after all? Schumpeter [2010:_____] wanted to see it as simply the movement of an object from one "possessor" (location) to another. Could we then see the flight of a butterfly as an exchange? What about movements that are rituals or amusing games? Of course, Schumpeter would resist including these, as well he should. It is only *after* implicitly recognizing that some movements of goods in location are exchanges and others are not that Schumpeter can afford to empty the concept of exchange of its mental content. In fact the theorist is "helpless" if he can only rely on the simple observation of movement of physical things [Wieser, 1911 in Kirzner 1994: 296].

If the notion of exchange must have mental content, what is the bare minimum of that content? The "movement" of commodities must be purposeful or intentional. It must, of course, be differentiated from a ritual of some sort or from gift giving, each of which would be purposeful in its own way. There seems to be no escaping the characterization that an exchange is, first, conditional ("If you give me this, I will give you that.") and, second, motivated by a desire to improve one's state of affairs. Wieser's invocation of differences in subjective values is an attempt to explicate or perhaps simply to state this.

Generalizing from this point in the theory of value, Wieser expresses what will turn out to be an essential insight:

> The assumption of a physical world which differs from my psychological world and the further assumption of another self which differs from mine but nevertheless resembles it belong to the essential prerequisites of sound thinking and communication of thoughts. … The purpose of every scientific discussion is to produce judgments with a scientific and therefore social value. A writer who tries to present his best reasons as proof of his claims thus tacitly admits these best reasons must also be considered as conclusive by the readers whose agreement he is trying to obtain, and that "the judgment processes of others operate in the same way as his" [quoting Ernst Mach – MJR]. *That which he assumes of the scientific judgment process, he cannot easily deny of the economic judgment process* [Wieser, 1911 in Kirzner, 1994: 288-89, emphasis added].

This idea was further developed by Frank Knight who argued that our knowledge of the external world "presupposes 'valid' intercommunication of mental content, in the sense of knowledge, opinion, or suggestion, among the members of a knowing group or intellectual community" [Knight, What is Truth, 1940:7].[3] This is because immediate observation itself,

[3] Knight's argument brings to mind a variant of Bertrand Russell's "unhappy barber" parable. Let us imagine the "unhappy economist" who thinks about *only people who do not themselves think*, and who, whether *he* thinks or not cannot help acting contrary to his definition. If the economist thinks, he cannot think about himself and how to present his arguments. If he does not think, he cannot come up with ideas or think about those who do not think. Poor fellow. See Bernardelli [Phil, 1936: 449:,n.1].

whether of the ordinary person or the scientist, must be tested. At the very least, the perceiver must determine if he is deluded by optical illusions, hallucinations, and so forth. To do this he refers to other trusted observers or, for example, physical instruments produced by others. If he is a scientist he uses conventional testing procedures, developed by others, and subjects himself to criticism by a community of rational scientists. Thus, "anything that can be properly called knowledge on the part of the subject is unthinkable apart from self-knowledge and valid intercommunication with similar (competent and trustworthy) knowing selves…" [Knight, 1940:8].

It may seem possible to agree with this but then to claim that we can ignore the intentionality of economic-agents, even if we cannot ignore the intentionality of the economist-actors. However, as Wieser suggests, this is not the case.

Let us step back for a moment to think about economics in a naïve way. What words do economists use? Exchange, prices, capital, savings, interest rates and so forth are the some of the first that come to mind. It is hard to imagine economics without these concepts. They do not refer to facts in some brute sense; they are all mental constructions of individuals in a social context. The phenomena of economics are mind-dependent.

Schumpeter agreed that economics is fundamentally about exchange (and the other phenomena mentioned above) but he believed the idea of exchange can be separated from mind-object and mind-mind relationships:

> We *interpret all economic acts as an exchange* and assume that even where no exchange actually exists, an economy runs *as if* it did exist. This is not as paradoxical as it looks. One should note that all economic behaviors mean changes in economic quantities. For example, a man who exchanges labor for bread is changing the quantities of two goods in his possession. The same is also true of an isolated man who shoots game, because he diminishes the stock of bullets or labor and increases the stock of foodstuffs [Schumpeter, 1908, quoted in Shionoya, 1997: 131].

And yet:

> …[W]e do not want to look at the acting humans at all but rather only on the amounts of goods they own: We want to describe the changes, or better a certain type of changes, as if they would happen automatically, without looking at the people who are responsible for those changes [Schumpeter, 2010: 54].

Therefore, Wieser's criticism of Schumpeter, mentioned above, is on the mark. Schumpeter takes phenomena that cannot be identified, in the first instance, without reference to their subjective (or, better, intersubjective) meaning and then attempts to drain them of all mental or psychical content. He seeks to treat them as much as physical objects as possible. In fact, it

has been persuasively argued that "Schumpeter seems to have had what today would have been called a naïve positivist view that objective facts exist independently of theories" [Shionoya, 1997: 108].

However, the phenomena that economics claims to study are mind-dependent. They would not exist without human minds. The basic facts of economics are meaning-facts. Yet they are not known by an idiosyncratic or personal intuition shielded from objective scrutiny. They are quite public. For example, we can observe (test) whether people treat certain objects as money or certain labels on commodities as prices. This world of subjective meaning is out there and, moreover, it is *epistemically* what we must grant to observe the kinds of phenomena we claim to be observing. [4]

THE PRE-STRUCTURED ECONOMIC WORLD

The structure of the world we seek to explain, or at least describe, in the discipline of economics is not, in the first instance, derivative of specific theories or hypotheses created by economists. It is a pre-structured world of "commonsense" observation that is a framework for the existence of the phenomena economics seeks to engage.

On the other hand, recall that Schumpeter believed that we could empty the basic economic concept of exchange of all mental content. We could imagine, for example, a Cartesian coordinate plane in which we place "individual" X_1 with his bundle of commodities a_1 and X_2 with her bundle of commodities a_2. If these two exchange a_1 for a_2 then X_1 is paired with a_2 and X_2 is paired with a_1. The a_1 and a_2 have shifted *location*. This basic idea is the root of what later became the axiomatization of general equilibrium theory in the Arrow-Debreu construction. Simply by extending the dimensions, commodities in possession of an individual (= location) can become commodities at a point in time, in a state of the world and in a contingent state of the world, that is, a dimension with a probability attached to it.

[4] "Is it not the 'behavior of prices' rather than the behavior of men in the market situation which is studied by the economist…? Does not the economist investigate successfully subject matters such as savings, capital business cycle wages and unemployment, multipliers and monopoly, as if these phenomena were entirely detached from any activity of the economic subjects, and even less without entering into the subjective meaning structure such activities have for them? …Closer investigation, however, reveals that this abstract conceptual scheme is nothing else than a kind of intellectual shorthand and that the underlying subjective elements of human actions involved are either taken for granted or deemed to be irrelevant with respect to the scientific purpose at hand… Correctly understood, the postulate of subjective interpretation as applied to economics as well as to all other social sciences means that we always can – and for certain purposes must – refer to the activities of the subjects within the social world and their interpretation by the actors in terms of systems of projects, available means, motives, relevances, and so on." [Schutz, 1962b: 34-35]. See also Max Weber, Economy and Society: An Outline of Interpretive Sociology [1978:64].

This "getting down to basics" drains the economic world of mental content. All the economist needs to do is to establish the relationships among the various points, that is, the relations among the external objects that putatively constitute his subject matter.

The growing tendency toward the de-mentalization of economics was of increasing concern to Austrian economists in the 1920s and 30s. The discussions in Vienna both in the Mises Circle and in the (Karl) Menger seminar [Giocoli, Modeling Rationality] often concerned the proper foundations for economic theory. The issue for Austrians was how to preserve the subjectivity of the theory of value, the foundation of economics, and meet the meet the requirement of scientific objectivity in the construction of theories. Closely related to this was the balancing act in which Wieser, Boehm-Bawerk and others had engaged to eschew psychology in one sense and to embrace it in another sense.

In what follows we briefly discuss three approaches Austrians developed or adapted to meet the challenge of preserving the theory of subjective value as well as the general mind-dependent character of economics while, at the same time, ensuring the objectivity of the scientific enterprise. Each of them has very different intellectual origins and looks at the issues from a different perspective. Nevertheless, they lead to a similar place for our purposes and, I suggest, are collectively reinforcing.[5]

The first is the sociological framework of Alfred Schutz that emphasizes the foundations of social science in a commonsense understanding of the social world. The second is F.A. Hayek's effort in *The Sensory Order* [1953] to provide a psychological foundation for the commonsense construction of the social world. The last is an adaptation of the later philosophy of Ludwig Wittgenstein to show how mental states can be brought outside of the confines of a purely inward scientifically-unobservable world [Long, 2005; 2007], thus satisfying Wieser's goal of ensuring the scientific status of the theory of subjective valuation.

ALFRED SCHUTZ'S PHENOMENOLOGICAL SOCIAL SCIENCE

The earliest successful effort to meet these challenges was made by the philosopher-sociologist Alfred Schutz. Schutz was a member of the Mises Kreis in Vienna and left Austria for the United States in 1939. During his days in Vienna he published *Der sinnhafte Aufbau der sozialen Welt* (1932) which developed a theory of the foundations of the social sciences, including economics.[6] The book was heavily influenced by Edmund Husserl's work on the foundations of science more generally and, to a lesser extent, by the philosophy of Henri Bergson. Schutz's

[5] I am not arguing that they together form a single, consistent intellectual framework. I am agnostic on this question. So the philosophical purest may wish to see them as alternatives.
[6] English Translation.

work was exposed to the English-speaking world in a 1937 article in *Economica* by Alfred Stonier and Karl Bode, as well in an article by Schutz himself, also in *Economica,* in 1943.[7]

Schutz argues that the "observational field" of the social scientist is pre-selected and pre-interpreted by the commonsense constructs of the actors in the social world. This is a structured world of purposes, plans, actions, and ultimately social institutions. Maurice Natason [1962: xxxv] captures Schutz's analysis succinctly:

> …[M]en in their daily life interpret their world from the outset as a meaningful one. …[The acts of others] are …treated as the conduct of a purposeful creature. Motives and goals are as inescapably part of the other's behavior as they are of our own. When I encounter a man acting in the world, I know I must understand him as a human being, and this means that his actions mean something to him as well as to me… But this knowledge is itself taken for granted by me as well as by him; its being taken for granted by *us* is precisely the typification which makes intersubjectivity possible.

From this we can infer both the mind-dependency of the economic world and the relative anonymity (abstractness) of the mind-constructs with which we, as participants *and* economists, understand this world.

First, Schutz tells us that our daily concrete experience is structured as a common world ("life-world"). In our "natural" or practical attitude we take the life-world's characteristics as simply given. Individuals engage each other as thinking, planning, and acting beings within a certain unquestioned framework. This is the basis of the possibility of human interaction.

Thus the specific issues with which the economist concerns himself have no existence outside of this constructed world. Without purposes there would be no problems of scarcity, consumer allocation, exchange, inflation, economic growth, business cycles and so forth.

Secondly, although we understand the motives and purposes of others, we ordinarily do not know them in their particularistic detail, but in their typical or abstracted forms. We know the postman, the butcher, and the baker as roles, that is, we know what to expect of them and they know what to expect of us. We know the meaning of social institutions like money and the marketplace. We know the meaning of a price.

We drain these aspects of social life of their individual detail because we must deal with many particular people, various specific exchanges, different prices and so forth, in ways that do not require knowledge of the full measure of things. In fact, knowledge of particularistic details

[7] References

would be an information overload. We economize on knowledge by engaging our inter-actors at a fairly high degree of anonymity.

Economists use ideal types in the development of their theories as well [Machlup, 1978:].The reasons are similar to those actors have for using ideal types. Economics strives for a fairly high degree of generality. We do not wish to develop a separate "theory" for every concrete action. Therefore, we abstract from much detail about how real-world agents actually behave. We focus on those motivations and beliefs that are relevant to explaining the particular actions under investigation.

If the data of the social sciences are thus mind-dependent, it is hard to see how the questions posed by economists can be *answered* without reference to mind-dependent categories [O'Driscoll and Rizzo, 1996:]. Thus, Schutz argued, the theories of social scientists must be higher-order constructs of the actors' commonsense constructs. [reference]. In brief, this means mind-constructs of an ideal typical or abstract nature.

For example, the higher-order construct of a preference ordering is almost an immediate inference from the recognition that we all face scarcity and need to establish priorities. From this the economist may generate a "law" of behavior: Individuals will choose courses of action so as to satisfy their wants of greater subjective significance before those of lesser significance. Individuals will impute value to a commodity on the basis of the particular want satisfied by the just-added or lost unit of that commodity (the marginal unit). And so forth.

The idea of a structured life-world functions at three levels. First, it is part of our experience and hence we take the purposefulness of much human behavior as a *fact*. Second, it is one of the *knowledge requirements* of successful human interaction. We cannot engage in exchange without either consciously or tacitly accepting the life-world as the epistemic foundation of our economic behavior. We must "know" that other people act so that we can determine our own actions. Third, it provides the basis of a method of social-scientific analysis. Since the purposefulness of the life-world constitutes the fundamental building block of the phenomena in search of an explanation, our scientific constructs must bear a logical relationship to statements about the commonsense world. In other words, for example, any statement about exchange must *logically presuppose* a statement about the purposes of the agents or, at least, that they have purposes.[8]

F.A. HAYEK AND *THE SENSORY ORDER*

In the preface to *The Sensory Order* Hayek [1952: v] makes a puzzling statement that, if understood, reveals a connection between theoretical psychology and the social sciences that is

[8] I am indebted to David Harper for help in distinguishing these levels. See also Natanson (1962: xxxv).

very different from that adopted by contemporary behavioral economics. Let us begin with Hayek's statement in which he says he moved from psychology as a student to the social sciences and then, to an extent, back again:

> But though my work has lead me away from psychology, the basic idea then conceived has continued to occupy me: its outlines have gradually developed, and it has often proved helpful in dealing with the problems of the methods of the social sciences. In the end it was concern with the *logical character* of social theory which forced me to re-examine systematically my ideas on theoretical psychology (emphasis added).

The puzzle is: How does understanding the human mind from the perspective of "theoretical psychology" help us understand the logical character of economics?

It is important, as the outset, to know that Hayek's views on theoretical psychology were heavily influenced by the Berlin school of gestalt psychology of the early twentieth century [De Vecchi, 2003]. According to this school and to Hayek, there are no pure or immediate sensations (or observations).[9] Whatever we sense is not independent of processing by the brain. Furthermore, external stimuli of all kinds are organized in a way that is highly dependent on context. For physical objects, it is the physical context. For mental objects, Hayek believes, it is both the physical context and the relationship of the object to the perceiver.

The key distinction between the physical and the mental ("body" and "mind") is the way in which the brain classifies the objects. In what we call the physical world the objects are seen – and in some cases defined – by their relations to each other. In the mental world they are seen and defined by their relation to the perceiver. And yet even in the latter case the classifications of the brain are not completely independent of the classifications of the physical objects. For example, a gold bar may be treated as money (relationship to the perceivers) but this treatment is related to the physical object's hardness and its portability.

Human beings perceive according to rules of association or connection. These rules are "theories" that are prior to the specific theories developed by the social sciences. They are the foundation of *social-scientific* theories.

To see this, let us examine the fundamental classifications of the social world. It is necessary to keep in mind that the focus is here on communication, as in Frank Knight's analysis [Knight]. While Knight emphasized communication in a scientific community specifically to show to the uncomfortable position in which behavioristic social scientists found themselves, Hayek (and

[9] "[Positivism]…does not realize that perception is more than sensuous apprehension, that it is an intellectual act performed by the mind. In this regard both associationism and Gestalt psychology agree" [Mises, Ultimate,1962: 71].

Schutz above) looked at the phenomenon of communication more generally. There can be no society as we know it without communication among human beings.

What does effective interpersonal communication presuppose? Certainly at the epistemic level it presupposes that the others with whom I come in contact are usually acting, that is, engaging in purposeful behavior. I take for granted that their behavior is "caused" by their desires and beliefs.[10] However, that their behavior is purposeful is one thing; the content of those purposes is another. For Hayek the grasping of meaning is the recognition of patterns in the behavior of others and in one's self. This pattern recognition depends on the whole gestalt of attributes of a given action, especially including its context.

Thinking about meaning in terms of pattern recognition is the neural analogue to Schutz's idea of "typification." For example, my brain classifies the various behaviors of another person as a bond-trader. This is the result of his whole set of behaviors in its context being classified in a certain way. There is thus the "bond-trader" type. Note, however, that types can be constructed at different levels of abstraction. So at a higher level the person might be simply a trader or an arbitrageur. At a lower level he may be a trader in municipal bonds and so forth. There is nothing absolute about any of these classifications. They are relative to the agent's purposes at hand. At a methodological-scientific level they are relative to the economist's purposes. The one thing all of these have in common, however, is the perception and classification of the agent as purposeful.

SENSORY ORDER AND THE MIRAGE OF INTROSPECTION

In the early decades of the development of Austrian economics it was not uncommon to claim that the fundamental propositions of economics have an empirical *and* introspective basis. (Introspection was considered a kind of observation.) This was certainly encouraged by Wieser's distinction between "knowledge from within" and "knowledge from without" [Wieser, Natural Value]. In a sense, of course, all knowledge is from *within* since knowledge presupposes the classification activity of the brain. But this is not how many people interpreted it. The idea seems to have been that the economist simply thought about his own purposeful behavior and concluded that this is way everyone else must be. While it is true that, in Hayek's approach, an individual will not be able to recognize patterns in the behavior of others that he cannot recognize in himself [Hayek,], this recognition need not be conscious and thus would not be available to introspection in the usual sense of the word.

Hayek makes the difference between what he is saying and introspection clear in three fundamental points. First, subjective experience is misleading. It *seems* to us that we perceive

[10] In an important sense, however, this is always a conjecture. I can be convinced that what I thought was purposeful behavior was really a purely automatic response to a stimulus.

unprocessed concrete particulars. This is false because "these concrete particulars are the product of abstractions which the mind must possess in order that it should be able to experience particular sensations, perceptions or images" [Hayek, Primacy, 36-37]. Our introspective view deceives us. Second, the basic classifications of our mind are not deliberate constructions. As Hayek puts it, "…the formation of abstractions ought to be regarded not as actions of the human mind but rather as *something that happens to the mind*…" [Hayek, Primacy, 43, emphasis added]. The "automaticity" of this is probably responsible for the idea of unprocessed sense impressions or of purely concrete data. Third, the ordering of both our physical and mental universe is determined by rules so abstract that we are not consciously aware of them. "…[M]uch [of what] happens in our mind we are not aware, not because it proceeds at too low a level but because it proceeds at too high a level"[11] [Hayek, Primacy, 45].

Thus our social world, the material of our economic questions, is a construction of the human mind in ways that are not always subject to conscious awareness. Nevertheless, these constructions – derived from the purposefulness of our and others' behavior – form the elements of social interaction. They are not simply heuristic embellishments as the early Schumpeter (and others) argued [Schumpeter, 1908….].

Before concluding this section we must forestall a possible misconception. To say that the economic universe is constructed by abstract patterns is not to create an insulated aprioristic system. The distinction between apriori and empirical, oft cited by economists and other scientists, can be, and usually is, highly misleading and confusing.

The mind classifies, organizes, and sees patterns in objects in the physical universe. These objects (say, gold) are in the first instance defined in relationship to other physical objects (a kind of gestalt). So the gold is hard, yellow, and so forth. But it is also, when it enters to social world, defined in relation to the perceiver, the economic actor (gold as money). This construction is not independent of the physically-defined object since these properties are relevant to its social function. Both the physical and the mental (or social) relations and classifications emanate from the human mind but they are not phantoms.

Classifications are generated by the individual's context and history. They are also generated by evolutionary processes that have withstood the pressures of selection, both at the biological and cultural level. These are complex interactions beyond the scope of this article.[12] But a

[11] Schutz [1962, Concept Formation: 56] agrees that the perception of the social world as exhibiting purposeful behavior and meaning "has nothing to do with introspection; it is the result of processes of learning or acculturation in the same way as the common-sense experience of the so-called natural world."

[12] "Those primates who had serviceable categories survived, not because, having had the experience that their categories were serviceable, they decided to cling to them. They survived because they did not resort to other categories that would have resulted in their own extirpation" [Mises, 1962, Ultimate,15). Further, "[t]he human mind is not a tabula rasa on which external events write their own history. It is equipped with a set of tools for

fundamental point remains. For the point of view of the individual person, at a point in time, his structuring, organizing, and classifying of the social world has an unconscious and aprioristic character. He sees the world as he context and history warrants. Over time, as his circumstances change, patterns of organization will change or be reshuffled to preserve intelligibility. Over the course of cultural history there will be further changes as there will be over the course of biological evolution.

To summarize, it important to see Hayek's psychological theory in the context of the empirical and anti-empirical disputes in the early twentieth century. This has been captured by DeVicchi [2003: 152]:

> Indeed, on the one hand he radicalizes the anti-empiricist position of the Berlin [gestalt psychology] school, because he manages to attribute an "abstract" character to sensory qualities. On the other hand, he…can proclaim himself an empiricist, because he explains the structure of relations that at the level of the central nervous system give meaning to sensory experience by referring to the past experience of the species.

It would be helpful then to rid ourselves of both the introspective and confusingly aprioristic characterization of the foundations of the Austrian approach to economics.

LUDWIG WITTGENSTEIN'S CONSTITUTION OF THOUGHT

As we have discussed above, the undoubted fact that society consists in the possibility of communication among human beings is an important starting point in the methodological conceptions of Wieser, Knight, Schutz and Hayek. Social science should not – actually cannot – deny this fact.

We base our communication on the epistemic ground that other human beings engage in purposeful behavior. This means, at its most general level, that people's actions are caused by their desires and beliefs. These desires and beliefs must be organized in a certain logical way, however. We call that organization "thought."

This is where the influence of Ludwig Wittgenstein comes in. Wittgenstein is interested in what *constitutes* thought. What properties must thought have to be *thought* in contrast to mere psychological impressions? First, let us see why this is an important question.

In everyday parlance the word "thought" is ambiguous. It refers both to the purely subjective or psychological contents of the human mind and to the objective contents. In the former case we might say things like: "John Smith believes that all men are mortal, Socrates is a man, and

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grasping reality. Men acquired these tools, i.e., the logical structure of his mind, in the course of his evolution from an amoeba to his present state. But these tools are logically prior to any experience" [Mises, 1966: 35].

therefore Socrates is not mortal." Wittgenstein would not call this thought. Thought has a certain objective character. It is not a relationship between John Smith and some group of propositions. It is a relationship among propositions or judgments.

This is significant because we could not communicate with a person who always "thought" like John Smith, that is, with a person who is illogical. We cannot even really know what his "syllogism" means. Logic, on the other hand, provides the objective substratum that constitutes the possibility of our communication and hence of the existence of society as we know it. We can deal or inter-*act* with a person who thinks, and not with a person who merely experiences psychological impressions.

It is important to recognize that, especially in the context of the relationship between economics and psychology, Wittgenstein was reacting to a view held by some philosophers that the rules of logic are just empirical generalizations about how the mind works. But, if so, since all empirical generalizations are contingent, that is, open to possible exceptions, we must be prepared to encounter "logical aliens." These are people for whom the laws of logic do not apply. At most we could say to them that they should correct themselves and think logically. Yet in order to sustain this descriptive-normative dichotomy, we would have to entertain the possibility of illogical thought. However, we cannot do this. Beyond mouthing the "syllogism" about Socrates mentioned above, we do not have any idea what it means if taken at face value. If thought is the relationship between propositions what is the relationship here? None. It is nonsense.

Wittgenstein's view is that we must go beyond the descriptive-normative dichotomy to the position that the laws of logic are *constitutive* of thought. Without logic there is no thought and without thought there is no objective substratum of communication.

Suppose, however, we come across people who *seem* to be thinking illogically. How should we react? Let me give an example that has been widely discussed in the Wittgensteinian literature.

The Woodcutters. This example was first discussed by Wittgenstein himself. Recently the philosopher Roderick Long acutely analyzed it in the context of the methodological status of Austrian economics, specifically, of the logic of action. The following are Wittgenstein's words as edited and quoted by Long [2004:351]:

> People pile up logs and sell them, the piles are measured with a ruler, the measurements of length, breadth, and height multiplied together, and what comes out is the number of pence which have to be asked and given. They do not know 'why' it happens like this; they simply do it like this: that is how it is done. … Very well; but what if they piled the timber in heaps of arbitrary, varying height and then sold it at a price proportionate to the area covered by the piles?

> And what if they even justified this with the words: "Of course, if you buy more timber, you must pay more"? … How could I shew them that – as I should say – you don't really buy more wood if you buy a pile covering a bigger area? – I should, for instance, take a pile which was small by their ideas and, by laying the logs around, change it into a 'big' one. This might convince them – but perhaps they would say: "Yes, now it's a *lot* of wood and costs more" – and that would be the end of the matter. – We should presumably say in this case: they simply do not mean the same by "a lot of wood" and "a little wood" as we do; and they have a quite different system of payment from us [Wittgenstein_____].

There are a number of possibilities for explanation of this behavior. The most straight-forward ones, and those that come to an economist's mind most readily, concern simple computational error or peculiar tastes. If the woodcutters are selling their wood but do not know how to calculate its quantity correctly, they can simply be instructed in correct measurement. In that case they are playing the same game as we are. The structure of their minds is the same. We can communicate with them. They will change their system of pricing.

If the woodcutters know that their customers have some special preference for wood laid-out horizontally (for example, it looks nicer), then former can charge more for laid-out wood of the same cubic feet as the piled-up wood. If this practice has been going on a short time, disequilibrium is possible. Outside of equilibrium, the price of the laid-out wood might be *much higher*. We might see arbitrageurs setting their gears in motion. They buy low and sell high and the excess price differential disappears. Similarly, the wood sellers would be subject to a "money pump." A clever person – one who calculates correctly – could buy up laid-out wood relatively cheaply and then re-sell it back to them at a higher price more than covering the cost of reorganization. The deficient calculators would lose money continually and go out of business.

However, in equilibrium the price will be higher only by the cost of taking piled-up wood and spreading it out – as well as the possibly increased costs of storing laid-out wood. If it is a long-standing practice, as Wittgenstein suggests, and if the price does not vary in this way, this preference explanation will fail.

At this point, where do we go in our effort to explain their behavior? Perhaps it is not exchange as economists generally conceive it. They may be using the words "exchange" and "money" but they do not mean what we mean by them. One can see this easily if instead of using these words they used others which have no connotations or denotations to us [Cer….] In any event, how would we find out if it is exchange? Well, if their behavior operates according to the constitutive rules of exchange, then it is. But, ex hypothesi, it does not. If it does not quack, it is not a duck. So it is something else. Possibly it is a religious or other kind of ritual, or even a kind of gift-giving. Still it would be purposeful behavior or "action" strictly conceived. We might even

notice that such behavior changes in response to exogenous shocks in the costs of engaging in rituals or gift-giving.

The obvious question that may be posed here is this: Why have we seemingly gone to great lengths to avoid saying that the people are illogical and/or irrational? Let's be precise as to what these characterizations mean. If we say that these people are illogical we are saying that they think in a way very different from us. It is *as if* in their world 2+2 = 5. Whatever this is (a mental impression?) it is not *thought.* It does not have the objective character of thought. Their minds operate according to different principles. We cannot recognize it as mind. Recall that exchange, money and so forth are (our) mind-dependent concepts. But then so also are the concepts of ritual and gift-giving.

Calling their behavior "irrational" is even trickier. This might be the case where they simultaneously *want* to maximize their profits (or believe they are doing so), *know* that their behavior will subject them to a money pump, and yet price their wood according to the strange method. It is possible, perhaps, to accept this action that is inconsistent with the actor's desires and beliefs as temporary phenomenon (akin to a disequilibrium) but it cannot be accepted as a long-standing phenomenon emanating from mind as we know it.

Hayek [Individualism, III.2] understood the issue clearly and he also saw, in this connection, the limited truth of introspection as an adjunct to scientific method:

> [I]t is not only impossible to recognize, but meaningless to speak of, a mind different from our own. What we mean when we speak of another mind is that we can connect what we observe because the things we observe fit into the way of our own thinking. But where this possibility of interpreting in terms of analogies from our own mind ceases, where we can no longer "understand" – there is no sense in speaking of mind at all; there are then only physical facts which we can group and classify solely according to the physical properties we observe.

Recall that in the framework of *The Sensory Order* the "mental" refers to the relationship of physical objects to the mind, while the "physical" refers to the relationship among physical objects.[13] If we do not have mind, we must treat the behavior of the woodcutters in physical

[13] Some philosophers refer to the distinction Hayek is making as the difference between the intensionality of mental states (like desires and beliefs) and the extensionality of physical objects. Desires and beliefs are reported by propositions. These are true only *under certain descriptions*. (This is what is meant by intensionality). Thus it may be true "that I want to kill fascists" but not true "that I want to kill beings who share my humanity with all its failings" even though, extensionally, they are exactly the same people. The description expresses the relationship of the physical objects to the mind. This is absent in a world without mind. Such a world is one of pure extensionality or relationships only between physical objects. See, for example, Rosenberg [2012: 60-69] and Schick [_____].

terms of one sort or another. Their story may be the material for physiological, chemical, biochemical, mechanical reflex analysis, and so forth. It is not human action.

LUDWIG WITTGENSTEIN AND LUDWIG VON MISES

Although Wittgenstein was an Austrian philosopher he was not an Austrian economist. And yet it has been extensively and persuasively shown by Roderick Long [200……] that Mises was affected by a set of ideas very close to Wittgenstein's. We shall not attempt to go over the detailed arguments provided by Long in this article. However, we can show, in Mises's own words, the striking connection between his ideas on the foundations of economics and praxeology more generally and those of Wittgenstein on logic and thought.

1. Logic. "The fundamental logical relations are not subject to proof or disproof. Every attempt to prove them must presuppose their validity" [Mises, 1966: 34].
2. Logic and Thought. "The human mind is utterly incapable of imagining logical categories at variance with them" [Mises, 1966: 34].
3. Logic and Experience. "They are the indispensable prerequisite of perception, apperception, and experience" [Mises, 1966: 34].
4. Logic and Communication. "He who addresses fellow men, who wants to inform and convince them, who asks questions and answers other people's questions, can proceed in this way only because he can appeal to something common in all men – namely the logical structure of human reason" [Mises, 1966: 35].
5. Logic and the Science of Human Action. "Human knowledge is conditioned by the structure of the human mind. *If it chooses human action as the subject matter of its inquiries*, it cannot mean anything else than the categories of action which are proper to the human mind and its projection into the external world of becoming and change" [Mises, 1966: 35, emphasis added].

The link between logic and action lies in the type of explanation that economics and other social sciences provide. They explain by making the behavior (action) intelligible in terms of the desires and beliefs of the agents. To do this, certain *connections* between propositions about desires and beliefs held by the actors must be made. The connections must be in accordance with the laws of logic. Thus:

6. "The real thing which is the subject matter of praxeology, human action, stems from the same source as human reasoning. Action and reason are congeneric and homogeneous; they may even be called two different aspects of the same thing. …[A]ction is an offshoot of reason" [Mises, 1966: 39].

How it came to be that Mises and Wittgenstein had largely compatible views on the nature of logic and the rationality of action may perhaps be attributable in part to the somewhat

overlapping membership of the Mises Circle and Vienna Circle in the 1920s and early 30s, especially including Alfred Schutz and Felix Kaufmann. More importantly, similar ideas were in the air through Vienna during this time. The anti-psychologism of Gottlob Frege and of the later Edmund Husserl was widely discussed. Both Wittgenstein and Mises picked up on Frege-influenced ideas of the universality of logic [Long, 2004: 367, n. 1; undated: 5-6]. And the connections among logic, thought and action were evident in the kind of explanations that Austrian economists had been giving about economic activity.

The complex of ideas, discussed in the first part of this article, initially explored during the early part of the twentieth century, provides new post-Wiseserian bases for the Austrian assertion of the importance of mind in understanding the social order. Many of these ideas were developed, in part, as a result of perceived need to find an alternative to introspection as a basis for the elementary structures of economic theory [Prendergast, 1986: 8-14].

Part Two: The Problem of Rationality

Much of the research in behavioral economics is devoted to using the results of behavioral psychology to show that the standard neoclassical criteria of rationality are not descriptively accurate, even if they have normative force. However, in order to understand the relationship between Austrian economics and behavioral economics we must have a more precise idea of how Austrians see rationality. To do so we must make a number of important distinctions.

First, we must distinguish between the meaning of behavior and criteria for the rationality of behavior. Abstract criteria of rationality cannot be applied without first understanding what individual's mean by what they do. Getting the meaning wrong may result in inaccurately labeling behavior as "irrational." Second, since rationality is a multi-faceted concept, we must distinguish three dimensions: logic, the criteria for belief, and the consistency of preferences.

PRELUDE: THE IMPORTANCE OF MEANING

We cannot know whether or how behavior is rational unless we understand its meaning context. What does the actor mean by his behavior? How does the actor see the alternatives and constraints before him? The old-fashion behaviorist is at a loss here.

Suppose, for example, we equate irrationality of choice with the economist's *observation* of inconsistency or intransitivity in the agent's pattern of choices. This requires that the economist know what the choices mean to the agents. To put it another way, the objects of choice are not simply the entities described in purely physical terms or in the terms that the economist

personally considers relevant. The identification of a choice (action), as such, is inseparable from knowing the meaning of the choice as the agent sees it.

Consider an individual who chooses the medium-sized piece of cake when both a big and a small piece are also available (Sen, 19). *Why* he chose this piece is strictly irrelevant to the revealed preference approach. We simply observe that he chose the middle-size piece. Now suppose the individual is faced with a contracted choice set. He can have either the medium size piece or the small size piece. He chooses the small piece. Why he has done so is again none of our concern. He has violated the consistency axiom. The elimination of an irrelevant alternative – the big piece – should not make a difference to his ultimate choice.[14]

The problem (if there is one) is not with the agent but with the economist. He has tried to apply an abstract criterion of rationality in the absence of any idea of what the agent is trying to do or what the options mean to the agent.

In the first case, the economist may have informally surmised that the agent wanted to balance the pleasure of cake with the costs of high caloric intake and so he chose the medium piece. But in fact, let us suppose, the options did not (simply) mean or represent pleasure-calorie composites. They may have represented pleasure-politeness composites. If the agent believed that taking the biggest piece of those available is impolite, he was really balancing eating pleasure with politeness costs.[15] In that case, the medium piece becomes, in a sense, the largest piece in the second choice-situation. The contraction inconsistency vanishes.

The general difficulty to which this example points is that, in the absence of knowing the agent's criteria of choice (mental preferences) and his beliefs about the consequences of choosing particular objects, we shall be at a loss to ascertain whether choices are consistent or not. The agent is not choosing the pieces of cake for their own sake, pure and simple.[16] He intends something. We need to know what. This is the first step in the analysis of rationality.

LOGIC AND THE LOGIC OF ACTION

Adherence to the rules of logic is fundamental to rationality. The dispute over "psychologism" in the early part of the twentieth century was a dispute about the status of logic. This had great importance in the development of Austrian economics and its independence from the discipline of psychology [Long, 2004: 346-49].

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[14] This is the idea of contraction consistency. It is related to the principle of the independence of irrelevant alternatives.

[15] He may have also been concerned about too many calories. In that case, his preferences will have to be defined over three characteristics.

[16] Once we identify the objects of choice as pieces of cake rather than in some equivalent physical or chemical terms, we are implying that the objects of choice are simply food. But if the agent's purposes and beliefs are as outlined above, this is an incorrect description or, at least, an incomplete description.

Are the laws of logic and mathematics simply empirical generalizations about how the human mind works? If so, then logic and mathematics are properly subjects for psychology. On the other hand, are these laws universally valid, even if no one thinks them? Most logicians and mathematicians implicitly subscribe to the latter view. They are attempting to find out what is true or, at least, what valid inferences *are* – and not what most people suppose they are.

This is important for economics insofar as it attempts to explain human behavior as *action*, that is, as rendered intelligible by statements about desires (preferences) and beliefs. An illogical transition from the set of desires-beliefs and the associated action will not do:

> Consider the question "Why are you going upstairs?" answered by "To get my camera." And yet isn't it a future state of affairs which *is going to be* brought about my going upstairs?...On the other hand, if someone says "But your camera is in the cellar," and I say "I know, but I am still going upstairs to get it" my saying so becomes mysterious; at least there is a gap to fill up. Perhaps we think of a lift which I can work from the top of the house to bring the camera up from the bottom. But if I say: "No, I quite agree, there is no way for a person at the top of the house to get the camera; but I am still going upstairs to get it" I begin to be unintelligible [Anscombe: 1963: 35-36].

The last sentence does not explain the behavior of going up the stairs. It is nonsense. It is not even thought, properly speaking. We can mouth these words but we cannot think this as a practical syllogism. If we believe that the individual saying these things is not trying to deceive us, then the behavior here described is not rational. Perhaps it is some sort of compulsion best explained by physiology or what-not.

We could, for certain purposes, confine our treatment of rationality to behavior based on the *logical* connections between desire-belief complexes and actions. We could treat any and all errors or "crazy stuff" as exogenous. Consider two examples.

> It has never been disputed that man does not always act correctly from the objective point of view; that is, that either from ignorance of causal relations or because of an erroneous judgment of the given situation, in order to realize his ends he acts differently from the way in which he would act if he had correct information. In 1833 the method of healing wounds was different from that used in 1933, and in 2033 still another way will presumably thought suitable. …The causes of action and the goals toward which it strives are *data* for the theory of action: upon their concrete configuration depends the course of action taken in the individual case, but the nature of action as such is not thereby affected [Mises, Epistemological, third ed: 34; 36, emphasis added].

The doctors in 1833 and 1933 did their best. Obviously they were not irrational.

On the other hand, even rash emotions need not render behavior irrational:

> He who acts under an emotional impulse also acts. What distinguishes an emotional action from other actions is the valuation of input and output. Emotions disarrange valuations. Inflamed with passion, man sees the goal as more desirable and the price he has to pay for it as less burdensome than he would in cool deliberation. Men have never doubted that even in the state of emotion means and ends are pondered and that it is possible to influence the outcome of this deliberation by rendering more costly the yielding to the passionate impulse [Mises, 1966: 16].

Notice how Mises treats "emotion." He does not treat it as compromising the means-ends rationality of an action. In other words, he does not treat it as a force making for illogical conclusions or one that transforms action into mere behavior. The individual is not thinking as Anscombe's camera-seeker. Mises's individual makes sense. He says, in effect, "I know that when I am not sitting right in front of this delicious cake, I will abstain in the interests of good health. But here I am – inflamed by my desire. The cake seems more delicious than before and the cost in good health seems less important." How is this irrational? *Given the valuations*, the action is perfectly intelligible.

But suppose people believe *really stupid* things, should we characterize these people as behaving irrationally? Not necessarily in the sense of illogic. *Given* that I believe a magic ritual will effect a given end -- make it rain -- I behave rationally in performing it if I desire to stop the rain.

Therefore, in general, we separate the truth of the agent's beliefs and the reasonableness of holding them, on the one hand, from the logic of the action, on the other. Furthermore, it is important to recognize that "we" do this not only in the role of social scientist but, more fundamentally, *in our roles as participants in the life-world.* We can only understand others, and thus communicate with them, if we separate beliefs (and desires) that we may not share from their implications for action. *Given* that people desire *x* and believe *y*, what do they do? This is how we understand and predict in everyday life. This is the basis for the social scientists' constructs of constructs.

RATIONALITY OF BELIEF

This separation is by no means peculiar to Misesian economics or even to Austrian economics, it is characteristic of standard price theory. Felix Kaufmann [1944:220, emphasis added] provides a convenient illustration:

> The economist, or rather the interpreter of economic theory, places himself in the situation of the economic subject – in our example a monopolist – who is

> confronted with the problem: How shall I fix the price and level of output in order to obtain maximum profit? He may err in three respects, namely: (a) in his estimate of the demand function, (b) in his estimate of the cost function, and (c) in his calculation of the maximum profit in terms of these functions. In this sense, (c) is coordinated with (a) and (b). *But this should not prevent us from realizing that (c) has a logical status different from that of (a) and (b).*

Given (a) and (b) and the agent's desire to maximize profit, he will compute or try to compute (c). This is a matter of logic or mathematics; (c) is derivable from the content of his beliefs. The content of (c) is to tell him what his price and output should be. Given all of this, it would be illogical for him to do anything else.

Here is where we must be careful. The action to which we refer in the example is an instance of "logical rationality." It is what makes the behavior in this case an "action." But there is a further dimension of rationality, that is, the rationality of the estimates.[17]

> While it [the proposition that a particular price in combination with a particular level of output yields maximum profit] thus presupposes the "givenness" of these two functions, it does not presuppose the correctness of the procedure leading to their establishment [Kaufmann, 1944: 220].

What does it mean to talk of the "correctness of the procedure leading to" an estimate or, more generally, to a belief about the present or future state of the world?

From the perspective of fundamental rationality, there can be no unique meaning to the rationality of belief or any unique method of arriving at the correctness of estimates. It is true that particular economic models may specify criteria for holding beliefs or certain "rational" methods of learning. But these cannot have any claim to universal normativity or even general empirical adequacy. There is simply a large element of scientific conventionality involved in these models. The evidence for this is the wide variety of plausible beliefs about the "logic" of scientific discovery that even a brief perusal of articles in the field will reveal.[18]

Nevertheless, it will be useful to review two of the *normative* criteria for "rational belief" that are held by behavioral and neoclassical economists alike. They are: descriptive invariance and Bayesian learning.

Descriptive invariance is an attempt, consistent with the more behavioristic tendencies in neoclassical economics, to evade the psychical or mind-dependent element in the theory of individual choice. For standard economics it is both a positive and normative principle; for

[17] Kaufmann distinguishes between logical rationality and "empirical rationality." He says, in traditional positivist fashion, that the former is analytic and the latter synthetic. I do not find this characterization helpful as it implies that logic has nothing to do with reality or that it is a pure convention.
[18] Phil of Sci collection.

behavioral economics it is a normative principle only. Most frequently, this issue is referring to as the framing problem.

According to Tversky and Kahneman [1986:S253]:

> An essential condition for a theory of choice that claims normative status is the principle of invariance: Different representations of the same choice problem should yield the same preference [choice --- MJR]. That is, the preference between options should be independent of their description.

What can T-K possibly mean by these words "the same choice problem" that is "independent of [its] description"? These words seem to mean that there is an objectively characterizable array of options facing the individual independent of his interpretation. K-T are claim that the individual sometimes gets "confused" by the particular description of these *objects* of choice made in the real world or in an experimental situation. Then the individual may inconsistently (=irrationally) make different decisions depending on *mere* descriptive variations.

However, a choice problem is nothing else but a problem *under a certain description* [Rosenberg, 2012; Schick, 2003]. In any variant of desire and belief explanation of human behavior the desires and beliefs are reported as propositions or judgments. In other words, we say that the agents believe such and such. But to say this is to describe it in a certain way. There is no escaping that. A description is a way of construing the facts of a problem. An agent may agree that the facts of the situation have not changed but that his understanding of those facts has. This is what may persuade him to change his decision.

Frederick Schick [2003:] provides a compelling illustration of George Orwell in the Spanish Civil War. Is the person that Orwell may shoot a "fascist" or a "fellow human being"? The known facts are the same in each description but their construal is different. The particular construal makes difference between deciding to shoot and not to shoot. Orwell is admittedly conflicted. He wants to shoot a fascist but not a fellow human being. K-T will say that making a different decision on the basis of a different description of the same facts is a violation of the principle of invariance. And so it is. But it is not therefore "irrational" except by a stipulated definition designed to exhibit the prejudices of the old behavioristic epistemology, that is: Facts speak for themselves and interpretation is unnecessary.

On the other hand, it may seem that the invariance principle is sometimes dictated by mathematics or logic. Is it not true, one may ask, that if there are two mutually exclusive and exhaustive outcomes of an action – call them *X* and *Y* – a *p* probability of *X* is equivalent to a (*1-*

p) probability of *Y* ? Shouldn't a rational actor make the same decision regardless of how the outcome is framed? If the doctor says that a drug has a *p* probability of a cure (*Y*) or, alternatively, a (*1-p*) probability of death (*X*), it should not matter to me. The two statements are "informationally equivalent descriptions" [Burkett, 2006: 140].

However, abstract logical criteria are not sufficient to understand behavior either descriptively or normatively. In general, logically equivalent statements used outside of logic classes or logic textbooks do not have the same semantic content. There can be "information leakage" from the selection of the particular frame which, in turn, can be received by those who interpret the frame (Sher and McKenzie, 2006).

The act of selecting or interpreting a frame is part of the pre-maximization process. It selects or receives information that can be relevant to the decision at hand. Consider the description of a medical treatment. Are they informationally equivalent? In normal everyday contexts it appears that they are not. McKenzie and Nelson (2003) show that people *select and interpret* the different logically equivalent formulations when they are implicitly comparing the result relative to a norm or expected result. The p-description is more likely when the framer is conveying that the survival data is better than might be expected, that it may be better still if certain structural features in the world have changed, or if there is reason to believe that in the case at hand the degree of belief in a successful result in greater than the statistical frequency.[19] The selection of frame is an information message.

The study of human action and choice is not simply an exercise in applying abstract logical relations. Before the logic of choice can enter the picture both actors and analysts must attend to the *meaning* attached to decision, to the objects of choice, to the ways in which choice is conceived or presented.

Framing is preeminently part of the *process* of rationality, that is, part of the process by which agents set up a decision problem in the first place. At that point, and only relative to that point, can we assess the rationality of their behavior.

Bayesian Learning. Let us assume, merely for purposes of argument here, that "the" Bayesian approach is the best way to model learning or the acquisition of beliefs, what are the implications for the rationality of choice? Remarkably little changes from the treatment of beliefs in Mises's analysis above. Given strange beliefs, strange actions will follow.

In the first instance, Bayesian learning does not provide a normative standard of which beliefs to hold but of the appropriate ("rational") degree of confidence to have in beliefs, that is, the

[19] On the last point, Gigerenzer has emphasized the inappropriateness of simply applying relative frequencies to single case. See CITE ----------.

rational *degree* of belief. Since for most Bayesians there are no constraints on initial or prior degrees of beliefs except coherence, Bayesian learning does not preclude any degree of belief in a statement of hypothesis. Therefore, the rationality of belief consists in the rationality of updating one's initial degrees of belief. If people begin with different priors, there is no reason in principle that these people will converge on the same ultimate degrees of belief. Thus Bayesian rationality cannot *require* convergence.

The Bayesian principle of conditionalization is an attempt to "extend the justification of the laws of deductive logic to include a justification for the laws of inductive logic" [Talbott, 2008:1]. Although rationality has a clear meaning in the sense of logical thought, it does not have so obvious a meaning in terms of the search for empirical knowledge. Bayesian learning is about carving out the deductive *aspects* of inductive inference. Consider that once the prior degrees of belief are somehow established, the conditional probabilities are ipso facto determined. Conditionalization is simply bringing out what was implicit in the initial degrees of belief as we partition the initial set of possibilities [Albert, 2009 ---]. When events occur they reduce the set of possibilities and thereby in a systematic way cause reallocation the remaining unchanged probabilities. Thus this approach is an extension of the idea of deductive thoroughness or omniscience in the realm of degrees of belief. If you have certain priors then you must also have certain conditional probabilities. Then, as events unfold, the consequent posteriors will ensure that even the most "absurd" decisions can be optimal.[20]

CONSISTENCY OF PREFERENCES

It is important to understand that preferences in themselves are neither rational nor irrational. Economics does not prescribe the ends toward which agents aim. This is generally accepted by both the Austrian and neoclassical traditions. Nevertheless, the point has been obscured by, for example, the identification of rationality with expected utility theory.

While standard neoclassical economics says, for example, that people are motivated by expected levels of wealth (or expected levels of utility) in risky or gambling situations, behavioral economists say that, in many cases, they are motivated by *relative* changes in wealth (losses or gains relative to some baseline). So in this view rationality is tied to a specific preference or carrier of value. To the extent it is shown that real people have preferences relative to a baseline – perhaps difficult to identify precisely – they violate a standard model of rational behavior under risk. But that is really the long and short of it: the standard model fails. Rationality does not.

[20] To establish even this limited sense of belief rationality requires, in my view, heroic assumptions about betting analogies. The issue of belief is reduced to the special case of betting odds even where individuals have no intention of betting and are in no danger of Dutch book exploitation. Then there is the problem of the rigidity of conditional probabilities. See Talbott [2008: 17-23] and Glymour [1998: 584-606].

In general, however, the issue of the rationality of preferences has arisen in the context of sets of preferences that may be "internally inconsistent." Amartya Sen [ ] has adequately disposed of the behaviorist (revealed preference) notion of inconsistency and intransitivity by showing, as we discussed above, that one cannot identify inconsistency without knowing the goals (utility functions) of the agents.

Yet the problem is deeper than this. Action takes place in time and thus we cannot observe choices synchronically [Mises, 1966: 103]. Strictly speaking, the transitivity of preferences, as a logical criterion of rationality, does not involve a series of binary choices but a supergame that includes all of the options [Anand, 1993:] For example, a series of choices *over time* may be $c \prec b$, $b \prec a$, and $a \prec c$. Is this an intransitive preference system? No. On the other hand, suppose an individual were willing *at a point* in time to accept the outcome of paying dollars to another person in accordance with the above preference relation. He starts out with *c* and gives up *c* plus a dollar for *b*, then gives up *b* plus a dollar for *a*, and finally gives up *a* plus a dollar for *c*. So he has decided to give up three dollars and with *c* still in his possession. In fact, in the spirit of the synchronicity of transitivity, he simply pays someone now three dollars for nothing.

This behavior could be irrational (that is, a non-action). But this is not what revealed preference transitivity is usually about. It usually conflates transitivity with constancy by saying that we *assume* constant tastes (or, more exactly, that the economist has decided the model the series of binary choices as if it were, or should be, a single utility function).

This example makes two general points. First, transitivity as a logical criterion, does not apply to actions over a period of time. Second, if we are to find irrationality in synchronically intransitive behavior we must *not* look to the internal structure of the behaviors themselves. The irrationality of behavior must be relative to consequences. The elements of a behavior-complex, such as those in three-step exchange above, are for the sake of some outcome. Therefore the only criterion can be: Is the behavior self-defeating? [21] If so, then it is not plausibly an action. Some other discipline, certainly not economics, must be involved in its explanation.

CONCLUSIONS

We have attempted to develop the rationale and substance of the middle ground between a psychology-dominated economics and a largely de-mentalized or mindless economics. This middle ground is, I think, is largely what Lionel Robbins meant by the "psychical" element in economics.

[21] Mises [1966: 104] suggests the actor may be (mischievously?) trying to refute the assertion that his actions are rational – in which case, they are.

Let us conclude by pulling together the various strands of our analysis in eleven points.

1. Economics does not study phenomena *defined* in terms of the relationship to each other. The phenomena of economics are defined in terms of their relationship to the mind.
2. The standard neoclassical "escape from psychology" went too far. It became an unsuccessful attempt to escape from mind altogether. It could not be consistently implemented.
3. Explanation in economics, especially microeconomics, generally proceeds in terms of exhibiting the rationality of the individual's behavior. When we ask why an individual or group of individuals did something we invoke desires (preferences), beliefs and the manner of problem-construal.
4. When faced with "odd" behavior or beliefs the economist tries to enter into the problem-situation as faced by the agent. To understand how the agent sees things is the first step toward rationalizing his behavior.
5. The rationality of action is, at its most fundamental level, the logical structure of thought. In other words, the desires, beliefs and problem-construals are organized in a logical framework akin to a practical syllogism.
6. This is not only a scientific way to understand what is going on but it is also the only way we can understand and interact with people who may have very different desires, beliefs and construals than we.
7. This technique may require that we exogenize more than preferences, but also beliefs and construals.
8. Exogenization does not mean that for descriptive or positive analysis we do not ever care to learn about how certain beliefs may be formed. In those cases, the learning processes may be endogenized. It also may rest on psychological findings. But as long as we are dealing with purposeful behavior the psychological insights do not weaken the case for rationality in an evaluative sense.
9. The logic of action is a limited form of rationality. For example, it does not address questions about how much individuals *should* take as given in their system of beliefs. It does not tell us how an individual *should* construe a problem situation. (Is the man on the battlefield a fellow human being or a fascist?) It does not tell us what tastes a person *should* have.
10. Behavioral economics is often impatient with these constraints. It seeks ways to exceed the traditional boundaries without introducing the value judgments of the economist. It has not succeeded [Rizzo and Whitman -----]. What it has attempted to do is to challenge the descriptive accuracy of specific formalizations of the rationality principle such as (diachronic) transitivity of preferences or expected utility theory of Bayesian updating without challenging the normative significance of these formalizations.

11. When we step back to view the substance of these criticisms we more often than not see the limitations in the critics' understanding of the character of economics. The *fundamental* rationality of human action is unaffected because logic is still logic. People are still purposeful.

THE END

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