



Elements of a Neo-Veblenian Theory of the Individual

by

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Abstract

Neuroeconomics and behavioral economics belong to the most dynamic fields in contemporary economics. However, from the viewpoint of economic methodology (Ross, Pesendorfer et al.) there are still substantial reasons why they are totally irrelevant for economic theory. This paper argues that they will only become an essential part of economics if they are embedded into a fully-fledged institutional and evolutionary paradigm. I develop a Neo-Veblenian theory of the individual that starts out from the observation that modern brain sciences do not support the notion of the brain to be an integrated and consistent rational decision apparatus. An evolutionary explanation is offered for this, which reinstates Veblen's distinction between adaptation as engineering optima and social selection. Individual identity does only emerge through communication and interaction among brains, in particular via language. The concept of the "extended brain" is proposed, which is applied to define human individuality as a social phenomenon. Thus, the systematic unity of neuroeconomics and institutional economics is established.

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All human behavior is organically conditioned in the same sense in which all other human behavior is organically conditioned; and all human behavior is socially organized in the same sense as all other human behavior is socially organized.

C.E. Ayres (1944: 93)

1. The missing framework for mainstream neuroeconomics and behavioral economics: Veblen's Darwinian theory of the individual

The recent rise of neuroeconomics and behavioral economics has induced landslide changes in the economic conception of the individual. Many observers would reach the conclusion that the age of rational choice has come to an end. For example, Nobel Laureate Vernon Smith (2003) has proclaimed the transition to a concept of “ecological rationality”. That has even led to concerns about the role of consumer sovereignty in policy making, such that no minor person as the then president of the American Economic Association openly muses about the educational and meritorial role of government (dubbed “libertarian paternalism”, McFadden 2006; for an early related statement, see Kahnemann 1994), causing stirs in the cups of continental-liberal circles (The Economist, January 12, 2006). However, there is still no general framework into which these new insights can be embedded, especially in the sense of the individual-system link. After all, economics is primarily a theory about economic systems, in particular markets, and therefore a theory of the individual cannot be evaluated independently. In this paper, I pursue the idea of a Neo-Veblenian theory of the individual that is supposed to provide such a framework for behavioral economics.

There is a neglect of Veblen in the recent upsurge of non-standard approaches to the individual in mainstream theorizing. This certainly reflects a sort of political correctness in the economics profession, which has, for example, caused theorists such as Gary Becker (1996: 163) to mention Veblen only as a “sociologist”, even when writing extensively about habits, life-styles and position goods. In the behavioral and the neuroeconomic school Veblen seems to be conspicuously absent, as far as I can ascertain. That might be also caused by the perceived novelty of the approaches, presumably implying the irrelevance of older strands of thought, but at the same time there are also contributions that take stock of the possibly pertinent heritage of economics. For example, recently neuroeconomists have discovered the many parallels between their results and the early insights of the Adam Smith of the “Theory

of Moral Sentiments” (Ashraf et al., 2005). Such observations are important because they might lead to a reassessment of the legacy of the neoclassical turn in economics, on which the modern theory of the individual is based. As a matter of fact, there is a dissenting track of thought in the theory of the individual which clearly starts with the Smithian views and is associated with many different heterodox schools of thought in economics, possibly converging today with the mainstream, in particular as far as the theory of the individual is concerned (Davis, 2006). For instance, Wunder (2007) argues that there are many commonalities between Veblen’s and Schumpeter’s theory of the individual, with the latter often claimed by mainstream theorists as belonging to their intellectual roots. So, the decks are going to be reshuffled in the economics controversies.

In this context of behavioral economics, and in this dissenting history of economics, Veblen ought to play a towering role, because he was the first economist who seminally followed a Darwinian approach in building a theory of the individual (Hodgson 1999: 96). In this paper, I argue that this Darwinian perspective is the basis on which a Neo-Veblenian theory of the individual can be built today, mainly in the sense of an institutionalist reformulation of neuroeconomics. As we shall see, this Darwinian approach follows the lines of a universalization of the Darwinian paradigm, as it is pursued by Hodgson (2002) and Hodgson and Knudsen (2006), in particular. This universalization does not imply biological reductionism, but proposes an integrated approach to both human biology and culture. Whether this follows the Darwinian paradigm closely in formal terms, as it is proclaimed by Hodgson, is of secondary importance for my argument, as I pursue the broader agenda of “holistic Darwinism” as proposed by Corning (2005) and systematically explored in biology by Jablonka and Lamb (2005). In these approaches, biological and cultural analyses are merged into a larger co-evolutionary paradigm. Within the context of institutional and evolutionary economics, this allows to reinstate seminal Veblenian ideas, which have been lost out of sight because of an exclusive focus on culture, that started with Ayres (1944), in particular. My Neo-Veblenian proposal suggests that the recent advances in neuroeconomics and behavioral economics allow to go back to the roots in Veblen’s works, thus simultaneously completing the mainstream approach by supplementing their results with an evolutionary view on economic systems, and re-assembling the institutionalist approach in recalling the naturalist tradition that was clearly established by Veblen.

2. The status of the individual in mainstream economic theory: Agent, but no person

I start out from a thorough methodological consideration of neuroeconomics, which has been elaborated on by Don Ross (2005; 2007). Ross argues that neuroeconomics is not directly relevant for economics because the economic theory of the individual is a theory of the economic agent, which is very different from the organismic interpretation of the individual. The economic agent is a theoretical entity which is a part of the theory about economic systems. In that sense, economics is only macro, and the microtheory is just a deduction from

hypotheses about systems. Economists assume that this theoretical entity can be related to real individuals in applications of the systems-level theory, but that does not imply that real individuals are economic agents in the ontological sense. Therefore, empirical statements of economics are about systems, but not about individuals. That's why, for example, microtheory might apply not only for people, but also for firms and countries. Thus, empirical insights into "real world" individuals are of no relevance whatsoever for economics.

This argument is not new, but it is a timely restatement of similar views on a very advanced level of methodology. Ross points out that economists have often vacillated between the "ordinary people" view of talking about human beings when applying concepts such as the utility function, and the advanced theoretical implications of their argument. Indeed, concepts such as "utility" have turned in mere mathematical properties of system-bound agents in post WWII economics, without any supposition that real individuals would maximize anything that they regard as utility. The utility function is just a mathematical tool to describe their observed choices, in the sense of revealed preference theory. But as clear as this might be the case in the mathematical framework, in fact many economists recurrently fall into the trap of transferring the theory back on reality, as if physicists applying Newtonian mechanics would continue to talk about falling apples. Physicists talk about mass points whose actions are described by the laws of motion in a system defined by Newtonian mechanics, and they abstract from all other properties of objects, as well as from all other possibly interrelated processes (such as, in case of the falling apple, the contact with the earth, see Roehner 2002: Chapter 1). Economists talk and should only talk about agents whose actions are described by the laws of motion as defined by the theory of the competitive market system.

So far, so good. Ross in fact reinstates a view that has been proposed by (mainstream) evolutionary interpretations of the neoclassical system which state that individuals behave "as if" they were rational maximizers of utility because in the competitive market system, this behavior would be the only one that eventually survives in competitive selection (classical statements of this "as if" methodology have been Alchian (1950/1977) and Friedman 1953). This argument entails a "black box" view on the individual, meaning that it does not matter analytically how that behavior is actually generated. To repeat the central point, economics is about systems, but not about individuals.

Apart from the fact that the "as if" argument has received bad press in the professional philosophy of science literature (e.g. Caldwell 1994: 173ff.), from the viewpoint of institutional economics, it is seriously flawed because it implies a total analytical separation between all areas of action which are governed by the competitive system and those which are not. Or, viewed from another angle, if economics is all about economic systems, the question arises how the neoclassical theory of the individual can be legitimately extended into areas beyond what we normally regard as the empirical counterpart of the theoretical system, i.e. markets (and here the real thing). Beckerian economic imperialism is built on the assumption that the economic theory of the individual holds universally. Against the background of the Ross argument, that would necessarily imply that, for example, marriage and the family are in

fact part and parcel of a competitive system, which seems to be doubtful in empirical terms, to say the least. In other words, the generalization of the neoclassical theory of the individual is only consistently possible with a simultaneous universalization of competitive theory across all social domains and human spheres of life. That is, there are only two alternatives: Either the economic theory of the individual is seen as a formal deduction of the theory of competitive markets, which would imply that it cannot be universalized as a theory of human behavior, or it is universalized, which would presuppose the concomitant universalization of the theory of competitive markets across all social domains in human life.

This insight sets the stage for the institutionalist rethinking of the issue raised by Ross. If neuroeconomics is empirically valid from the viewpoint of an increasing number of economists (see, e.g. Camerer 2007), and if at the same time it is methodologically irrelevant for economic theory, does this imply that the theoretical correlate of neuroeconomics, behavioral economics and experimental economics is in fact institutional and evolutionary economics? Do we face a major paradigm shift in economics? My reply is, yes, we do.

Or, viewed from the back of the mirror, institutional economists insist that firstly, the scope and reach of the competitive system is regulated by institutions, second, that real world markets manifest the pervasive impact of institutions, and thirdly, that those institutions are closely embedded into institutions that govern behavior beyond the competitive system, in particular related to culture. Given the Ross argument, that would entail the question how far the theory of the individual would need to be adapted to these facts, precisely if it was restricted to agents as systems level phenomena. If the theory of the economic system implies a certain view of the agent, what happens if this theory is the institutionalists' one?

The argument that I am going to develop now is that the new neuroeconomics and behavioral economics can only be properly interpreted in the framework of institutional and evolutionary economics. That means, the two cannot be simply isolated in the sense of adapting the theory of the individual but keeping the rest of the building intact. This ends up with what I call a Neo-Veblenian theory of the individual.

3. Whither individuals? The brain as a system of systems

The pivotal insight that can be derived from the recent neuroeconomic literature is that there is no such thing as an individual, conceived in the sense of the rational agent, if interpreted in empirical terms. The individual is in fact a highly fluid, dynamic and open system that operates on the basis of past adaptations, both phylogenetically and ontogenetically, and manifests a continuous flow of unpredictable novelties. Further, states of this system become only stable in the context of social interaction and communication.

There are several fundamental facts about the brain that entail this general view. I start with one fact that is certainly Veblenian in spirit (e.g. Veblen 1899: 15f., 270), which is that the brain and its cognitive mechanisms are the outcome of an evolutionary process that, in the average, increased their adaptiveness, given certain selective forces operating on the genetic

basis of its ontogeny (for a useful survey, see Todd et al., 2005). This statement has to be treated very carefully, in particular with regard to the point of genetic determinism. This is because the brain is at the same time the core faculty of human beings that enables them to achieve an unprecedented phenotypical plasticity. That is, a theory of the individual can only be based on a co-evolutionary approach that synthesizes the genetic theory of evolution and theories about non-genetic evolution. I come back on this fundamental point in the due course of my argument.

This general approach implies that the brain is a system of systems. In the most simple fashion, one can distinguish between the neocortex and phylogenetically older systems, very often summarily referred to as the “limbic system”, and which are specialized on different adaptive functions (for a brief survey directed at an economics audience, see Cohen, 2005). Roughly, this dualism reflects the existence of two different modes of brain action, namely the cognitive and the affective, which is orthogonally superseded with the second dualism between conscious and non-conscious or automatic action (Camerer et al., 2005, build their systematic survey of neuroeconomics on this dual polarity). This very broad characterization already points towards a fundamental problem of rationality. This is that the conventional theory certainly implies conscious choice with full information about one’s preferences, if taken as an empirical description of human behavior. Consciousness is also implied in relaxations of the stringent criteria of standard rational choice, such as bounded rationality. To the contrary, brain science points to the fact that consciousness is a very scarce resource, and that most brain action takes place without consciousness. As Calvin (1998) had it, the systems of the brain compete for consciousness. In a sense, this might not pose any problem for the standard approach at all, because it could be conceived as an automatic calculation of optima, and with consciousness just ‘perceiving’ the result. However, there are serious arguments against the view that this non-conscious system might operate along the lines of rational calculus.

Continuing to simplify matters to a degree that is possibly unacceptable to the critics, these arguments have been systematically explored by the new discipline of evolutionary psychology. Evolutionary psychology is certainly geared towards genetic determinism, but its main arguments remain true also in the co-evolutionary context. In fact, Tooby and Cosmides (2005: 35), the founders of the research paradigm of evolutionary psychology, emphasize that genetic factors always interact with the “developmentally relevant environment”. This idea is certainly Veblenian in spirit, as Veblen (e.g. at length in 1914/1990) has argued that instincts are shaped by habits, in the sense that observed behavior is always the result of the interaction between a natural endowment and a social context.

The straightforward and crucial point is that there is no convincing proof that selection might have favoured the emergence of a unified, coherent and consistent system of rational decision making in human beings. To the contrary, what can be demonstrated is that the brain is a set of context- and task specific decision modules whose interaction is not coordinated by some “central cognitive device”, dubbed the “Cartesian theatre” by the Darwinist philosopher

Daniel Dennett (1991). Instead, the dominance of certain modules in particular situations of action is determined by a process of evolutionary selection within the brain (what Dennett calls the “multiple drafts model of consciousness”). That means, we actually face a Darwinian process on two different ontological levels, one in the long term of phylogeny, the other in the short term of the selection of neuronal activities. This approach of “neuronal darwinism” has been most systematically developed by Nobel Laureate Gerald Edelman (1987; 2006) (for a briefer survey, see Edelman and Tonioni, 1995). Its important implication is that the brain is a constant source of novelty and creativity, since there is no unified equilibrating framework (Edelman, 2006: 98ff.; for an early economic version of this idea, see Hesse 1990). Thus, the Veblenian supposition about the creativity of human action finds strong support in the brain sciences.

The hypothesis of the modularity of the brain is much more specific than the aforementioned double-pronged dualism, and raises the spectre of explanatory fragmentation. Indeed, in mainstream economics receptions of evolutionary theory there are arguments that precisely a unified utility function will emerge as an adaptively optimal solution to coordinating behavior (Robson, 2002). This reinstatement of the unified agent involves intricate formal issues even for the case of simple “dual-selves” models (see e.g. Fudenberg and Levine 2006). A final clarification requires that the theory of the human individual has to be based on the analysis of human evolution. In a co-evolutionary setting, this applies to both phylogenetic and cultural aspects, with evolutionary psychology mostly emphasizing the former. Evolutionary analysis can proceed from the general to the specific. Given the limitations of space in this paper, and given my main interest in laying the ground for the Neo-Veblenian approach, I stay with the general aspects. Thus, the fundamental question is whether natural selection supports the emergence of an integrated behavioral system, or whether there are possibly even conflicting forces. The latter hypothesis is a cornerstone of Veblen’s theory of society.

4. The two dimensions of evolution: natural selection and signal selection

Recent developments of evolutionary theory have vindicated a fundamental dualism of evolutionary forces that has been clearly perceived by Veblen. This is the distinction between natural selection and selection in social contexts, which on the most abstract theoretical level can be moulded into the dualism of frequency-dependent and frequency independent selection (whence it is more or less a definitional issue whether natural selection is constrained to the former, or whether natural selection is said to be manifested in these two different forms, as e.g in Fairbairn and Reeve, 2001). However, for our purpose it is propitious to further specify frequency-dependent selection as “signal selection”, detailed by Zahavi and Zahavi (1997), which is a special, however essential form of organism-environment interaction.

In a nutshell, natural selection is frequency-independent in the sense of adaptation to a stable environment that is not retro-actively influenced by the adaptive changes. This implies, that natural selection drives evolution towards engineering optima (Burian, 1983; for a debate over this, see Orzack and Sober, 2001). This is precisely what Veblen had in mind when talking

about the fundamental instincts that emerge from evolution. The instinct of “workmanship” is nothing else as the capacity to implement engineering optima, which is ubiquitous in life, and thus also finds expression in the human individual.

On first sight, this point mainly supports the standard approach, and indeed, one of the major results of neuroeconomics is precisely that many neurophysiological mechanisms are economically optimal, in the sense of minimizing the opportunity costs, i.e. of engineering fitness. In particular, this holds if uncertainty is considered, ending up with a universalization of extended utility theorems and Bayesian rationality (Glimcher 2003 is a paradigmatic account). There is now an overwhelming evidence that animals pursue economic efficiency in contexts of choice, such as foraging behavior, but also mate choice and parental investment (Kagel et al. 1995; Noë et al. 2001; Kramer 2003). All this is based on an evolutionary fine-tuning of the basic neurophysiological modules in their organisms. Yet, and convincingly argued by Ross (2005), this does not allow the conclusion that the entire system of modules also follows the same kind of engineering optimization.

The classical argument has already been formulated by Darwin himself who introduced the notion of sexual selection. Sexual selection is the paradigmatic case of frequency-dependent selection, and its basic mechanisms have been generalized into the theory of signal selection by the Zahavis. The core argument is the so-called “handicap principle”, which is now recognized even by staunch Darwinists as Richard Dawkins (1989: 308ff.). The handicap principle refers to the fact that any characteristics of an organism can simultaneously serve as an adaptation in the sense of natural selection and as a signal regulating the interaction with other individuals, be this sexual competition and conflict, be this predator-prey interactions or any other social phenomena. A trait that serves as a signal is the object of a special kind of evolutionary dynamics, because every signal can be faked. On the one hand, faking signals can be optimal in the engineering sense, if that means less costly adaptations in social competition. However, this comes to the detriment of the interaction partners, who are being cheated. That implies, that selection will favour the emergence of enhanced capabilities for the detection of fakes, ending up with a Red Queen constellation that drives enhanced cognitive capabilities in communication (cf. Robson, 2005). Thus, cognitive capabilities are by no means naturally selected and hence, should follow its engineering principles, but are mainly geared towards social interaction. This does not preclude the highly probable constellation of exaptation, i.e. possible side-effects of enhanced cognitive capabilities for adaptive performance in other areas.

This kind of dualism has been made a cornerstone by Veblen in his entire institutionalist framework. In his parlance, it is the root of the conflict between the spirit of workmanship and the emulative instinct, which in the end even jeopardizes the workings of the capitalist system (Veblen, 1921/1983). Putting this question back to the final section of this paper, I just note that in the established evolutionary theory there is a clear recognition of the multidimensionality of evolution, which necessarily precludes the emergence of one-dimensional optima.

This conclusion has been further accentuated by the theory of the handicap principle. The handicap principle is well known to economists in the context of the theory of signaling. It states that in social communication, sending truthful signals may require costly investments, such that those investments serve as a supplementary signal that reveals that the original signal is not a fake. For example, in job markets you may need a costly education just to be able to send the truthful signal that you are a diligent person (Farrell and Rabin, 1996). In a similar vein, many traits of organisms can be explained as “handicaps” in the sense that they are costly to maintain, such as big antlers which actually hamper the versatility of movements. But precisely because they are costly in terms of engineering fitness, they signal exceptional strength and health of the carrier, and hence coordinate social interaction in a way that differential reproductive success is maximized. That is, even if the final “currency” of evolution is mono-dimensional, selection is multidimensional, which implies that the products of selection reflect very complex trade-offs.

Indeed, the theory has been proposed (though certainly not fully vindicated in empirical terms) that the human brain is an adaptation in signal selection, both as a result of the Red Queen effect and the handicap principle. That is, the brain is especially geared to deal with problems of mutual expectations, that is, imagining what the other thinks what one thinks, which increases the complexity rapidly beyond what the natural environment in the average represents as complexity. After all, nature in the everyday life of hunter and gatherer groups is much more simple than the social interaction among them. Further, the brain consumes a disproportionately large share of energy, compared to its size relative to the body. Maintaining brains is costly, and therefore a brain can be a useful handicap to signal strength and health. Both determinants of brain evolution interact, of course, as, for example, the larger brain may be a signal in mate competition, but at the same time improves cheating capabilities in sexual conflict, which triggers an arms race. That would imply that its design is not necessarily crafted towards engineering fitness in the sense of the concurrence of purely cognitive challenges and brain capacities. This hypothesis has been coined “social intelligence”, or, more persuasively, “machiavellian intelligence” (Goody 1995; Byrne 1995). The point is, that social intelligence comes first, and applications outside social interaction arise as an exaptation.

This is a generalized argument why presumably the brain is not simply an all-purpose maximizer. Instead, it manifests domain-specific adaptations, such as they emerge as observables in the famous Wason selection task, where test persons fail to apply correct inferential logic unless they are presented with the problem in terms of a “cheating” context (Gigerenzer, 1996). In the words of Cosmides and Tooby (2005), the brain has specialized cognitive mechanisms to analyze social contracts, which means that formally identical decision situations are treated with much better performance once they are presented in a social contract frame. That is, depending on the frame, the brain calculates differently. This argument is interesting in a double sense, that is, on the one hand anomalies and failures of standard rationality can be explained as evolutionary adaptations, and at the same time partial mechanisms or particular frame dependent decisions may match the formal requirements of standard rationality. For example, Gigerenzer (1996) shows that the human weakness in

dealing with probabilities is much less salient when the decision problems are presented in terms of absolute frequencies, which presumably is the more “natural” way in which stochastic phenomena had been perceived by the hunter and gatherer groups in the past.

There is now growing evidence that the brain is therefore an authentic decision maker in the sense that the competition among subsystems requires existential decisions, but not simply calculatory choice. Thus, brain research seems to support the “multiple selves” hypothesis which has been maintained at the fringes of the economic discipline for long (see Elster, 1986). However, the concept of “selves” has an overly strong implication in the sense of fully developed personalities. In fact, we can only talk about fragmented identities. The most conspicuous example is hyperbolic preferences which contradict the standard assumption of stable exponential discounting which is absolutely necessary to avoid preference reversals through time (the seminal contribution is Ainslie 1991; the mainstream adaptation is Laibson 1996). In most recent work, these have been clearly related to the interaction of two different brain systems, precisely the limbic system and the neocortex as described in previous lines (McClure et al. 2007).

Summing up, I conclude that recent advances in brain sciences strongly reject the standard conception of a unified, integrated and consistent rationality. However, Ross argues that all this is irrelevant for economics, as this is about the system in which real world individuals are embedded. But how should we conceive of that system? Frey and Eichenberger (1989) have already produced the interesting argument that anomalies of rationality might not be that detrimental for economics, because in human societies institutions help the individuals to overcome potentially harmful effects of irrationality, such as in the case of suboptimal savings in face of hyperbolic preferences. This kind of “civilizational improvement” of brains (see also Cohen, 2005) points to a reconsideration of the Ross argument. The question is, what determines a possible emergence of rational behavior, the market process as envisaged by standard competitive theory, or institutional evolution as conceived in institutional and evolutionary economics? One should note that the latter view opens up a fascinating perspective on the brain: Namely, that its cognitive capabilities are in fact not limited to the physical entity, but in fact are externalized to the patterns that emerge from and determine the interaction between brains. Indeed, as has been proposed by philosophers of biology, the notion of the phenotype cannot simply be equated with the organism, as all correlates in the environment have to be included that are directly linked with behavior. Thus, the bird’s nest is regarded as a part of the bird’s “extended phenotype” (Dawkins 1989: 234ff.). This argument can also be applied on the human brain: The human brain relies on an immense externalized set of brain tools, such as writing, regular cues from the environment, or modern information technology (Sterelny 2004). Evidently, this does not only include material things, but also institutions or language, in the sense that stabilized signals serve to stabilize brain action. Thus, an institution can be regarded as a part of the “extended brain”. This gives a concise and empirically meaningful interpretation to the view maintained by many non-mainstream economists that institutions carry knowledge that is irretrievable to consciousness (i.e. tacit), such as in Hayek’s thought, to quote an opinion that is normally not regarded to be a part of

institutional economics in the narrow sense. In this sense, the Ross argument seems to hold, but in a different fashion. Human rationality is only possible as a systemic phenomenon, if we regard institutions as a part of the human mind. This opens a new view on neuroeconomics.

5. The extended brain: Sociality as defining feature of human individuals

Interestingly, the view of the systemicity of rationality has been also advocated by Veblen, however in the more historically enriched theory about the machine process. As has been emphasized by many commentators, Veblen's approach is similar to the Weberian theory of rationalization (Yılmaz 2007). In this sense, Ross's argument concurs with Veblen in the sense of the systemicity of rationality, but differs in the way how the system is conceived. In a similar spirit as the modern theories about the externalization of cognitive capabilities of the brain, Veblen had argued that the machine process imposes patterns of rationality on human action, and his proposals for policy reforms are mainly based on the idea that this rationality stands in contradiction with the behavioral implications of the emulative instinct, which determines the actions of the "captains of industry" in the price system. Thus, Veblen saw the price system, i.e. the competitive market, precisely as supporting irrationality, thus in direct contradiction with the Ross viewpoint (Veblen, 1921/1983).

As we have seen, the hypothesis of the systemicity of rationality finds essential support in the brain sciences and boils down to the fundamental point (which is also made by Ross 2005: 286ff., 351ff.), that the stability of consciousness is only possible through communication between brains, i.e. through language (Edelman, 1987: 308ff.). The solipsistic brain could never find a fix point in the evolutionary cascade of neuronal mappings and remappings, being self-referential in the end. Only via the coordination of behavior and meanings between individuals this fix point can be established, and its existence depends on the going concern of human interaction. In this sense, the brain is social in an essential way. This, of course, has fundamental implications for the theory of the individual.

We can relate this insight to the recent interest in identity in both mainstream (Akerlof and Kranton, 2000) and heterodox economics (Davis, 2003). The issue of identity lies at the ontological core of the notion of an individual. However, whereas the mainstream approach just takes identity as a given, Davis succeeds to explain identity as a reflex of human sociality. This is precisely the point made by the brain sciences in the sense that the unity of the human agent can only emerge from social interaction. We stumble into an age-old controversy here, which has been of paramount importance in the institutional economics tradition, and which mainstream economics had claimed to have settled with founding itself on the notion of the autonomous rational agent. However, the rational agent cannot fix her identity without referring to groups into which she is embedded. In a most general way, this means that identity is embedded into language as a collective phenomenon, thus enabling people to intentional action in terms of planning, reflection and coordination. An individual is a kind of being that is defined via its ascription to and differentiation from different groups of individuals which are reflected in the respective conceptual schemes (such as ethnicity), and it

is a narrative through time, both by herself and by her fellow individuals, which establishes the continuity of her self. Here, the famous Wittgenstein argument against the possibility of a private language holds (for a survey, see Candlish 2004): It is impossible to define an idea of one's own individuality exclusively on private terms, i.e. autonomously, but only with reliance on socially constituted categories and concepts. In other words, even the idea of an autonomous individual can only be stated as a social category.

This insight has far-reaching consequences for the general theory of the individual, and follows up to basic Veblenian ideas. Veblen has argued that human behavior is a result of three interacting forces, the instincts, the habits and creativity. In particular, habits and instincts form an inextricable whole, as instincts are moulded in the social environment, as far as their specific expression is concerned. This precludes to rely on either nurture or nature exclusively to explain human behavior.

Closely related ideas have been vindicated in recent developments in evolutionary biology, which extend the notion of evolution into four dimensions, as Jablonka and Lamb (2005) have it in their magistral survey. Given the salience of Darwinism in recent debates over evolutionary economics, it is important to note that biological approaches to human beings are far more diversified as the frequent reference to Darwinism might suggest, which in fact only highlights the so-called "modern synthesis" or Neo-Darwinism, which is a synthesis of population genetics and evolutionary theory. Even within the Darwinian paradigm, there are many differing and even dissenting viewpoints, which might be more appropriate for the social sciences to consider when searching for models and metaphors. A crucial issue is how to deal with individual/environment interactions. In most extreme versions, the primordial role of the genes is fundamentally questioned, with the alternative of developmental systems being proposed as paradigmatic alternative (Oyama, 2000; 2001). The concept of a developmental system neatly fits into Veblen's thinking about the relation between instincts and habits, because it states that biological information does only emerge through the interaction between genes and the environment, with neither side taking causal priority (Griffith, 2001). This means, ontogeny assumes a crucial role even in the basic process of gene expression. It is not just an unfolding of information stored in the genes, but it is a joint construction of information by inextricable gene-environment interaction. This view seems to fit very well the Veblenian approach in the sense that Veblen only needs to rely on very general features of instincts, that is, the specific content of "natural" determinants of human behavior is left open to environmental factors, in particular the habits and the schemes of life.

I do not need to dwell on these biological controversies too much, since the basic point seems to be beyond dispute, in particular, if human phenotypic plasticity finds due attention. This is that the adaptiveness of human behavior strongly depends on the cultural transmission of adaptively relevant information, without implying the inverse, namely that all cultural phenomena are biologically adaptive (Richerson and Boyd, 2005). Jablonka and Lamb show in a systematic fashion how these different mechanisms interact. Viewed from the Veblenian perspective, the important result of these approaches is that human adaptivity is always an

emergent property on the systems level and cannot be exclusively reduced to the individual level. The systems level includes the emergence of cultural phenomena which are irreducible to the genetic basis. Thus, the notion of the human individual relates to aspects on different ontological levels and with different scope and reach. The individual is the crossing point of complex processes that reach far beyond its organismic boundaries. Thus, the seemingly paradoxical conclusion emerges that precisely because of that complexity, which is further enhanced by their interaction, the unity of the individual emerges in the sense of a singularity: The probability that these crossing points are identical across different organisms, is arbitrarily close to zero. Further, this complexity is the ultimate source of creativity and novelty, in the sense of a fundamental “unexplainedness” of human action, and hence, freedom (Yılmaz, 2007).

How can we specify the causal link between the individual and the systems level? Again, we can go back to the brain sciences. There are two phenomena that help to substantiate the rudimentary Veblenian theory about the relation between instincts and habits. One is human emotions and the other is the theory of mind.

Emotions have moved into the center of attention in explaining human behavior since the Nineties when seminal synthetic works such as Damasio (1995) or LeDoux (1997) were published, including early receptions in the economics literature such as Elster (1998). This literature goes far beyond the early arguments developed by Frank (1988), namely that emotions play a coordinating role in strategic interaction, in particular as commitment devices. Brain science has shown that emotions are the fundament of rational action at all, in the sense of intentionality that is based on values assigned to actions and outcomes. Further, Tooby and Cosmides (2005: 52ff.) have submitted the proposal to view emotions as the central medium of mechanism coordination. Given the fragmented nature of the brain, the question is how the brain actually selects mechanisms, depending on environmental cues. Emotions link up classes of cues with classes of mechanisms in the sense of framing regular behavior, and they put value on kinds of actions. This role goes beyond the aforementioned bipolar dualism of brain processes in the sense that emotions link up cognitive and affective processes and conscious and automatic processes. That is, emotions actually provide the unity of the brain, and at the same time they are the essential defining feature of humanity (Konner, 2002).

For example, emotions are related to concepts that emerge during ontogeny and structure the perception of situations of social interaction, such as the role of affects in an interpersonal relation that is experienced as “love”. Clearly, love is based on both cognitive and affectual processes, and it is at the same time embedded into social interaction, in the sense that concept formation takes place via communication among human beings, for instance, during childhood socialization. This is the reason why love on the one hand seems to be a human universal, but on the other hand finds different expressions through historical times and across societies. This can be duly regarded as a modern restatement of the Veblenian view on instincts and habits.

The second observation pertinent to the instinct/habit relation is about the so-called “theory of mind”, labelled differently in different research contexts such as “mentalizing” or “mirror neurons” (Frith and Frith, 2003). Interestingly, the pertinent results strongly support the Smithian concept of “sympathy”, i.e. the notion that human beings are able to put themselves into the other’s shoes, which is a capability that primates are missing and that human infants only develop stepwisely. From the evolutionary perspective, mentalizing is the outcome of the Red Queen’s race for enhanced cognitive capabilities. Especially, to detect cheating requires the capability to distinguish between observed actions and supposed states of mind. However, once this capability to imagine the other’s mind had emerged, it could also serve as an exaptation in other contexts. The most important one is the human capability to adopt collective intentionality, i.e. to state “we” relationships. For example, in human infants this emerges as the common directedness of gazes which is the precondition for coordinating joint action (Tomasello et al., 2005; Tomasello and Carpenter, 2007). This role of collective intentionality has also been emphasized by Davis in his theory of identity, and has been made a cornerstone in Sugden’s (2000; 2002) recent restatements of preference theory, proposing the notion of “team preferences”. The point is that collective intentionality enables human beings to directly identify themselves with supposed common mental states of a group of people. This is a crucial link between individual behavior and the social environment, and is clearly based on brain action in the sense that special areas of the brain become active when mentalizing takes place (Firth and Firth, 2003).

Thus, I arrive at the conclusion that there are clearly identifiable phenomena on the level of neurophysiological processes that establish the causal linkages that entail the systemicity of the individual. To complete the picture, we only need to detail the relation between collective intentionality and emotions on the one hand, and institutions on the other.

6. Institutional economics as necessary complement of neuroeconomics

Coming back again on the fundamental point made by Ross, namely that the economic agent is in fact a systems level phenomenon, I note that what we have described so far implies that there is a direct relation between the systems level and the individual in the sense that there is no reason to assume that the emergent human social system reflects the principles of the abstract model of competitive markets. For example, in the beginning I have argued that the scope of the competitive system is determined by institutions. From this follows, that even if the individual is conceived as a systems level agent, its shape will differ if we include institutions as a systems phenomenon.

Now, my concluding argument in a Neo-Veblenian theory of the individual is that institutions can only be conceived properly if firstly, they are seen as expressions of collective intentionality, and secondly, their emotional underpinnings are recognized analytically. This, however, establishes a bi-directional causality: Institutions become a defining element of individuality, too, in the sense that intentionality and rationality are only possible within an institutional context.

The first point has been systematically developed by philosophers such as Tuomela (1995) and Searle (1995; 2005). For instance, Searle argues that institutions fundamentally rely on language, as they are the result of transfers of meanings across social domains, in the sense of the formula “*X counts as Y in context C*”. Thus, a slip of paper counts as money in certain domains of interaction. The binding nature of these transfers of meanings results from the deontic power of collective intentionality, as it is “we” who recognize this formula in a specific case. Hence, as emphasized by Davis, this implies that the institution becomes part and parcel of individual identity.

The second point is less obvious, but is evident if we consider the fact that institutions in the end have to be based on mechanisms of commitment and sanctions (which Searle, 1995, identifies as the “brute facts”). Both points are interrelated in the sense that collective intentionality substantially lowers the costs of commitment and sanctions. This is because institutions become part and parcel of individual identity if they are based on collective intentionality, and because as a consequence social ostracism becomes a very powerful low-cost sanctioning device. Both sanctioning and the perception of being ostracized are based on emotional reactions, such as so-called “moral aggression” in the first case, which is a sort of low-cost altruism based in collective intentionality, especially in the context of second-order punishment, i.e. the punishing of nonpunishing individuals (Field, 2001; Bowles, 2004: 386ff.).

Viewed from another angle, however, an institution is also a defining element of emotions. This point is crucial for recognizing the essential interrelatedness between neuroeconomics and institutional economics. To start with an illustration: The ultimatum game has turned into a workhorse for experimental economists to investigate into cultural differences in decision making (Bowles 2004: 114ff.). It is a clear and undisputed empirical fact that people from different cultures propose significantly different sharing schemes in the game. How can we interpret this? Are the people different? The most convincing explanation is that the people actually play different games because the institutional framework of sharing is different in different societies. For example, whale hunters are accustomed with situations of sharing where it is difficult to establish a clear relation between individual effort and the result of the hunt. Thus, in their society there is a strong preference for equal sharing which also finds expression in the ultimatum game. However, that means that the institutions have become part and parcel of their identity as players, and that means that this also affects the perception of the game, which is, after all, the setting of an institution of its own kind. This interpretation is underpinned by emotional features that support the transfer of behavioral patterns across different domains of application. For example, sharing is governed by emotions that might lead to social ostracism against people who constantly haggle and argue over a proposed division.

Now, if neuroeconomics produces results about different brain activity in different situations of choice, what does this actually imply for the explanation of the behavior? In a sense, simply nothing. This is because brain activity is only the reflex of the perception of the

situation. This perception is governed by the cognitive processing of clues how the situation has to be interpreted. For example, in case of the notorious hyperbolic preferences, how is the time difference between the present and the future actually perceived? If I am a fervent religious believer and follow strong moral feelings, fearing immediate punishments for later life, the future and the present simply merge, without any discounting taking place, because the eternal sanctions are always there. If neuroeconomics proved different patterns of brain activity for religious people as compared to non-believers, what would that imply? The brain processes are just intermediary causal chains in a pattern of behavioral determination that actually links up the individual with the institutions of the particular society she lives in.

This observation completes the Neo-Veblenian approach. Neuroeconomics is an essential ingredient, as it allows to modernize Veblen's views on instincts, in particular. However, neuroeconomics cannot stand alone, because neuroeconomic facts become only meaningful facts in social contexts. Its systematic counterpart is institutional economics.

6. Conclusion: Towards a naturalist economics

There is a paradoxical state in economic methodology today. On the one hand, neuroeconomics, behavioral economics and experimental economics are the hot topics, and interest in research is intense, as the top journals are now open to pertinent contributions, and even a Nobel award was bestowed on its leading proponents. On the other hand, many economists believe that all this research is totally irrelevant to economics. A very clear and concise argument in favour of the latter position has been submitted by Gul and Pesendorfer (2005). Their argument is basically the same as Ross's, namely that economics and neuroeconomics are simply theories about totally different domains. Economics is said to concentrate on a particular aspect of behavior which is accessible through a particular set of data, i.e. observed choices, prices and quantities. States of the brain are simply irrelevant for economics, and economics has nothing to say about brains.

I hope that this paper has broadened the debate in the sense that the confrontation between the brain sciences and economics can only be resolved if economics is moving to the paradigm of institutional and evolutionary economics. The Gul and Pesendorfer argument exactly raises the question whether it also implies that economics cannot be a universal social science or the fundamental social science. The irrelevance hypothesis might hold in the sense that people operating in the institutional environment of competitive markets, where prices and quantities are salient features, can just be described by the standard notions of choice and utility, and this would be also methodologically consistent, as prices, quantities and choices are observables. For this kind of science, neuroeconomics would be of no significance at all. However, economics would not apply for other areas, where this conditions for application cannot be taken for granted. As I have already stated in the first section, if economics claims to be the universal social science, the question is therefore not about the universal relevance of the rational choice model, but about the universal relevance of the competitive model.

Whereas the former seems to be more easy to accept, on first sight, the latter turns out to be a claim difficult to substantiate. Even the market relies on many institutional requirements such as trust and infrastructural public goods, which almost by definition stand outside the competitive system.

Thus, my point is that neuroeconomics becomes only relevant for economics if the systemic framework is conceptualized along the lines of evolutionary and institutional economics. This might even include the acceptance of the view that standard rationality might apply in certain institutional settings. But generally speaking, human economic behavior emerges at the interface between institutions and mental phenomena, with the latter being conceived along the lines of brain/mind monism. This methodological stance might be called the naturalist approach to economics.

The naturalist approach has been developed for the first time by Adam Smith, if the *Wealth of Nations* and the *Theory of Moral Sentiments* are viewed in conjunction. After that, there was a long silence about this aspect, with the rationalist paradigm slowly evolving into the neoclassical revolution, until Veblen for the first time developed a fully-fledged Darwinian view on the individual, of course marked by the many limitations of scientific knowledge of his times. Veblen's ideas emerged simultaneously with the neoclassical turn, and they could not prevail in the general enthusiasm about turning economics into an 'exact science'. Today, we are able to pick up his strand of thought again, based on the rapidly evolving field of the biology of humanity. This is what the Neo-Veblenian theory of the individual is all about.

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