On Human Nature and Institutions

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“Is life just a game where we make up the rules,
While we're searching for something to say,
Or are we just simply spiraling coils
Of self-replicating DNA. (Nay, nay, nay, nay, nay, nay)”

From Monty Python's The Meaning of Life¹

Introduction

The question is as old as it is controversial: how much of human behavior is influenced by the quasi-immutable biological traits of the species acting at the level of the individual and how much of it is determined by the fast evolving, socially encompassing institutional environment? Social scientists generally take one of two extreme positions to which Granovetter (1985) referred as under and over socialized conceptions of human action. The group that includes most mainstream economists accepts that the institutional surroundings ultimately influence the specific sets of preferences of each individual, but dismisses these social variations as the unimportant causes of cross-cultural behavioral variations. Scientists from this camp focus on universal features of human behavior which they believe to have biological roots. The group

that includes most sociologists and many heterodox economists tends to pay close attention to
the social, economic, political and cultural contexts of human behaviors observed at different
moments in time, while hardly ever investigating whether some recurring universal patterns of
human behavior may have deep biological roots at the individual level besides perhaps a
universal urge to conform to the accepted norms of the group.

The idea that differences between the two camps are just a matter of focus and that the
two views are in fact compatible may be seductive to the scientist seeking theoretical
compromise, but it is simplistic misleading. In this paper, we argue that the two extreme
positions represent dangerously inadequate conceptions of human action. As an alternative, we
develop a framework for analyzing human action that includes a model of human nature – the set
of innate human needs, capacities and impulses – and a model of how human nature interacts
with basic institutions – the set of socially relevant habits of thought – ultimately shaping
observed behavioral regularities. Therefore, the proposed model differs from the over-socialized
view in that it includes a much richer set of basic innate needs, capacities and proclivities
(human instincts or impulses\(^2\)) as causally relevant for understanding observed human behaviors.
It also differs from the under-socialized conception because it rejects the idea that human
instincts stripped of any social context may be viewed as direct causes of human behavior.

Dennis Wrong (1961) called attention long ago to the fact that sociologists tended to
overemphasize the acceptance-seeking drive in human beings. Wrong’s criticism was aimed at
the work of Talcott Parsons (1937) who demolished Herbert Spencer’s unfortunate view of
human nature and his defense of radical individualism in defense of social progress or evolution.
However, in refuting the hedonistic sociopath picture of human beings advanced by Spencer,
Parsons painted an exaggerated picture of human action where extreme disembedded selfishness
was substituted by extreme social complacency. As a result, human beings were inadequately
described as having an almost perfectly “empty, passive, wax-like mind”, as Dewey

\(^2\) In ethology, instincts refer to innate or “hardwired” behavioral proclivities that influence animal behavior in a
quasi-mechanical way. While it is assumed here that humans too possess a number of animal instincts, in humans
these instincts have a much weaker causal influence on the actualized behavior. In addition to being driven by
instincts, superior cognitive capacity allows humans to invent, learn, adjust and readjust their strategies before
acting. As a result, the same innate proclivities may be expressed in a great diversity of ways rather than the
predictable few observed in other animal species. In order to differentiate instincts in human beings which have a
weak causal connection to behavior from animal instincts with strong causal connection to the behaviors of non-
human animal species, John Dewey referred to innate behavioral proclivities in humans as impulses instead of
instincts (see Dewey, 122, p. 105 n.).
disapprovingly described it (1922, p. 93), fully open to passively absorb whatever set of collective habits formed its social surroundings. The existence of an acceptance-seeking drive is indeed important for explaining the relative stability of institutional environments and the formation of social ties. However, if humans are primarily driven socially by an impulse to passively conform to the surrounding institutions, it becomes very hard to explain what causes these institutions to change over time. We argue here that the formation of new habits (or transformation of old ones) results from social actors reacting to the consequences of past behaviors under the primal guidance of a number of innate needs/impulses, many of them pushing human behavior away from social conformity. To point, our framework follows Veblen and Dewey in explicit utilization of an instinct-habit psychology in social analysis.

The importance of instinct-habit psychology as a theoretical foundation is well noted with regard to Veblen himself, though certainly less so for later institutional economists (Twomey, 1998, p. 434). In the first, Veblen’s approach was put forward in critique of the hedonistic psychology of neoclassical economics (Twomey, 1998; Rutherford, 1999). In the latter view, the individual is conceived as “a lightning calculator of pleasures and pains who oscillates like a homogeneous globule of desire of happiness under the impulse of stimuli that shift him about the area, but leave him intact. He has neither antecedent nor consequent,” (Veblen 1898b, p. 389). Drawing from the then-contemporary research in psychology and anthropology, Veblen famously countered that Man is a “coherent structure or propensities and habits which seeks realization and expression in an unfolding activity.” “According to this view,” Veblen continued,

human activity… is not apprehended as something incidental to the process of saturating given desires. The activity is itself the substantial fact of the process, and the desires under whose guidance the action takes place are circumstances of temperament which determine the specific

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3 As will be argued below, human inventiveness, idle curiosity and the need for autonomy are elements of human nature that generate primal inducements towards non-conformity in some way. They are needs/impulses for change and adaptiveness. While it is reasonable to assume that when the most basic needs (for instance, nutritional needs) of a socially relevant portion of the group are inadequately met, the internal contradictions between basic needs/impulses and human experiences will more urgently press the institutional structure in the direction of change, the intensity of institutional evolution will ultimately depend on how the dynamics of the current institutional structure, in perpetual interaction with needs/impulses of the individual concerned create change or conformity. For example, an impoverished society may be kept from promoting needed change if institutions such as religion are strong suppressers of innate curiosity and innovation and reinforcers of conservatism.
direction in which the activity will unfold itself in the given case. These circumstances of temperament are...the products of his hereditary traits and his past experience, cumulatively wrought out under a given body of traditions, conventionalities, and material circumstances. (Veblen, 1898b, p. 390; see also Rutherford, 1999, p. 226)

In short, Veblen was arguing for an evolutionary approach, not simply in the sense of acknowledging time, but of integrating human activity into the broader post-Darwinian approach to the whole history of life. Thus the evolutionary movement of mankind was to be appraised holistically in terms of both biological and institutional movement, their interaction with each other, and their relationship with the material environment through time. Toward these ends, Veblen’s psychology drew heavily from the works of Peirce, James, and, later, McDougall emphasizing habit as a key construct in understanding social behavior, but also the interpenetration of inherited instinct, habit, and conscious reasoning (Twomey, 1998).

In addition to the work of Veblen this paper takes as a principal treatise on the subject of instinct-habit psychology John Dewey’s Human Nature and Conduct: An Introduction to Social Psychology (1922). It is the position of the authors that none of the psychological arguments of Dewey’s work, nor the social implications therein, are in conflict with Veblen’s analysis of the ‘nature and causes of the growth of institutions.’ Both acknowledge an innate component to human nature conceptualized as instincts or impulses as well as the role of habit in mediating or directing these native proclivities. Moreover, both see intelligent thought, or deliberation, as a derivative of impulse and habit, though not as in a subservient role but rather as liberating, clarifying, and harmonizing the latter pair (see Dewey, 1922, pp. 254).

As the utilitarian psychology on which both Veblen and Dewey laid so much criticism so many years ago is still alive and well in modern rational choice theory, further discussion or the contrast, as contemporarily considered, may be warranted.

**How rational, really?**

Rational choice theory (RCT) is the usual theoretical paradigm of those who embrace the under-socialized conception of human beings. It combines the utilitarian consequentialism of Jeremy Bentham and ever more sophisticated mathematical methods into what has become the
most popular model of human behavior used by economists, political scientists and policy makers. Its obvious usefulness as justification of *laissez faire* economic ideology has been the likely cause of its widespread popularity in spite of its inadequacy as useful representation of human behavior.

While our work in this paper does not include a comprehensive critique of the under-socialized conception of human action in general – and rational choice theory in particular – it has been largely motivated by our desire to develop a strong alternative model of human behavior able to replace the rational choice view.

According to rational choice theory, human beings are rational seekers of maximum possible utility or net satisfaction. That every voluntary act is purposeful and implies preference follows tautologically. One prefers to act in a particular way, or else he would have not done so voluntarily. This description of a rational act is empty of any useful theoretical meaning unless we identify specific things that add and reduce human utility, as pointed out by Hodgson (2001 and 2004) and many others. Material consumption, monetary accumulation, social recognition, leisure are usually identified as sources of utility, while the loss of those things represents reduction of utility (or disutility). The specific utility rewards received from different experiences vary across cultures, but the broadly defined utility-maximizing drive can be adequately assumed to be a universal characteristic of the human species.

While the idea that human behavior is aimed at utility maximization is somewhat compatible with our Institutionalist/Evolutionary view in the sense that human behavior is purposeful, we dispute two fundamental assumptions of modern rational choice theory. First, RCT assumes away (or at least greatly downplays) the real world tension between net benefit maximization at the individual level and at the group level. In methodologically individualistic rational choice models, individual actors need not consider the consequences of their acts on other people. Gain and loss of utility experienced by an individual is assumed to result solely from his own choices and human behavior can be adequately modeled as if people existed in absolute isolation. However, there is no perfectly isolated act or perfectly isolated individual in real life. Social sciences ought to be concerned with human behavior that has socially relevant implications, but RCT offers a model only useful as description of socially meaningless acts. If

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4 Ironically, this point was made by iconic classic libertarian Frédéric Bastiat in his “Economic Harmonies”, first published in 1850.
humans lived in a socially disembedded state of isolation, the study of human behavior would be significantly simpler since purposeful human behavior would be, by definition, always individualistically driven. In isolation, there would be no other possibility but for an individual to try to seek satisfaction for himself and no one else. However, socially embedded individuals do not face such unambiguous choices. Because individual choices have social consequences, they must always ask the question: who is it benefiting and who is it damaging? Whenever an act has negative consequences for other people, the actor must consider whether to pursue maximum gain at the individual level while imposing costs on others, a choice that is not naturally clear cut. As we will later argue, social systems where utility maximization refers primarily to gain maximization at the individual level should be expected to produce different results from social systems where collective awareness is strong.

Rational choice theorists believe to have found in evolutionary biology and psychology confirmation that the innate behavioral proclivities in humans that would have been selected by nature should drive human action towards gain maximization at the individual and immediate family level in spite of consequences faced by other people (Becker 1976, Robson 2001 and 2002, Hirshleifer 1977, Rodgers 1994 among others). However, we argue that a different reading of the same evolutionary biology and psychology literature should actually lead to rejecting the idea that humans are universally selfish hedonists who solely engage in acts of true altruism when family members are involved, driven by a primal urge to protect their immediate kin. Instead, we argue that situations where human beings seem predominantly to conform to the RCT description by selfishly taking advantage of every opportunity to benefit individually when clearly imposing costs on others are the product, not of human nature, but of particular institutional environments that reinforce competitiveness attitudes while suppressing in-group altruism.

At the heart of the fundamental disagreement between social scientists from the over and under-socialized camps lies the overemphasis on innate social conformity in the first case and innate selfishness in the latter case in their conceptions of human nature. As a response to the Hobbesian problem of social order, social scientists in the over-socialized camp, such as Talcott

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5 In recognizing altruism directed at close relatives, rational choice theorists acknowledge only a portion of the literature from evolutionary biology on altruistic behavior and cooperation. In addition to kinship altruism, we will argue below that reciprocal altruism, conspicuous altruism and cooperation towards superordinate goals are also likely reasons for the evolution of strong altruistic and cooperative proclivities in humans.
Parsons, simply rejected Hobbes’s conception of human nature as selfishly inclined and replaced it with an acceptance seeking human being. Even though RCT’s conception of *Homo economicus* as a quasi-psychopath solely is fundamentally similar to the Hobbesian conception of human nature, rational choice theorists reject Hobbes’s conclusion that a society populated by such selfish hedonists would break down into a “war of every man against every man” (Hobbes 1651) in the absence of a strong Leviathan law giver and enforcer. For rational choice theorists, the expected natural product of unmanaged societies inhabited by selfishly inclined individuals is economic efficiency and social harmony.

Adam Smith (1776) was the original proponent of the idea that a society populated by self-centered hedonists could potentially produce socially harmonious and economically efficient outcomes. In fact, he believed that the pursuit of individual gain by a multitude of social participants would, under some conditions, benefit societies the most, as if the social reality had been engineered by hand to perfection by a magnanimous invisible designer. The Smithian and RCT social optimum is reached as self-serving individuals establish quasi-perfect systems of mutually beneficial selfish exchange kept in check by competition. For each individual, cooperation in the form of division of labor and trade represents opportunities to gain individually what would be unattainable in isolation. Smith believed that the development of mutually beneficial division of labor and exchange would be naturally driven by a “certain propensity in human nature, which has in view no such extensive utility; the propensity to truck, barter, and exchange one thing for another” (Smith, 1776, p. 18).

In Smith’s view, the key to social harmony and economic efficiency is competition between social economic units (producers and consumers mainly). In socially embedded economies, agents must protect their reputations or face the risk of being driven out of markets by competitors. When engaging in any social transaction, one contributes to the gain of another and expects the other to contribute to his own gain. If at the end of a transaction one feels that he has been insufficiently and/or unfairly benefited, he may decide not to ever engage in social exchange with the other party. Worse yet, he may advise other people against transacting with the other party as well. In a very competitive environment where information about past transactions travels fast, social actors’ individual gains distributed over time depend on not disappointing those with whom they transact. Therefore, competition forces self-seeking individuals to ensure that each transaction is indeed mutually beneficial.
Though the work of Adam Smith is commonly regarded as the foundational theoretical basis for the under-socialized conception of human action and its theory of how stable social orders are formed, Smith’s complete view of human nature and social phenomena seems to be almost diametrically opposed to the one advanced by most proponents of RCT. Only by picking and choosing quotes from within the *Wealth of Nations*, can someone convincingly portray Smith’s position as unambiguously supportive of the idea that *laissez faire* capitalism naturally produces social harmony and economic efficiency. Yes, Adam Smith believed that competition could enhance the stability of systems of social and economic interdependency based on selfish reciprocity. However, for Smith the social stability enhancing influence of competition was ephemeral at best and social systems inhabited by gain-seeking sociopaths would eventually collapse in the absence of some other force keeping social order. Smith recognized the likely gradual deterioration of perfect competition, primarily the result of self-reinforcing power and wealth disparities. These cumulative disparities represent opportunities for selfish agents to gain more from social transactions than under the competitive equilibrium, exposing the true adversarial nature of seemingly cooperative market transactions. According to Smith, opportunistic selfishness was more often the characteristic of the capitalist class who having enjoyed prolonged periods of wealth accumulation and being fewer in number “seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices” (Smith 2005, p. 111).

Clearly for Adam Smith a society where almost all social interactions were strongly adversarial in nature could not enjoy prolonged stability. In his *Theory of Moral Sentiments* (1761), Smith had presented his complete theory of human nature from which his arguments in *The Wealth of Nations* cannot be separated. In addition to possessing the individualistic gain-seeking proclivities responsible for the development of selfish reciprocity systems in the form of proto-capitalistic market systems, humans were also innately equipped with a predisposition to feel sympathy for fellow humans. For Smith, it is human sympathy, by offsetting the intra-species predatory drive of human beings, which keeps social systems from deteriorating into widespread conflict. As it turns out and contrary to popular belief, Adam Smith’s conception of human nature, with its conflicting innate proclivities for sympathy and selfishness, is much

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closer to the Institutionalist framework we have embraced and extended in this paper than to that of the under-socialized conception and RCT.

Descriptions of economic and social reality based on rational choice models simply assume away the difficulties for a stable system of social interdependency based on selfish reciprocity to be sustained. Even if one could wish away all obstacles – uneven power distribution, informational asymmetries, etc. – faced by the stabilizing forces of perfect competition to prevail, perfect social harmony and economic efficiency might still not be observed. In perfectly competitive environments, agents compete for “good” transactions by offering to benefit those they wish to exchange with as much as possible, while still benefiting from the transaction themselves. Perfect competition results in one actor not being systematically fooled by another since, if discovered, deceitful behavior brings to the one who deceives the overwhelming cost of being forced out of the system of mutually beneficial selfish reciprocity. Highly competitive systems without significant informational failures would not be afflicted by systematic fraud since competitors would have strong incentives to out-honest each other. However, social and economic optimality – defined as the best possible use of economic resources to resolve the collective challenges of a society – depends on more than the elimination of fraud by market discipline. Even if competition were successful in neutralizing the incentive to defraud in social interactions between selfishly driven individuals, economic results would still be normally wasteful and potentially lead to social disruption in environments of fundamental uncertainty.

A rational person is described by RCT as someone whose preferences are consistent (transitive) and whose expectations are as accurate as possible given the available information. Having formed accurate expectations, one is capable of anticipating as well as possible the consequences of his or her decisions. As a result, one is capable of envisioning the optimizing strategies to achieve his or her goals. Put simply, a rational agent is someone who knows exactly what he wants and how to get it. Preferences would, under such conditions, be implied directly from the observed consequences of decisions.

In reality, it is not always possible to infer individual preferences directly from the consequences of one’s individual decisions. Think of a student who preferred to sleep all day instead of studying for a final exam and, as a result, failed the exam. A rational choice theorist may be tempted to infer from this that the student prefers the F – the consequence of not studying
– over the higher grade. Though it is possible that a student would rationally decide to fail his exam tomorrow in exchange for valuable extra sleep today, it is more likely that the student prefers sleeping over studying today, but prefers getting a B tomorrow over sleeping today and failing the exam tomorrow. His choice is the probable result of not accurately knowing the exact outcome of his decision. To be fair, this is not at all incompatible with most RCT models. Individually; agents are assumed to make all kinds of mistakes due to informational and computational failures. However, following John Muth (1961), rational choice models assume that on average the expectations of many agents tend to be accurate, if the causes for individual mistakes are random. In the example with the slacker student, this means that for every student that underestimates the likelihood of failing a final exam for lack of preparation there will be another student who overestimates the same probability causing preparation for the exam by many students to be adequate on average, even though many students will have either studied too much or not enough.

In rational choice models, human behavior is also assumed to be self-correcting at the individual level. Imagine that we are observing the same group of students who have been taking similarly difficult final exams for a number of years. Those who received their exact desired grades the first time have become aware of how much studying is needed for them to get the particularly preferred grade any time they take a final exam in the future – i.e. they know what the optimal strategy is and will stick to it. Other students will adjust their studying efforts – positively if they received a less than desired grade and negatively if they received a more than desired grade – every time they take a new final exam until they too discover their optimal strategies. Eventually, every student will have figured out how to use their time optimally in order to achieve the most satisfaction from sleeping today and receiving a desired grade tomorrow. At this point, a stable optimum will have been achieved both at the individual and aggregate levels. Periods of suboptimality may be temporarily observed whenever circumstances change and the given individual strategies become less than optimal. Ultimately, rationality prevails and optimal strategies are discovered adaptively. For instance, if instructors decide to increase the difficulty of final exams or students become more or less exigent about their grades new optimal strategies will have to be found which will eventually occur after students have taken sufficient final exams under the novel conditions.
Rational choice theorists assume that human beings are always capable, if given sufficient time, to identify optimizing strategies to deal with given problem situations. Yet again, they point to human nature and the innate capacities to teach, learn and innovate as causes for optimizing strategies to be eventually formed. First, we ontologically reject that any given strategy can be described as optimizing just as we reject that expectations can ever be described as perfectly accurate. Even though humans are capable of forming strategies adaptively by learning from past experiences and intelligently forecasting future possibilities, every given strategy can always be improved in terms of achieving what it is aimed at achieving because: (1) knowledge about reality is always incomplete and improvable and (2) objective conditions of reality are not static. In our model, we describe the formation of problem solving strategies not as tending towards optimality but as a continuous search for “better” ways to deal with human problems. Second, our conception of human nature also includes important proclivities that stand in the way of continuously improving adaptiveness of expectations and problem solving strategies.

Looking back at our example with the student, the objective conditions for optimization (the level of difficulty of the exams, the cognitive capacities of students, etc.) are independent from the conditions for optimization as subjectively assessed by each student. No matter what students expect and what strategies they adopt, the characteristics of their final exams remain unchanged. Only when relevant objective conditions do not change in self-reinforcing ways is it reasonable to expect that problem solving strategies will be continuously improving as time passes as a result of human heuristic inclinations. As John Maynard Keynes demonstrated (1921, 1936), the assumption of independent objective and subjective conditions is mostly inadequate for understanding complex social and economic phenomena under capitalism. The distinction is an important one between situations that entail probabilistic risk and fundamental uncertainty. Both the optimistic and the pessimistic gambler face the exact same objective probabilities of winning when playing the game of roulette. A meteorologist’s forecast has no influence on the actual causes of rain. These are examples of events governed by probabilistic risk. In such cases, one is justified to look for reliable patterns in past events in order to form optimizing strategies to deal with events of the same nature in the future. However, most socially relevant events of capitalist life are not ruled by probabilistic risk, but by true fundamental uncertainty. Under fundamental uncertainty, the objective probabilities of different propositions change in self-
reinforcing ways, making it impossible for optimal strategies to be discovered heuristically by looking for patterns of past economic events.\(^7\)

The difficulty in dealing with situations of true uncertainty lies in the fact that the causal determinants of economic events do not keep static for economic actors to have time to adjust their beliefs adaptively for accuracy.\(^8\) Human expectations are an integral part of the objective determinants of capitalist economic phenomena, especially of economic events in capitalist economies. Changes in social actors’ subjective assessments about the functioning of economic reality produce changes in the very objective conditions they are trying to uncover. As an illustration, Keynes suggested that a professional money manager’s task of deciding when to buy or sell a financial instrument was similar in nature to,

those newspaper competitions in which the competitors have to pick out the six prettiest faces from a hundred photographs, the prize being awarded to the competitor whose choice most nearly corresponds to the average preferences of the competitors as a whole; so that each competitor has to pick, not those faces which he himself finds prettiest, but those which he thinks likeliest to catch the fancy of the other competitors, all of whom are looking at the problem from the same point of view. (Keynes 1936, p. 156).

In capitalist economies, those agents or activities driven by pecuniary motives are ultimately concerned with the conditions for the accumulation of nominal values which depend on other agents’ nominal value assessments. For instance, from a producer’s point of view, it is not sufficient to forecast how much output he can produce with given technology and inputs. Knowledge about material productivity can be improved upon adaptively since it involves probabilistic risk. However, production of output only serves a purpose if it can be sold for money, and knowledge about money-making conditions is formed under conditions of fundamental uncertainty. Since a producer’s forecast about his future sales will cause him to spend more or less money in production, the very demand conditions that ultimately determine

\(^7\) In fundamentally uncertain system, the probabilities of different propositions are endogenously unstable. These systems are mathematically defined as non-ergodic or non-stationary (see Davidson 1996).

\(^8\) It is important to note that while rational choice models claim to describe human expectations as forward-looking as opposed to the backward-looking description by Friedman (1968) and orthodox Keynesians, both views (adaptive and rational expectations) actually represent adaptive or backward-looking descriptions of how expectations are formed. The difference is that while for Friedman agents looked back solely to past price levels in order to predict current and future price levels, for rational choice theorists agents look back to past price levels, money supplies and other useful pieces of information to forecast present and future price levels.
how much output gets sold are influenced by each producer’s subjective assessment of demand conditions.

Expectations and economic reality are strongly interdependent in capitalism, but significantly less so in non-monetary economies. In a non-capitalist economy, the exchange ratio between wooden chairs and sugar has ultimate grounding in real conditions (real costs, relative scarcity, perceived serviceability, etc.). Things are demanded and produced solely because they are perceived as materially useful or necessary. If the chair/sugar exchange ratio were expected to change, no one would desire more of one or the other simply because to possess more of the appreciating good represented a potential material gain. In other words, a non-monetary economy is one without speculative demand. It is also one where mutually beneficial economic transactions lack much of the adversarial element predominantly present in capitalism. Outside of capitalism, it is reasonable to assume that economic planning is continually improving as agents learn more and more about the stable material determinants of production and adjust their economic decisions adaptively.

In capitalism, nominal price changes and expectations are self-reinforcing, since it is “rational” for money-seeking agents to speculate and demand more (less) of which is supposed to appreciate (depreciate) nominally. Unfortunately, there is no stable optimal strategy for money-making in capitalist economies. With little else to base their money-making strategies on than the economic patterns of the immediate past, capitalist actors become followers of conventions, though hoping that they will be the first ones to notice when the patterns of the past stop being reliable indicators of events to come. If humans rely on past experiences to anticipate economic outcomes in the future under conditions of fundamental uncertainty, we should not be surprised that economic strategies often yield frustrating results. The aggregate consequences of many money-seeking agents behaving this way is economic instability in the form of booms and busts, rather than equilibrium at full employment as argued by rational choice theorists.

From its under-socialized conception of human nature as primarily selfishly inclined to its description of how adaptive learning and the capacity to form increasingly more accurate forecasts (rationality) allow humans under capitalism to eventually achieve optimizing behavior individually and collectively, there is almost nothing in the Homo economicus that seems to conform to the actual way Homo sapiens behave. Having recognized the problems in the under-socialized conception of human behavior and RCT, we wish to develop an alternative framework
more realistic and useful for the analysis of social behavior in general and specifically under capitalism.

**Instinct-habit Human Psychology**

Perhaps the uniqueness of the human species lies in the fact that, differently from what is true about all other species, the biological and acquired determinants of human behavior change at greatly different rates. *Homo sapiens* are the only species capable of actively changing their own environment in cumulative ways. Rather than passively responding to environmental conditions, humans have become active transformers of the same environmental conditions to which they are uniquely capable to adjust. Cultural evolution fully independent of biological evolution seems to have appeared only with *Homo sapiens*. Even other extinct member species of the *Homo* genus did not appear to have shared the level of imagination of *Homo sapiens* necessary to continually create and improve upon existing practices and artifacts, as suggested, for example, by the paleontological and paleoanthropological data about technology and ceremonial behavior of *Homo neanderthalensis*.\(^9\) This distinct feature of modern humans makes all the difference for the study of behavioral regularities. The task of modeling behavior becomes a much simpler one when both innate and acquired influences can be assumed as stable. Unfortunately for social scientists, the social and physical environments faced by modern humans change in often self-reinforcing fashion making it impossible to produce universal representations of human behavior that are not historically and socially contextualized.

Learning is not a unique capacity of human beings. In most bird and mammal species cubs learn important behaviors from parents and continue to learn as adults from their own experiences. The fact that knowledge gets passed from parent to offspring in non-human species is sometimes taken to mean that dynamic cultural factors should be included in the analysis of animal behavior just as in the study of human actions. However, to the extent that social knowledge exists in non-human animal species it does not undergo significant changes independently from biological factors. Even among primates, learning results from observation

\(^9\)Tools that have been discovered in excavated sites once inhabited by *Homo neanderthalensis* suggest no significant change in their technology over thousands of generations. (See Tattersall 1999 and Hardy, Colus and Conard, 2008)
of the behaviors of other members of the group or of the parents, instead of active teaching.\textsuperscript{10} In teacher-student relationships where teacher and student actively collaborate towards the transfer (and sometimes creation) of knowledge, the use of language and creativity are necessary elements for knowledge to be not only passed on but transformed. Consequently, models of non-human animal behavior may be constructed simply by identifying the causal linkages from innate proclivities directly to behavioral regularities even when some of these regularities result from the acquisition of habits, since such habits are, like instincts, unlikely to radically change through time.

Significant changes in non-human habits usually accompany changes in the species’ genotype. No other species has suffered such radical transformation of its (extended)\textsuperscript{11} phenotype in the absence of genotypic transformation as the human species. Over the past couple hundred thousands of years, humans have gone from living in small cooperative hunter-gatherer communities and using only a few pieces of simple technology to living in capitalist megalopolises and using computers and airplanes. This much is evidence of the immense plasticity of human phenotypes given a quasi-fixed genetic makeup. It is as if human evolution has escaped the slow changing shackles of natural selection at the genetic level and is now driven by different evolving replicators at the cultural level. For this reason, the instinct driven (genetic) models of animal behavior that are so useful for the study of non-human species cannot be adequately applied to human behavior. Instead, a useful model to explain and predict human behavior must identify how the stable set of innate proclivities gets expressed under different social contexts.

Animal instincts are here defined as inborn behavioral predispositions characteristic of a species, often expressed as systematic responses to given environmental stimuli. As all other inborn characteristics of a species, instincts must have a genetic cause. This is not to say that a species (or an individual’s) genotype is the sole cause of any phenotypical characteristic. As

\textsuperscript{10} For instance, chimpanzees have been reported to carefully observe other chimps in their group performing complicated tasks and then repeating those tasks, but never to actively show other chimps how to perform the task (see Horner and de Waal 2009 and Whiten et al. 2007).

\textsuperscript{11} Dawkins (1983) introduced the concept of the extended phenotype to describe the material impact from genetic elements on anything other than the phenotypical features of the biological entity carrying the influential genes. It is an important concept for understanding how natural selection operates at the biological level, since it is the impact of the consequences of a genetic difference on its rate of replication that ultimately determines which genetic characteristics will become more predominantly a part of a species genotype, whether the consequence refers to morphological changes in the individual carrier of the gene or whether it is expressed behaviorally, in which case the phenotypical change includes all the effects of the behavior on its surrounding environment.
pointed out by Lewontin (2000), it is a long and non-linear causal sequence from the gene to its ultimate phenotypical expression. Genes are molecular blueprints for the production of the proteins that ultimately form every aspect of an individual biological entity – including natural chemicals that influence neurological processes and bias behavior. However, these blueprints may lead to the construction of significantly different structures if the conditions are also dissimilar. Laboratory experiments suggest that under controlled conditions, changes in genetic information systematically affect animal phenotypes in very precise ways. On the other hand, similar laboratory experiments suggest that controlled changes in environmental factors also influence phenotypical features with equal precision when the genotype is held fixed. In real world events, where controls are absent, phenotypes are the product of how the environmental particulars affect the formation of the biological entity guided by the genetic blueprint.

Biologists have long observed the often surprising impacts on animal phenotypes from sudden environmental transformations. Though it is theoretically possible that the particular biological features of any given species happen to be equally adapted to transformed environments as they were to the original environment in which they were formed, this is usually not the case. Animal biologies have evolved into the way they are because they were most adapted to benefiting the replicating success of their genetic causes under the selective pressures from their ecological surroundings. Whatever the characteristics of a species in its natural habitat, we can assume that they are as well adapted to promote replication of their genes under the given environmental circumstances as any that has ever existed. This is the case because if other competing phenotypical features were ever better adapted to getting their genes to replicate more frequently they would have eventually replaced the current feature. Sudden environmental changes drive evolution by turning evolutionary stable optima of species in their natural habitats into relatively maladjusted biological systems. When this happens, otherwise deleterious mutations or recessive features may become the better adapted “strategies” for their genes’ replication and the species as a whole may evolve and acquire the previously eccentric characteristics. Alternatively, when a species is unable to adapt and keep up with the new challenges created by changing environments, it may simply disappear. To become evolutionary

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12 Lewontin (2002) tells us of a number of experiments with Drosophila (a type of fly) and Achillea (a type of plant) where the phenotypical effects of genes (such as plant size, eye size in the flies, etc.) cannot be anticipated independently of environmental conditions.
dead-ends has been the usual fate of species with very specialized lifestyles when faced with radical environmental change. Even notoriously aggressive big cats (species of the Panthera genus) removed from their wild environments can be tamed into relative docility. That lions have been systematically tamed does not mean that the innate aggressiveness of an individual lion has been eliminated. Lions are formidable predators whose biological features have evolved under a lifestyle of frequent intra-species conflict. Whatever and however complex the biological roots may be, they seem never to fail to generate the recurring particulars of lion lifestyle in the wild. However, the same set of primal drives that influence a lion’s behavior in particular ways in the wild will not lead to similar behaviors in environments shaped by humans. Those of us who have been to the circus have witnessed how the innate aggressiveness of big cats, while still fully present, can be significantly suppressed as the result of artificial environments and training. However, if lion trainers had been breeding lions for thousands of years, choosing the breeders for their docility, we should expect for domesticated lions to have eventually lost much of the aggressive proclivity and perhaps become a fully different species. Domesticated species descend from species originally chosen for domestication exactly because they were identified as having well adjusted features for the artificial conditions they would be surrounded by. Nonetheless, the fact that original wild species such as the wolf went through speciation once domesticated is evidence that the species was not as adjusted to the environmental conditions created by humans as dogs are. Even horses that seem to have been originally domesticated as the same species have undergone significant genetic change, though insufficient for a new species to have been formed (Smith 1866). Contrastingly, the fact that Homo sapiens have gone through such formidable environmental transformations with relatively little genetic change is evidence of the uniquely remarkable plasticity of human nature.

If human nature were so incredibly flexible that it could adjust equally well to every type of social formation ever observed in history or conceivable, the task of identifying biologically

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13 Dominant male lions form hierarchical partnerships with few (one or two) other less dominant males (usually smaller and lighter-maned) with whom they bond during infancy and constantly wager wars against other male clans for access to packs females. Access to packs of females represents for male lions opportunities to reproduce and generous food supplies since females are more capable hunters and willing food providers to the male members of the group. Predatory aggressiveness against other species has been selected by nature in male and female lions for the obvious advantage of making them ferocious hunters, while aggressiveness directed against male lions from other clans has been selected in males for the advantages just described. Females must also be able to be capable aggressive fighters to defend cubs against invading males. (Tucker 2010, Packer et al. 1990).
rooted universal behavioral proclivities would be a pointless endeavor for social scientists. In fact, this is the very point made by some social scientists from the over-socialized view camp: to identify the elements of a perfectly flexible human nature is useless to help understand and predict social behavior and phenomena and, therefore, we should focus solely on social context. For them, to try to describe the universal biological influences on human behavior would be like trying to identify causal mechanisms prior to the Big Bang in order to improve our understanding of our current universe. Since the very moment of the Big Bang is the moment when the current universal laws of causality first appeared, the existence of anything “prior” to that moment can be ignored because it would have not causal relevance to everything that “followed”. Similarly, if human nature truly were infinitely plastic, it would have no impact on social behavior and it could be simply ignored by students of social phenomena.

However, though we recognize that human nature is plastic, we strongly reject the idea that it is perfectly neutral. Human minds are certainly not blank slates. First of all, we cannot justifiably even claim that Homo sapiens are equally adapted to life under every conceived social environment since we have not accompanied for long enough the effects on humans from existing in social environments that are significantly different from the hunter-gatherer lifestyle of Homo heidelbergensis into which the first modern humans were born. While evidence suggests that Homo sapiens evolved some couple of hundred thousands of years ago, it began to cumulatively transform its environment and its lifestyles more radically only around ten thousand years ago with the advent of agriculture and animal domestication following the climate amelioration of the early Holocene (Gupta 2004). This means that most innate characteristics of Homo sapiens (including psychological needs and behavioral proclivities), though certainly flexible enough to have allowed for the species to have maintained the same basic genetic makeup since self-reinforcing social change (cultural evolution) became a major environmental force, have evolved for their adaptiveness to primitive hunter-gatherer human life.

The same human nature that has made it possible for cultural evolution to appear must also be an important determinant of the mechanisms of cultural evolution and of modern human behavior. Certainly, the existence of morphological phenotypical features has influenced how humans have organized their living. Some of these causal connections are quite obvious. For instance, the development of clothing technology to protect against the cold is directly connected to the vulnerability of naked human bodies to conditions of cold weather. Other less obvious
causal connections are slowly being uncovered. We have suggested above that the capacities to use language, to be creative and to develop teacher-student relationships are fundamental for the appearance of dynamic cultural change that we, as social scientists, ultimately wish to understand. Comparative studies of non-human apes and Homo sapiens DNA suggest that the development of a larger brain with a well developed frontal lobe\textsuperscript{14} capable of performing such tasks required the reduction of the pulling force of jaw muscles on the braincase. Such reduction was made possible by a mutation in the gene responsible for determining the size and contractile force of muscles in the masticatory apparatus (Stedman et al. 2004). Therefore, the same relative weakness of the masticatory muscles and reduction of jaw size that has forced humans to develop food softening technologies is also fundamentally connected to the larger brains with more developed frontal lobes in the human species that allows for new food softening technologies to be discovered.

In developing our model of human nature we have paid less attention to innate morphological features with obvious causal influences on social behavior and more attention to the not so often recognized psychological predispositions of human beings and their influence on the formation of collective habits and behavioral regularities. Because of the recognized plasticity of human nature, we must avoid establishing direct causal connections from innate factors to observed behavioral regularities. Rather, our intention is to show the causally connected nature of the socio-biological system in its perpetually circular—rather than linear (or reductionist)—constitution. This follows closely from Dewey, whose primary argument in Human Nature and Conduct was to explain conduct in terms of present activity rather than immutable and ‘natural’ laws or the future satisfaction of present desire. For this reason Dewey examined instinctual proclivities in terms of their mediation by, or manifestation in, habits as well as their role in the changing directions to which habits give activity. He thus described instincts as “the pivots upon which the re-organization of activities turn...agencies of deviation, for giving new directions to old habits and changing their quality,” (Dewey, 1922, p. 93).

\textsuperscript{14} Recent research using brain scans suggests that the areas of the brain whose growth would have been impaired the most by a stronger pulling force from masticatory muscles associated with bigger and more powerful jaws are the areas responsible for the most uniquely human mental tasks such as the ability to predict future consequences from present occurrences, the ability to read and understand other people’s ideas, emotions and intentions (Theories of Mind), the capacity to simulate the outcomes of never experienced types of events and the capacity to recognize right and wrong lines of action (see, for example, Saxe and Wexler 2005).
To this explication we may add Veblen’s concept of the ‘generic ends of life.’ Although the phrase was, to our knowledge, never used as such by Veblen himself, it is easy to understand its meaning in his framework, and specifically as it regards the innate proclivities of mankind. To quote Veblen,

[Instincts] are the prime movers in human behaviour, as in the behaviour of all those animals that show self direction or discretion. … Nothing falls within the human scheme of things desirable to be done except what answers to these native proclivities of man. These native proclivities alone make anything worth while, and out of their working emerge not only the purpose and efficiency of life, but its substantial pleasures and pains as well. (Veblen 1914: 1)

Veblen continued:

These various native proclivities…have the characteristic in common that they all and several, more or less imperatively, propose an objective end of endeavour… [W]hat distinguishes one instinct from another is that each sets up a characteristic purpose, aim, or object to be attained, different from the objective end of other instincts. Instinctive action is teleological. (Veblen 1914: 3)

What is suggested in Veblen is not the equating of instincts with a ‘universal normative standard’ but rather the proper placement of an understanding of healthy functioning of the individual in the social context. As Dewey (1922, p. 130) wrote, where, as often is the case, habits are divided against one another, personality is disrupted, the scheme of conduct is confused and disintegrated. But the remedy lies in the development of a new morale which can be attained only as released impulses are intelligently employed to form harmonious habits adapted to one another in a new situation.

Veblen’s argument is not anathema to this. Rather, the claim that “native proclivities alone make anything worth while,” is simply an acknowledgement of the central place of our innate human nature in the direction of our habitual content in an harmonious or adaptive manner. This argument will be aided substantially by an understanding of the relationship between human needs and instincts.
The concept of human needs, those things necessary for healthy human functioning, has often been conceived in the static sense of quantities of material things—a minimum caloric amount, adequate shelter and clothing, a minimum or subsistence wage, and so on. This has led to some confusion in the institutionalist literature. For instance, Davis (1944) was perplexed by his reading of Veblen from which anything over a subsistence level of consumption was wasteful. It is here argued that this reading fails in its fixation on a ‘subsistence minimum’ as a static necessary of the life of the community.

In contrast, our framework takes, as a principle of instinct-habit psychology, a purely dynamic perspective in which human needs themselves are processes. Thus, needs are treated more closely as verbs—to need and to have that satisfy or not satisfy—rather than nouns—something needed. For instance, humans are not conceived as having a physiological need for food as such, but rather for acquiring, eating, and metabolizing food for energy, which in turn is needed to continue activity (or living), part of which will in turn involve more acquiring, eating, metabolizing, and so on in a continuum.

To explain the distinction further, our framework considers needs as processes to be carried on by the individual to which the need applies, rather than a thing that can be given to the individual to produce the desired quietus within that person. This does not, of course, deny the relevance of social interaction in the satisfaction of needs; rather, it is an acknowledgement of Dewey’s warning against posing “social welfare as an end of action,” which,

only promotes an offensive condescension, a harsh interference, or an oleaginous display of complacent kindliness. It always tends in this direction when it is aimed at giving happiness to others directly, that is, as we can hand a physical thing to another. To foster conditions that widen the horizon of others and give them command of their own powers, so that they can find their own happiness in their own fashion, is the way of ‘social’ action. (1922, p. 294)

Thus, needs as herein conceived, are the experiences, the processes internal to the individual, by which a person is able to live, to develop, to grow, and to do so in a healthy manner. Because they are determined in terms of all processes within the individual, human needs extend beyond the physiological and into the psychological in a complex structure to be understood in ongoing scientific analysis. However, this internal structure—or, human nature—is intrinsically
inseparable from the social and material environment in which the species is immersed. And this is precisely because of the nature of the concept of needs. To explain, the satisfaction or thwarting of innate needs are necessarily the consequence of the events that constitute the dynamic social and material milieu in which humans find themselves operating (or, being, or living).

Though not the whole story of this milieu, habits—which are the essential components of institutions, and of which instincts become elements (Dewey, 1922, p. 86)—are the central conceptual link for present purposes. Habits have this central role because they connect the instincts conceptualization of human nature with that of needs: most simply, and as shown in Figure 1, instincts are mediated by habit and habits in turn have consequences for human needs.

![Figure 1](image)

It is in the complete loop from mediation of impulses via habits to the consequence in action in terms of human needs that Veblen’s argument (that instincts “propose an objective end of endeavor”) is to be understood. Instincts and needs constitute ‘two sides of the same coin’ of human nature as considered within the circular causal framework thus described: instinct is the manifestation of human nature in behavioral regularities, or habits; while need is the experience of those behaviors, or activities, that are in line with this human nature, and thus constitute healthy human functioning and development.
The conceptualization of instinct-habit psychology, and of the dichotomous nature of human nature, is important in that it allows for the enrichment of the Original Institutional Economics tradition with contemporary work in psychology. To this end, work in social and personality psychology falling under the heading of Self-determination Theory (SDT) offers many important insights. Moreover, the SDT literature goes some way in corroborating the importance of the innate proclivities—herein considered in their dichotomous nature as needs/impulses—on which Veblen based his analysis.

Before proceeding with the confluence of Veblen, Dewey, and contemporary work in Self-determination Theory, it is prudent to make one additional point as regards instincts/needs in the broader framework. This is, in short, that instinct-needs herein discussed are not to be considered strictly isolatable anymore than instincts in general can be isolated from habits. Dewey (1922) was clear in his rejection of ‘false instincts’ such as those for war, profit, and so on, calling them “cheap and easy equivalences” (p. 115) between extant institutions and instincts. Likewise, he was careful to note that concepts such as habit, impulse, and intelligence always run into each other (p. 278).

It is also worth noting that Veblen began his *Instinct of Workmanship* (1914) with a recognition of the problems with the term ‘instinct’ in a rigorous psychological analysis, but held to the term as sufficient for the analysis of the ‘nature and causes of the growth of institutions’—i.e. institutional analysis (p. 2). He then went on to define the instincts of interest to the analysis in terms of the “characteristic purpose, aim, or object to be attained,” which they define (*supra*; cf. Cordes 2005). Here again there is a recognition that these are sets or related aspects of human nature, rather than strictly isolatable tropisms:

these simple and irreducible psychological elements of human behaviour fall into composite functional groups and so make up specific and determinate propensities, proclivities, and aptitudes that are within the purview of the social sciences to be handled as irreducible traits of human nature. Indeed it would appear that it is in the particular grouping and concatenation of these ultimate psychological elements into characteristic lines of interest and propensity that the nature of man is finally to be distinguished from that of the lower animals. (Veblen 1914: 3; see also pages 11-12 and 27-28)
The importance of these arguments from Veblen and Dewey cannot be overstated when considering the dichotomous human nature laid out above and its commensurability with Self-determination Theory. To explain, Because this framework sees people as growth oriented in nature—that is, “naturally inclined to act on their inner and outer environments, engage activities that interest them, and move toward personal and interpersonal coherence,” (Deci and Ryan 2000: 230)—there is a continuity between proclivities and healthy experiences. As Kasser (2002, p. 24) explains,

Just as a plant must have air, water, light, and a certain soil chemistry to survive and thrive, all people require certain ‘psychological nutriments’ for their health and growth. Furthermore, just as a plant turns toward light and reaches its roots down to find water and minerals, needs direct us to behave in ways that increase the likelihood that they will be satisfied. Thus needs motivate behavior and require fulfillment for psychological growth to occur.

Similarly, Sheldon (2004: 54) discusses the ‘human universal’ as “a psychological process, need, or tendency that is evidenced by every human being,” (emphasis removed). This may require only slight adjustment in our framework by calling the need and the tendency two aspects of the same psychological process. In addition to defining needs in terms of an ongoing life process, SDT, like Veblen before, establishes sets of needs in recognition of ongoing work as to their relations to one another. These sets are needs for 1) “safety, security, and sustenance,” e.g., food, shelter, warmth; 2) “competence, efficacy, and self-esteem;” 3) connectedness with others; and 4) for “autonomy and authenticity,” (Kasser 2002: 24). For the purposes of connecting these to Veblen and Dewey, the first set will be dropped and the latter three condensed to the terms used in Deci and Ryan (2000): competence, relatedness, and autonomy (respectively). As Deci and Ryan (2000: 229) note, these needs are taken over alternatives precisely because there is substantial evidence suggesting that their joint fulfillment is vital to health and development. In this way, the psychological needs of SDT can be connected to the ‘generic ends of life’ in the institutional economics tradition. To begin this process, we first consider the psychological needs for competence and autonomy in the SDT literature.

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15 See also Kasser (2002: 10-1) for the correlation of satisfaction of these needs to both mental and physical health.
Deci and Ryan argue that humans have a basic psychological need for competence, “a propensity to have an effect on the environment as well as to attain valued outcomes within it,” (Deci and Ryan 2000: 231). Consistent with this, competence for Kasser involves “a feeling that we are capable of doing what we set out to do and of obtaining the things we value,” (Kasser 2002: 24). In addition to the evidence that fulfillment of this need is important for the mental and physical health of the individual, Deci and Ryan argue that we might expect competence to have been selected for in the course of human evolution: “an interested, open, and learning organism can better adapt to new challenges in changing contexts,” (Deci and Ryan 2000: 252).

On comparison, we see similar arguments with regard to Veblen’s analysis:

The instinct of workmanship…occupies the interest with practical expedients, ways and means, devices and contrivances of efficiency and economy, proficiency, creative work and technological mastery of facts. (Veblen 1914: 33)

By selective necessity [man] is endowed with a proclivity for purposeful action. He is possessed of a discriminating sense of purpose, by force of which all futility of life or of action is distasteful to him. (Veblen 1898a: 188-9)

Indeed, throughout Veblen’s work the instinct of workmanship is considered the fundamental source of technological progress just as Deci and Ryan’s evolutionary analysis places competence at the center of the human capacity to adapt to the material environment.

Further discussion of the instinct of workmanship in our framework requires that we bring in the psychological need for autonomy—the “desire to self-organize experience and behavior and to have activity be concordant with one’s integrated sense of self,” (Deci and Ryan 2000: 231; cf. Self-direction in Schwartz 1994 and Schwartz and Bilsky 1987). A felt sense of agency in one’s actions has been shown to have positive impacts on creativity, problem solving, and similar functions (Deci and Ryan 2000: 234). Moreover, it has been argued that such a need or proclivity is important for social interaction in allowing individuals to break free of culturally established habits of thought (Sheldon 2004: 173). It should be understood, however, that autonomy is not used here to denote individualism or independence from others. In fact, social
connectedness and autonomy tend to be positively correlated, and to a high degree (Sheldon 2004: 70; Deci and Ryan 2000).

While the need for autonomy is less prevalent in empirical psychology (Deci and Ryan 2000) and generally more controversial (Sheldon 2004), it is nonetheless important, especially due to its unique place relative to the three needs as a group. As Deci and Ryan (2000) argue, humans have a natural tendency toward intrinsic motivation—that is, motivation toward those activities found to be interesting or fulfilling in themselves, without the imposition of external consequences. Likewise, people tend toward the integration or internalization of external regulations, seeking self-determination and authorship of their lives (Sheldon 2004: 10). Autonomy is important in this regard in that, while the other basic psychological needs posited in SDT can be fulfilled in the absence of autonomously motivated behavior, self-determination and its associated outcomes in terms of psychological well-being require also that the behaviors which fulfill these needs are autonomous, emanating from the self, not from without (see Deci and Ryan 2000: 242-3).16

The matter of intrinsic versus extrinsic—or autonomous versus external—motivation is worthy of further discussion. The ‘self-determination continuum’ (Deci and Ryan 2000), or in Kasser’s (2002: 82-3) term, the ‘continuum of autonomy,’ maps motivation and associated reasons behind our behavior on a dimension according to the degree to which the behavior is self-determined or to which the motivation is internal to the individual. Here the scale begins with highly external, extrinsic motivation, associated with extraneous (e.g. monetary) rewards and the avoidance of punishment. Moving along the gradient, introjected regulation is somewhat less external and associated with guilt, maintenance of self-esteem, and like processes. Somewhat internal, identified regulation involves activities that may not be pursued solely for inherent enjoyment, but are nonetheless endorsed as being in line with the person’s values. Finally, intrinsically motivated behavior is fully internal and entails activity pursued for no other reason than that it is interesting, enjoyable, or challenging in its own right (Kasser 2002).17

The extent to which one’s goals are self-concordant—that is, gathered on the latter, more internal side of the continuum—is argued to reflect how well these goals represent the person’s

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16 Geras notes a very similar notion in Marx’s description of the laborer “deprived of ‘all semblance of self-activity’,” having his work “‘forced upon him’,” (Geras 1983: 73).

17 See Deci and Ryan (2000) for a more thorough treatment than has been given here.
basic needs. This self-concordance\textsuperscript{18} of goals has been shown to have significant independent effects on endurance of effort in pursuance of these goals, goal attainment, need satisfaction, and a number of measurements of psychological health (Sheldon 2004: 104-9). It can therefore be said that the pursuance of intrinsically motivated activities and the internalization or integration of some external regulations are important components of the life process.

There is a remarkable coherence between the oft-cited critique of neoclassical economic theory made in “The Instinct of Workmanship and the Irksomeness of Labor” (Veblen 1898a) and the arguments of Self-Determination Theory. As Veblen argued, we would not expect the work-averse human nature assumed in neoclassical theory to be selected for in the evolutionary process. On the contrary, mankind is endowed with the instinct of workmanship, motivated toward efficient utilization of means to the benefit of the community; and the ignoble place of serviceable labor is rather a vestige of our institutional evolution, built on habits of invidious comparison and emulation. This ‘spiritual fact’ of the irksomeness of labor, the result of historically developed ceremonial malignancies in the institutional structure of society, speaks quite clearly to the supplantation of intrinsic motivations by external rewards in the reasons for work. The motivation to labor has thus come to be principally a matter of monetary reward (an extrinsic motivation), and of maintaining self-worth as defined by the esteem of others (an introjected motivation), often through the acquisition of material possessions displaying wealth (cf. Moller, Ryan, and Deci 2006: 105).

Precisely the same argument is made by Dewey (1922, pp. 123-4):

If productive activity has become so inherently unsatisfactory that men have to be artificially induced to engage in it, this fact is ample proof that the conditions under which work is carried on balk the complex of activities instead of promoting them, irritate and frustrate natural tendencies instead of carrying them forward to fruition… If there are difficulties in the way of social alteration—as there certainly are—they do not lie in an original aversion of human nature to serviceable action, but in the historic conditions which have differentiated the work of the laborer

\textsuperscript{18} Self-concordance has been found to be an important motivational resource in its own right, but not to the neglect of others such as efficacy expectations (Sheldon 2004: 108).
for wage from that of the artist, adventurer, sportsman, soldier, administrator and speculator.

The constructs of competence and autonomy as basic psychological needs, and the distinction made between work and irksome labor, should help to better understand Veblen’s instincts in their own right, and its place in the institutional analysis. To be sure, the instinct of workmanship constitutes more than a biokinetic action, as Hodgson’s (2004, ch. 9) critique of the concept suggests. In this critique, Hodgson argues that Veblen lapsed into biological reductionism in the particular case of the instinct of workmanship; and, furthermore, that there may just as well have been an instinctive aversion to labor could have developed through natural selection, offset by institutional incentives toward serviceable work. He thus argues that,

[w]e may criticize the supposed marginal disutility of labour on the grounds that it ignores the satisfaction that individuals may gain from creative, intrinsically interesting, socially rewarding, or morally favoured work. Nevertheless, an aversion to sustained physical exertion, repetitive labour or drudgery may still remain, and be selected in an evolutionary process. (Hodgson, 2004, p. 199)

Hodgson’s use of ‘drudgery’ is particularly telling of his misreading of Veblen’s instincts. Clearly Hodgson has in mind instincts at a biochemical, biokinetic, or perhaps a physiological sense. Put differently, it would appear that Hodgson’s innate proclivities are kept from the fuller psychological structure common to the species—compartmentalized from the organic whole of the mind. The instinct of workmanship thus appears to be translated into mechanical movements, exertions of energy, which, introspectively, we might find more generally unpleasant than pleasant. In this way, Hodgson presents a convincing critique, but an unconvincing reading, of Veblen’s instinct of workmanship. Without elaborating a categorical response, it is worth noting that the ‘creative’ and ‘intrinsically interesting’ work that is noted in this critique is one of the reasons the instinct of workmanship, as herein understood, cannot be reduced to a disposition toward exertions of energy. This perspective is, furthermore, buttressed by contemporary work on the psychological needs of competence and autonomy with the facile translation to a proclivity toward intrinsically interesting work which one experiences competence in carrying on.
Further error is to be found in the neglect of Veblen’s parental bent and, more specifically, in the interaction of this instinct with the instinct of workmanship. Indeed, in the psychological component of Veblen’s analysis the parental bent, or solicitude, appears to be raised very nearly to the level of the instinct of workmanship in terms of importance. Veblen argued that both,

spend themselves on much the same concrete objective ends, and the mutual furtherance of each by the other is indeed so broad and intimate as often to leave it a matter of extreme difficulty to draw a line between them. (Veblen 1914: 25-6)

Drawing from McDougall’s work in social psychology, Veblen, defined the parental solicitude as including a concern for the welfare of one’s offspring; but, was careful to note that this innate proclivity extends beyond this, into a concern for the welfare of the larger community or even all of humanity. Moreover, it is the mutual reinforcement of the instinct of workmanship and the parental solicitude that Veblen credits as the source of “that sentimental approval of economy and efficiency for the common good and disapproval of wasteful and useless living that prevails so generally,” (Veblen 1914: 27).19

Here again we find support for this instinct in the SDT literature—specifically, the psychological need for relatedness, the need “to be connected to people—to love and care, and to be loved and cared for,” (Deci and Ryan 2000: 231). While relatedness appears to take a number of different forms, including the focus on intimate personal relationships and “the assimilation and integration of oneself within the social community,” (Deci and Ryan 2000: 242), Kasser’s (2004) treatment is most relevant here. In the author’s discussion of the relationship between materialistic values and psychological needs the concept of relatedness is dealt with in terms of interpersonal relationships as well as contributions to the community. This approach to relatedness is further buttressed by the cross-cultural work of Shalom Schwartz (1992), which finds that a solicitude for both those with whom one is in frequent contact and for all people are mutually compatible with each other and, interestingly, incompatible, or in conflict, with

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19 Cf. Twomey (1998, p. 434 n.), who notes that “while unsubstantiated at the time [of Veblen], recent research from a number of disciplines is corroborating the idea of a ‘cooperative instinct’…which roughly corresponds with Veblen’s ‘parental bent’ and ‘instinct of workmanship’.”
materialistic values (Kasser 2004; Schwartz 1994; see also Kasser et al. 2007a and 2007b for further discussion and references).  

Once again, Self-determination Theory does not posit these needs as wholly separable in understanding psychological well-being, just as Veblen was clear that the instinctive predispositions—as opposed to the “simpler and more apparently tropismatic impulses”—on which he focused were to be considered interrelated in nature (Veblen, 1914, p. 11). As such it is clear that Hodgson’s (2004) critique is in error in reading Veblen’s instincts as the ‘tropismatic impulses’ from which they were explicitly distinguished, a point made clearer in his omission of Veblen’s parental bent in this critique. Indeed, ‘parental bent’ is only found twice in this text and there it is only in passing and—in fact, used as ‘parental bent or the sense of workmanship’.

In recapitulation, the instinct/need framework laid out above provides a means of understanding of human nature—the set of innate human needs, capacities, and impulses common to the species—in its own right, and in its role in institutional analysis. This work, drawn seminally from Veblen and Dewey, is further buttressed by contemporary work in social psychology, which offers evidence for basic psychological needs that can be understood roughly as the need-correlates to Veblen’s instincts. Having discussed the role of human nature in the analysis of contemporary society, we turn our consideration to the development of this human nature in the species’ evolutionary history.

The Evolution of Human Nature

The evolutionary history of Homo sapiens from apes is, in many ways, the history of the evolution of ever more sophisticated social capacities (social needs/impulses/capacities) and ever more effective problem-solving capacities (epistemic needs/impulses/capacities). In our analysis, we have separated these two dimensions of human behavior not because they are truly disconnected in reality (in fact they are immensely interconnected), but because it facilitates the

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20 While the values in Schwartz’s work are distinguished from needs such as thirst (see Schwartz 1994: 20), they are, nonetheless, derived from the “universal requirements with which all individuals and societies must cope,” that is, organismic needs, coordinated social interaction, and the survival of groups (Schwartz 1994). As regards the broad conception of relatedness discussed here, it is interesting to note that the sources of Schwartz’s ‘pro-social domain’ of values of benevolence and universalism are found both in the requirements of group survival and organismic needs for affiliation and belongingness (Schwartz and Bilsky 1987).
exposition and application of our theory of human nature to particularly important social phenomena.

Developmentally, human beings have the longest period of maturation in nature from fully dependent infancy to relatively independent adulthood. This fact had important implications for social behavior and for the development of human cognitive capacities. We will begin by analyzing the effects of this human characteristic on the evolution of epistemic needs, impulses and capacities. While most of the development of animal brains takes place in the fairly unchanging environments of wombs, human brains continue to develop for many years after birth. The fact that the brain of *Homo sapiens* continues to develop not simply in terms of its size but also in terms of its complexity (structure of neuronal connections, specialization of brain regions, etc.) from infancy to adulthood under the influence of the surrounding environment is a likely reason for the species’ unique behavioral adaptiveness. It is now known that one of the few marked differences between *Homo neanderthalensis* and *Homo sapiens* was the speedy development of the first from infant to adult compared to the latter. This means that *Homo neanderthalensis* had slightly less time to experience the environment before the end of its pre-adulthood stage, the key developmental period for the brain. More time of brain development directly under environmental influences means more time for cognitive skills to be formed and strengthened that are more adequately tailored to benefit life under very particular environmental conditions. Being more adaptive to sudden environmental changes as result of its greater neuroplasticity\(^\text{21}\) might have given the slight edge to *Homo sapiens* who won the struggle against Neanderthals for survival when the two species came into contact in Europe around forty thousand years back.

In order for us to understand the evolution of human adaptiveness, it may be useful to look back many thousands of generations before the first modern man. Between one and a half and two and a half million years ago, *Homo habilis* was one of the many bipedal hominids descended from *Australopithecus aforesn* to inhabit what is modernly Africa. While most other hominids had evolved into having specialist lifestyles and became eventual evolutionary dead-ends, *Homo habilis* developed into a pre-historic “jack of all trades” able to adjust its behavior much more flexibly to meet its nutritional and reproductive challenges under different environmental conditions. The behavioral adaptiveness in *Homo habilis* was intensified in the

\(^{21}\) See Bavalier and Neville (2002) for recent studies on neuroplasticity in humans.
descendent *Homo erectus* (or *ergaster*). Before *Homo erectus*, every species that ever experienced fire instinctively fled from it. Before fire was first put to useful applications, it must have burned and killed many *Homo erectus*. However, the justified fear of fire was not sufficient to keep those primitive humans from experimenting with it driven by what Veblen called idle curiosity and inventiveness. This means that the realization that fire could become a useful force if properly managed must have come not from real experiences, but from mental simulations – experiences that took place only in *Homo erectus* minds. This suggests that *Homo erectus* was beginning to investigate the world in a highly speculative way.

The capacity to identify patterns in nature from experience is surely one of the most fitness-enhancing advantages of having (very energy-demanding) large brains. In most mammal and bird species, there is an instinct towards habituation from direct experience. In some ways, most species with memory are natural empiricists. Unfortunately, sometimes this willingness to trust that observed patterns in the past are reliable indications of things to come can lead to inaccurate beliefs. One of the most revealing experiments in animal psychology was famously developed and reported by B. F. Skinner in 1938. 22 In the experiment, starved pigeons in small cages were taught to perform simple tasks rewarded by gaining access to food. Having come to expect that access to food was somehow influenced by performing a task, pigeons were then given food at random intervals. Interestingly, pigeons began to develop ‘superstitions’ acting as if they had come to believe in inexistent correlations between their own behaviors and receiving food. A pigeon that happened to be turning its head when food was released began to repeatedly turn its head when hungry, as if hopping to influence the food giving system. Though a pigeon would eventually abandon its superstition if the ritual systematically failed to produce the expected effect, reinforcement of the superstitious behavior was usually positive, since pigeons would repeat the behavior long enough until food would be randomly released, making it appear that the ritualistic behavior had been responsible for the desired outcome.

Though human brains are significantly more sophisticated than those of pigeons, observed regularities in human behavior suggest that *Homo sapiens* too have a strong tendency to form superstitions – to mistakenly assume that a certain type of event occurs according to a given pattern. We may say that humans and pigeons alike can be the victims of *post hoc, ergo*

proctor hoc fallacious reasoning. However, to form superstitions is an unfortunate byproduct of the fitness enhancing capacity to identify systematic causal relationships based on past experiences and the proclivity to form habits accordingly. For every wasteful human ritual that has resulted from mistakenly believing that two events were causally connected – such as dancing for rain –, there were many more cases when this capacity and proclivity helped humans resolve important challenges – such as figuring out that prey is likely to show up around water supplies. Furthermore, even when purely ritualistic, behavior based on shared superstitions has the very useful effect of strengthening social ties of the in-group.

While primitive human minds developed to learn causal connections from observation, there are always many causes that remain a mystery, making some events almost completely unpredictable. Since humans face the most unpredictability when dealing with events caused by other humans, mental capacities have evolved to help humans understand and react to events caused by intentional acts of other human beings. The tendency to look for intentionality as the cause of seemingly unpredictable events, while it has allowed humans to deal more effectively with life in complex social environments, has not been as helpful for understanding events without clear mechanical causal explanations.23

Since Homo erectus applied his imagination to envisioning useful applications for fire, the cognitive role of imagination/speculative investigation has grown with each evolutionary step towards Homo sapiens. Studies of brain scans show that the capacity to imagine and experience alternative realities (or to mentally time-travel) and the capacity to interpret other people’s intentions (the capacity to form theories of minds) is located in one of the last regions of the brain to develop during the life of an individual human, suggesting that it was also one of the latter evolutionary developments for the species (Buckner and Carrol 2007 and Saxe and Wexler 2005).

The epistemic toolkit of the human species makes learning a much more dynamic process than in other species. As argued by Veblen, humans possess the capacity to emulate the behavior of others. This is not unique of Homo sapiens. For example, apes and even monkeys

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23 In Theory of the Leisure Class, Veblen described how primitive populations distinguished between worth and unworthy activities based on whether it required dealing with predictable and unpredictable (animate or inert) forces (Veblen 2003, p. 10). Worthy activities were worthy exactly because they involved taming and controlling objects that were perceived as acting with intentionality (or being under the control of some conscious entity who acted with intentionality).
have been reported to learn fairly complex behaviors by observing members of the group.\textsuperscript{24} It is a behavior closely connected to the empiricist capacity in species with memory since it involves the acquisition of knowledge from past experience. Differently from other animal species, however, humans are able to learn from observing others and then experiment with adjustments to the behavior originally learned in order to better service ends in view.

Human beings have the innate capacity to identify when strategies are effective solutions for given challenges and when they are not. This includes the capacity to identify when a solution to a problem is wasteful and imagine ways to economize. That \textit{Homo sapiens} have such an innate preference for expediency and effectiveness and aversion for wastefulness and ineffectiveness is supported by the evolutionary history of the species. An ancestor of the human instinct of workmanship is probably present in most primates as evidenced by adaptive tool-using behavior of chimpanzees (Sanz and Morgan 2009) and brown capuchins (Boinski, Quatrone and Swartz 2000), for example. A tool is an accessory to achieving particular goals. When a tool is used for a single purpose by a species, it is possible for tool-making and tool-using to be observed in the absence of an instinct of workmanship. For example, a bird that builds a nest might be said to have built a tool for protecting its offspring and attracting females. However, the same bird will continue to build nests even if this behavior becomes detrimental to achieving the goal of protecting the offspring and/or attracting females. “Tool-making” and “tool-using” for the bird is not a matter of workmanship, but a pre-programmed behavior under the influence of an inflexible instinct for building nests, naturally selected for having once had a fitness enhancing effect for members of the bird species. Alternatively, if the tool-maker/tool-user makes use of its tool adaptively for different and new purposes we can be more confident that the behavior has been driven by an instinct of workmanship, since he must be at least capable of distinguishing between what works and what does not work for achieving a particular goal, or else he would have not chosen to use of the tool.

Workmanship is the capacity to recognize when “the strategy seems to be a fitting solution to the problem at hand” or when “the answer seems to be supported by what has been observed so far”. Workmanship alone cannot drive the evolution of knowledge and technology unless humans are also capable of asking “what if it is possible to find an even more fitting

\textsuperscript{24} See Horner, Victoria and Frans B. de Waal 2009 for examples of tool-using cultural transmission in chimpanzees and Boinski, Quatrone and Swartz 2000 for studies of tool-using and learning in the brown capuchins of Suriname.
solution to the problem at hand?” or “what if this particular answer, though seemingly supported by the facts, is actually incomplete or incorrect?” The capacity and proclivity to ask such questions comes from innate human curiosity, inventiveness and speculative investigation. Therefore, technological evolution in human societies depends on emulation (the capacity to accurately repeat successful problem-solving strategies employed by others), imagination (the capacity to envision potentially expediency enhancing adjustments to the learned problem-solving strategy) and workmanship (the capacity to differentiate between more and less expedient strategies to achieve given ends-in-view).

We can sum up our arguments so far by saying that human brains have evolved to understand the world by combining two different investigatory processes, complementary and competing at times. *Homo sapiens* inherited from much earlier ancestor species the capacity and propensity to be natural empiricists/realists (i.e. to form knowledge about the world inductively based on real experiences) and have more recently developed the formidable capacity to speculate (i.e. the capacity to simulate alternative realities in the mind and to form knowledge based on these mental experiences). Without speculation, the development of problem-solving strategies would be a much less dynamic process and habits would tend to be a lot less adaptable to changing conditions. On the other hand, without empirical investigation there would be no way of saying whether problem-solving strategies formed by mental experiments are indeed serviceable solutions for the problems they are aimed at resolving. The formidable evolutionary advantage of human brains is that it allows people to combine speculation and empiricism towards problem-solving – what we call critical thinking.

There is, however, an obvious asymmetry between empiricism and speculation as investigatory methods for understanding reality. Most species with relatively large brains appear to lack the human capacity to simulate complex mental experiences. Nonetheless, they have done just fine in their environments with the little bit of cognitive capacity that allows them to simplistically interpret sense data, having been able to survive and reproduce consistently. For most species, it has been more than sufficient for their evolutionary success to be able to learn simple correlations from past experiences. A bird better be able to learn that if eating a given seed has made it sick in the past, it will likely make it sick again. However, there is not much need for a bird, elephant or dog to imagine many alternative possibilities and solutions for the challenges of their relatively unchanging environments. For these species, the development of a
more powerful but also more energy consuming brain capable of conducting deep speculative investigation would simply not have been cost-effective.

Humans evolved to occupy the ecological niche of having no fixed ecological niche. More powerful imagination has evolved in humans because it contributed to the survival and reproduction of a species whose success depended on being able to radically adjust its behaviors to different environmental conditions. However, imagination is only useful for understanding reality and helping form more effective problem-solving strategies when combined with empiricism. While uncreative natural empiricists have been very successful biological species, a species would necessarily go extinct whose behavior was guided solely by speculation.

Even though empiricist investigation is necessarily backward-looking – since sense data cannot but refer to events observed and experienced in the past –, one should not blame natural empiricism for any perceived rigidity in human cognition and culture. It is the capacity/propensity to form habits from experiences (whether real or mentally simulated) that ultimately causes human knowledge and behavior to be inflexible at different degrees. Habits are necessarily past-binding since they require consistency of thought and action. Unimaginative species (like Skinner’s pigeons) tend to have more rigid habits than humans only because mental experiences are not available to inform them of alternative possibilities for understanding reality. Imagination allows human beings to envision new possibilities and to form knowledge that combines elements learned from experiences in the mind and in reality, hence allowing for multiple interpretations of experienced reality and more flexible behavior.

Though the capacity to more flexibly form one’s own beliefs has given *Homo sapiens* some decisive evolutionary advantages, some rigidity and consistency of thought and behavior is also necessary for the survival and reproduction of human beings. Purposeful action requires a commitment (even if only temporary) to a particular worldview. Therefore, a process of investigation (whether more heavily speculative or empirical) must have produced a single proposition about the studied object that is chosen as an approximation of reality before purposeful action occurs. Once the choice is made, habits are formed that shape thought and action in accordance to the given worldview commitment. Some behavioral inertia inescapably

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25 Though modern systems of social provisioning allow for some people to devote almost all of their time to purely mental investigations, earlier societies would have required that almost every member of the group participated in material provisioning activities. In other words, primitive life demanded more action and less thought. This required that the potentially endless pursuit of knowledge through imaginative reasoning stopped at one point in order for action to take place.
results from the acquisition of habits and fixation of beliefs. This process provides a stable foundation for thought and action to be developed.

As pointed out by Charles Pierce, doubt is a source of irritation (Peirce 2006a) that drives investigation. However, aversion to doubt is also the cause of over-ossification of beliefs. While the natural empiricism of most bird and mammal species likely appears to them as unambiguously reducing the unpredictability of their environments as patterns are revealed by real experiences, in humans the combination of speculative and empirical methods of investigation may sometimes expose more confusion and doubt. Humans have an innate psychological need for predictability in their environments and will sometimes hold on to beliefs about the world with even more tenacity than Skinner’s pigeons hold to their “superstitions”. Human aversion to doubt has a dual conflicting effect on investigative behavior. On one hand it propels investigation aimed at settling the particular irritant doubt. On the other hand, since honest investigation usually exposes new doubts and never truly extinguishes the original doubt completely, the aversion to doubt may hinder investigation as humans try to keep new irritant doubts from emerging by embracing intellectual absolutism. What John Dewey (1960) described as a quest for certainty may be said to be a natural human response to having been exposed to uncertainty and doubt by the power of its own epistemic capacities and the need to settle these doubts in order for purposeful action to be planned decisively.

In the 1512 classic *Praise of Folly*, Erasmus of Rotterdam suggested that ignorance was a blessing for those who were unaware of reasons to worry. Other species know very little about the world compared to human beings, though they are unaware of how limited their knowledge is. Human beings are uniquely tortured by the Socratic curse of knowing that there is much that they do not know. The fact that humans possess the most complete investigative toolkit in nature to understand the world, though it has helped the species make the world much more predictable and manageable, has also revealed the immenseness of human ignorance.

The human equivalent of the instinct of survival in other species includes an innately rooted fear of death and the likely end of individual consciousness. Discomfort about the idea of nothingness after death has driven humans to speculate about whether their minds could possibly “survive” biological death. The absolute impossibility of empirically rejecting the spiritual hypothesis or the realist hypothesis makes this doubt particularly troubling for most people. Since real experiences provide no basis for the construction of the spiritual hypothesis, human
imagination has often filled the gap completely allowing some to form beliefs based on purely mental experiences that were also appealing for many others seeking to eliminate similar discomforting doubts. As a result, humans have created and embraced spirituality to eliminate or reduce their existentialist doubts. Ancient and modern myths are the more obvious examples of how imagination and the innate aversion to uncertainty jointly influence and enable the construction and fixation of beliefs.

It is important to point out that *Homo sapiens* did not evolve as to increasingly more accurately understand the world. Human nature and the species’ epistemic capacities have been shaped by natural selection over the course of millions of years, though the more astonishing scientific accomplishments and discoveries of humans did not occur until after the Neolithic revolution some ten thousand years ago. Under the fairly stable conditions of primitive human life, epistemic capacities evolved simply because they enhanced the survivability and reproductive success of individual humans. While some of these needs/impulses/capacities have evolved because behavioral adaptability and scientific discoveries contributed to the species’ fitness, other needs/impulses/capacities have evolved because some behavioral consistency and ceremonialism also enhanced the species’ reproductive success. Veblen’s workmanship has evolved in humans, not because it assists them to explore great philosophical issues logically, but because it helped people provide for the life process more expediently. Emulation has evolved not because it allows for sophisticated scientific knowledge to be transmitted to younger investigators, but because it protected humans from losing materially and socially beneficial problem-solving techniques. When humans apply their cognitive apparatus towards the construction of ever more accurate and never final knowledge about the universe, they are making use a particular toolkit that did not evolve because of its particular appropriateness for the task.

We believe that the objective properties of reality are independent of what humans think and understand. If to know more about reality is more desirable than to know less, humans must be able to channel their epistemic faculties toward scientific enquiry. Knowledge is always likely to represent reality more accurately when supported by the evidence. Observed facts (sense data)

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26 Think for instance of how unnatural it feels to think of the three dimensions of space and time as connected realms of reality, though many discovered facts about the universe are only possible if spacetime in fact constitutes a continuum. Our minds simply did not evolve to comprehend these ideas since understanding them did not represent any advantage for primitive humans.
are the ultimate basis for verification of the validity of explanatory hypothesis. This is different from saying that sense data is the only source of useful knowledge. Sense data must be mentally interpreted and, therefore, cannot by itself sufficiently direct the construction of knowledge. However, propositions formed by speculative investigation must be checked against what is revealed by empirical investigation. When empirical evidence is conflicting with an existing proposition, the proposition must be abandoned or adjusted until the conflict has been eliminated. Because new empirical evidence may always be found that negates a given proposition about reality, no belief can justifiably be perceived as final or absolute. The construction of increasingly more accurate knowledge about the universe must then at the very least conform to a couple of basic requirements: (1) be guided by real experiences; and (2) be always tentative and adjustable to the discovery of new facts or different logically compelling abstract mental constructs.

There are plenty of examples in nature of instances when self-deception is actually fitness enhancing. The first instinct of a prey is to try to escape from a predator. However, if cornered, the prey may face the predator threateningly as to discourage it from attacking in a last gamble for survival. The more self-deceptively convinced the prey becomes of its own chances in a fight against the predator, the more convincingly discouraging its threatening display will be as seen by the predator. In nature, to be misinformed about reality is not necessarily a disadvantage.27 In humans too there may be numerous instances when self-deception has served an evolutionary purpose. Flexible thinking and experimentalism directed towards the formation of immediately useful knowledge for the material provisioning of human life has offered a clear advantage for primitive Homo sapiens. However, the application of the same epistemic toolkit to philosophical explorations of no direct consequence to human life may have detracted from the important provisioning tasks of pre-Neolithic human existence. Therefore, investigation tends to be more dynamic of those aspects of reality more directly related to the human life-process and/or more empirically accessible, with knowledge about those aspects being more flexible; whereas the investigation tends to be less dynamic of aspects of reality less empirically accessible and/or less directly related to the life-process aspects, and knowledge about those aspects would tend to be much more rigid.

People have a predisposition for believing things that more logically appear to fit reality, this being more directly a consequence of the instinct of workmanship and human beings’ empiricist capacity. People also have the capacity to seek novel and “better” ways of understanding reality and of resolving problems, this being a result of human imagination, idle curiosity and innate workmanship. However, people also tend to avoid doubt and retain beliefs inflexibly, this reflecting the very nature of habituation and the dual role of an innate aversion to uncertainty. Neither the degree of flexibility/ossification of human knowledge, nor even its direction – whether it moves towards more accurate depictions of objective reality –, can be anticipated solely from having identified the epistemic elements of human nature. Habits, by suppressing and reinforcing different elements of human nature are the ultimate determinant of whether human investigation and knowledge is predominantly scientific/instrumental or predominantly ritualistic/ceremonial.

In order for us to better understand the role of socialization on human cognition and behavior we must now consider the social needs/impulses/capacities of Homo sapiens. Many of the social inclinations of the human species also have implications for human cognition and vice versa. One of the most accepted theories of the development of powerful cognitive capacities in primates is that it was naturally selected for giving an advantage to individuals who had to deal with the increasingly more demanding political challenges of complex social life – the social intelligence hypothesis. In the complicated social world of primates filled with intra-species conflict and cooperation, an individual’s capacity to interpret the desires and intentions of other members of the group and to communicate to them his desires and intentions is crucial for his survival and reproductive success. If primates’ complex social life has driven the development of their powerful cognitive capacities, human beings’ formidable intellectual power can be partially explained by the fact that Homo sapiens are “ultra-social”. As Herrman et al. have argued, whereas primates in general have evolved sophisticated social-cognitive skills for competing and cooperating with conspecifics, humans have also evolved skills that enable them to actually create different cultural groups, each operating with a distinctive set of artifacts, symbols, and social practices and institutions. To function effectively in the cultural world into which they are born, human children simply must learn to use these artifacts and tools and to participate in these practices, which require some
special social-cognitive skills of social learning, communication, and “theory of mind”. (Herrman et al. 2007, p. 1360)

Michael Tomasello and his colleagues at the Max Planck Institute for Evolutionary Anthropology in Leipzig have been analyzing the differences in terms of social and cognitive skills between apes and people by comparing the performance of different tasks by adult chimpanzees, adult orangutans and children of two and a half years of age. What they found was that while the non-social cognitive skills (dealing with spatial problems, quantities and identifying causality) of apes and humans were not very different (with chimpanzees even outperforming the children in causality recognition), the children demonstrated far superior social cognitive skills (social learning, communication and theory of mind) (Herrman et al. 2007). These findings suggest that perhaps the key cognitive distinction between humans and other apes may be not a greater innate capacity to resolve cognitive challenges dealing with the physical world, but a much greater capacity to exchange knowledge already stored in different people’s minds. The ability to understand what others know in detail and communicate it by using language, coupled with human inventiveness, is what has allowed culture to develop cumulatively unlike the cultures of any other species ever to have existed in this planet.

As we have already mentioned, brain scan studies suggest that the tasks of understanding other minds (theory of minds) and speculating about the possible outcomes from different actions (mental time traveling) involve activity in similar, though not exactly the same, regions of the brain (Saxe and Kanwisher 2003 and Buckner and Carroll 2007). This becomes less surprising when we think about what these two capacities entail. In both cases, one must use imagination to extrapolate the knowledge that can be accessed directly from experience and simulate alternative realities in the mind.

We could say that in the case of Homo sapiens, the evolutionary history of the species’ impressive cognitive and social capacities is really one and the same. We have described above how the longer period of maturation from infancy to adulthood for human beings may have allowed for the development of more powerful and adaptable minds. Another consequence of the long period of maturation is to have forced species into becoming more socially inclined. Human beings spend their whole lives either provisioning for someone else’s survivor or being provisioned for, this characteristic not being much different from what is observed in most nonhuman primate species. Isolated self-sufficiency in all primates is an anomaly, normally
resulting from exclusion from the group and necessarily leading to reduced health. The successful rearing of primate offspring is a socially demanding task and cannot be successfully performed without a system of cooperative provisioning. Female primates caring for cubs spend close to all of their time and energy providing for their young and often depend on other members in the group for food and protection against predators.

Therefore, social interdependency in primates is far more encompassing than the parent-offspring bond. It is true that the degree of recognized social connectedness is never stronger than the bond between a parent and its offspring – part of what Veblen coined parental bent (as discussed above). In fact, altruistic proclivities towards close relatives (kinship altruism) are generally observed in most species for reasons easy to explain. Offspring is biologically dependent on the parent and the species would have not survived unless parents instinctively protected and fed their young until they can take care of themselves. However, individual primates never become fully self-sufficient since most of their basic biological needs require cooperation with other members of the group. Therefore, primates have to develop social ties that extend far beyond parent-offspring and immediate kin in order for the necessary systems of collective provisioning to be established.

As we have argued above, the social proclivities of human beings differ greatly from the simplistic selfish hedonist description offered by many economic models. In fact, we can be almost sure that extreme selfishness has not ever represented a fitness enhancing characteristic in Homo sapiens since psychopathy is a sufficiently recurring behavioral pathology with likely genetic causes that would have become predominant in humans if absolute hedonistic individualism had ever offered an advantage to human beings in terms of survivability and reproductive success. This does not mean that there may not be elements in human nature that influence behavior towards intra-species exploitation. In fact, our argument below is that there are likely many non-cooperative human impulses. However, these impulses coexist alongside a number of equally influential innate impulses that enable altruism and cooperation.

Before we proceed, we must define more accurately what is meant by selfishness, altruism, cooperation and spitefulness. As we have argued above, the problem with the utilitarian view of human motivation is that it defines all purposeful action as utility maximizing at the individual level, making it impossible to classify behavior as anything but selfish. In our

analysis, we dismiss the subjective utility function assumed by utilitarians as the driver of human behavior and focus, as social biologists do, on the material consequences to the individual from his actions. By doing this, we can differentiate between altruism, selfishness, cooperation and spitefulness; regardless of whether utilitarians are correct to say that altruist actors receive maximum psychological satisfaction from generating gain to others at their own expense.

Following Hamilton (1964a and 1964b) and Trivers (1985), we define behavior as selfish, altruistic, cooperative or spiteful relative to its material consequences on the actor and on others. For biologists, the effect on the reproductive success of individuals is the only relevant material consequence of a behavior. However, material gain in social analysis does not necessarily accompany greater biological fecundity. In social sciences we are primarily concerned with the social behavior of humans and the material consequences of such behavior to individuals and to the society. Therefore, we shall have to define a behavior as selfish if it generates a net benefit – real or pecuniary – to the actor and a net cost – real or pecuniary – to other people, as altruistic if it generates a net benefit to other people while imposing a net loss to the actor, cooperative or mutually beneficial when it generates net gains for all actors involved and spiteful when it generates a loss to all actors involved. Following our definition of selfishness, depending on the social, political and economic context, we may observe situations when selfish behavior leads to a reduction in reproductive success. In modern capitalist economies, fecundity is often inversely correlated with selfishly acquired material and pecuniary wealth. Nonetheless, the inverse correlation between reproductive success and material acquisition is a consequence of very recent social, economic and cultural environments. All human needs/impulses/capacities must have necessarily evolved because they somehow contributed to the reproductive success of the individual and of his relatives, even though under modern social contexts behaviors influenced by these proclivities may produce the opposite effect.

From the point of view of the selfish gene, all instinct-driven behavior must necessarily benefit the gene’s inclusive fitness. It is only because natural selection operates at the level of the gene that the genetical influences on behavior may lead to non-selfish inclinations. The benefit of selfishness for the gene is more obvious, since greater reproductive success of the gene’s carrier directly increases the chances of that gene being passed to future generations. The difficulty has always been for evolutionary biologists to explain why certain species often
seemed to behave in ways that negatively affect their own reproductive success (or fail to exploit those with whom they cooperate when chances arise) despite the unforgiving force of natural selection. An evolutionary explanation of altruism and spitefulness is an explanation of how these behaviors enhance the inclusive fitness of the selfish gene responsible for the behavior.

A given gene for an instinct-driven behavior will be selected by nature if it generates the most inclusive fitness, not simply individual fitness in terms of reproductive success. This means that a gene that influences social behavior will produce the most replicas of itself when the behavior results in the most offspring reared by the gene’s carrier plus all offspring reared by related individuals discounted by their degree of relatedness to the carrier. Hamilton (1964a and 1964b) argued that when innate altruism benefits another individual who is closely related to the actor, the gene responsible for that behavior may have in fact benefited its own replication. Therefore, innate altruism towards one’s own kin can be explained by the fact that a gene can benefit its own success as a replicator by driving behavior that imposes a cost to the actor as long as that cost is compensated by a greater benefit to the actor’s kin who likely shares the gene (the benefit having to be greater since in species that reproduce sexually, except in the case of twins, the probability of a relative sharing any given gene is less than one).

Trivers (1971 and 1985) demonstrated that even when kinship is not a likely cause of altruistic behavior (when individuals are not closely related), instinct-driven species can still behave cooperatively when the cost they suffer from being altruistic is compensated by being recipients of the altruism of others. Reciprocal altruism occurs when the overall benefit received by the actor from being a participant of systems of cooperation compensates the cost of being a willing helper of others. In systems of social interdependence, reputation and memory are crucial elements. In cooperative interactions, costs and gains occur almost simultaneously so that each individual actor may immediately identify free-riders making it harder for exploitative behavior to occur. In reciprocal altruism, costs and gains are temporally detached, so that each individual must trust that others will reciprocate his altruistic act in the future, though it causes him to suffer a net loss in the present. Deceitful behavior – i.e. to avoid the cost and enjoy the benefit – is always a possibility, but its frequency may be greatly reduced if it can be somehow punished systematically. If the cost imposed by punishment of deceiving others in a system of reciprocal altruism is sufficiently great, an instinct for honest cooperative behavior would lead to greater
inclusive fitness than an instinct for guile.\textsuperscript{29} Reputation and memory are extremely valuable for species whose lifestyles require cooperation and reciprocal altruism. Therefore, instincts that help an individual protect its reputation and the capacity to remember and identify those with good reputation are usually fitness enhancing.\textsuperscript{30}

Another situation when altruistic behavior tends to emerge is in species where sexual selection favors those who display ostentatious handicaps. The usual emblematic example of conspicuous displays of handicaps is the peacock’s tail.\textsuperscript{31} Another way of displaying fitness to potential mates is to be conspicuously altruistic (Roberts 1998). Babblers are known for behaving extremely altruistically to other members of the group not necessarily related. A babbler will face great risk in order to protect the rest of the group by calling a predator’s attention to itself (for instance by facing a snake directly and raising its wings) putting at risk its own reproductive success while adding very little to the reproductive success of immediate

\textsuperscript{29} Things are never as simple in nature as we make them appear in analytical models. In reality, animal populations are usually made up of some individuals who cooperate honestly and others who try to exploit the system of reciprocal altruism competing for inclusive fitness. For instance, in vampire bat “societies”, individual bats will occasionally return from the field having ingested blood in excess of their nutritional needs, while others will have not been as successful. Those with excess blood in their stomachs will then regurgitate some of the blood for the hungry ones to consume. It has been observed that bats who do not reciprocate the blood when the situation is reversed are denied blood in future interactions. This suggests that bats are able to learn and recognize which members of the group are likely to behave cooperatively and which are likely to behave dishonestly and choose to engage in reciprocal altruism only with those that can be trusted (Wilkinson 1984). Nonetheless, the fact that both honest and dishonest bats coexist in bat groups suggests that both strategies may represent equally successful ways of maximizing inclusive fitness for at least a fraction of the bat population (usually a smaller share of cheaters).

\textsuperscript{30} However, reputation can also be enhanced by deceitful behavior. The reported social interaction between reef fish and cleaner fish offers an enlightening example. The “services” of cleaner fish are useful for reef fish as an effective way of removing undesirable parasites and infected tissue from their mouths. In turn, cleaner fish have access to easy food. While the risk faced by the smaller cleaner fish of being eaten by a deceitful reef fish would seem the more obvious impediment for mutualism to be established, surprisingly, cleaner fish are the ones more likely to act exploitatively by biting off pieces of live tissue from trusting clients. Non-predator clients respond to cheating cleaners by swimming away or chasing the cleaner. More importantly, clients are able to learn which cleaners have cheated in the past from their own experience and by observing other client-cleaner interactions and avoid transactions with those, therefore keeping dishonest behavior in check. Redouan Bshary (2002) has described the case of a particular cleaner fish species (\textit{Labroides dimidiatus}) that evolved to take advantage of this stable system based on trust and reputation by offering pleasurable tactile stimulation in addition to cleaning in interactions with smaller clients in order to improve their reputation and lure bigger (and meatier) clients into accepting services after having been exploited in previous interactions.

\textsuperscript{31} In their evolutionary past, peacock females evolved to prefer males with more impressive tails, since such characteristic tended to be linked to greater overall fitness which would benefit the couple’s offspring. As females with an innate preference for more impressive tails reared fitter surviving offspring by mating with fitter males, the preference eventually became a dominant feature of the whole female population. As a result, having an impressive tail became a fitness enhancing feature for males by itself, regardless of other characteristics. However, male peacocks’ capacity to grow impressive tails was limited by the point where the increase in fitness from the tail was smaller than the fitness cost of carrying such cumbersome showboating apparatus. Therefore, females with a preference for mating with males with the most impressive tails are indeed selecting as mates those individuals more likely to have the most overall fitness given the environmental pressures of peacock lifestyle (see Zahavi and Zahavi 1999).
relatives. Such display of altruistic risk taking does not go unnoticed by potential mates who tend to prefer mating with those babblers who have proved to be sufficiently strong and skilled to be able to afford taking risk for the group. This additional benefit must far compensate the risk that goes with being the occasional sentinel and defending the group, since babblers will often “compete with one another for the “right” to be altruistic” (Zahavi and Zahavi 1999, p. 134).

Stable systems of cooperation and reciprocal altruism require that those who do not reciprocate received benefits from the altruistic and cooperative actions of others be punished. The harsher the punishment, the less likely it will be for dishonest behavior to occur. For members of species whose survival depend on systems of social provisioning to be denied participation in the social provisioning unit represents an overwhelming often deadly cost. However, sometimes the cost to cheaters needs to be raised even more. spiteful behavior can be explained when directed against cheaters in reciprocally altruistic relationships as a way to discourage other potential cheaters from betraying trust in future interactions.

When individual needs can only be satisfied by cooperative behavior, the incentive for free-riding and deceiving all but disappears. When lionesses from a same pride hunt together all of them perform their roles to the best of their capacities, not ever falling behind the pack on purpose in order to avoid the dangers of fighting the prey. When large prey is defeated and killed, all lionesses share the spoils even with non-hunting members of the pride, so lionesses who simply avoided their share of danger during the hunt would still benefit from the food. A possible reason for lionesses not to exploit the others may be that lionesses in a same pride are related, increasing the inclusive fitness enhancing effects of altruism. However, to capture and bring down large prey is a challenge that usually requires the joint efforts of all hunting lionesses. If a single free-riding lioness were to cause the hunting efforts to fail, the incentive to exploit the other hunters would completely disappear. Hunting for the lionesses is an example of a superordinate goal: one of great importance to all members in the group that cannot be achieved unless the group members engage in cooperative behavior. In species whose survival depends on many superordinate goals, social behavior tends to be more cooperative and altruistic.

Complex systems of social interdependency are a marked characteristic of all primates (monkeys and apes). Recent studies about the social interactions of baboons, capuchins, chimpanzees, gorillas, orangutans and bonobos have revealed some surprising similarities with
human behavior. Primates are capable of exhibiting some of the same contradicting emotions and behaviors of human beings: they can be cooperative and altruistic and they can be selfish, they can be extremely loyal and they can be deceitful, they can be docile and they can be aggressive, they seem to be able to feel empathy and even love, they can hate and act with rage, they learn from each other, they bully each other and do many other things we used to think only humans were capable of.

If one were to look for hints in the observed behavior of primates that may help us understand more about the innate social proclivities of *Homo sapiens* one would be frustrated as social behavior in different primate species seems to cover the whole spectrum from the very altruistically inclined and egalitarian to the very hierarchical and selfishly inclined. Bonobos and chimpanzees are the closest living relatives of *Homo sapiens* having departed from the human evolutionary branch around six million years back. It would not be unreasonable to assume that, though the three species must have acquired and lost many social proclivities since taking different evolutionary paths, some of these proclivities must have been retained if only because they have been subjected to the similar environmental pressures of complex social lives. However, even between bonobos and chimpanzees, whose departure from a common ancestry lineage may be as recent as less than a million years ago, the differences in observed social behavior are astoundingly pronounced.

Wild chimpanzees live in male-dominated communities of sometimes up to a couple of hundred individuals who develop social bonds of different strength with the different members of the community. These social bonds define somewhat fluid sub-groups or parties within the community, with the kinship-based bonds being the strongest and more stable (or primary). Members of the same party will collaborate in different tasks such as hunting, participate in “nursery groups” in the case of lactating females (Pepper *et al*. 1999), and patrol the community’s territory for signs of invading members of different communities. Though serious aggression and harmful violence are rare between members of the same community, males often behave adversarially as they strive for higher status and access to females, and sexual behavior is usually characterized by male coercion. Therefore, adversarial interactions are also a part of the community-wide system of social interdependency. As harsh as interactions may be within the group, interactions between members of different groups are even less harmonious and usually result in extreme and deadly violence. In chimps, the group recognition seems to be the
determining factor of whether the interaction will be strongly or weakly adversarial, cooperative or neutral.

While chimpanzees seem to share with humans some of the less noble aspects of social behavior including male dominance, hierarchical ordering and bullying, xenophobia and territorial warfare, bonobos’ societies are characterized by female dominated more egalitarian structures with a lot less incidence of violence (and a lot more sex, apparently as a pleasurable way to achieve for conflict resolution). Franz de Waal (1995) suggests that the bonobo, not the chimpanzee, is more likely to resemble the common ancestor between the *Homo sapiens* and the two apes. Because weaker environmental pressures were faced by bonobos – who never left arboreal lifestyle – than on chimpanzees after the split between the two species, bonobos probably maintained more of the original features of their common ancestor than chimpanzees did. As much as we may wish that the less conflict oriented social proclivities of the bonobos would have carried into *Homo sapiens*, the reality is that humans have gone through enormous biological transformations under extreme environmental changes and have probably developed very different social needs/impulses/capacities since taking the turn away from the lineage of chimpanzees and bonobos. In fact, many of the novel environmental pressures faced by chimpanzees were similar to those faced by the ancestors of *Homo sapiens* such as life in a more open, dryer habitat and a dietary change towards more frequent meat eating.

While *Homo neanderthalensis* seemed to have thrived in their European habitat until the arrival of modern man to the region, the other descendents of *Homo heidelbergensis* struggled to cope with the environmental changes brought by the mega eruption of Mount Toba some seventy thousand years ago. The volcanic winter and the thousand years long Ice Age that followed caused a great reduction of total biomass in areas populated by modern humans causing the extinction of all populations but the ones who found refuge in the few remaining isolated tropical pockets in Equatorial Africa (Ambrose 1998). Survival and reproduction for the few modern humans left must have been extremely difficult and required tremendous in-group cooperation and radical technological adjustments. At the brink of extinction *Homo sapiens* had to either adapt or go instinct. They adapted. On one hand their technology had to become more efficient allowing them to provision for the life process in the less plentiful African environment and on the other hand their systems of social interdependency based on cooperation and reciprocal altruism had to become much more reliable and stable.
At no other moment in humans’ evolutionary past was the capacity to maintain in-group cohesion so important for the survival of the species than during the years following Mount Toba. Though systems of social interdependency based on cooperation and reciprocal altruism may be resistant to occasional exploit by members of the group in times of plenty, it may not resist a single case of dishonest behavior under conditions of extreme hardship. When the success of a social enterprise is a matter of life or death and can be threatened by a single cheater, strong disincentives must evolve to keep uncooperative behavior to a minimum. Consequently, needs/impulses/capacities must have evolved in *Homo sapiens* that would contribute to much more stable systems of cooperation between the members of the group.

Food scarcity must have also forced the different in-groups to compete with each other. Having evolved into a meat-eating, predatory species, and having developed effective weapons for hunting large animals, competition between different groups must have often turned into violent wars. The threat of being the victim of violence from members of other groups would have reinforced the need for strengthening intra-group loyalty and cohesion. On the other hand, humans may have developed an innate distrust and aggressiveness towards those perceived members of out-groups. Therefore, in-group loyalty and out-group xenophobia in humans are complementary rather than conflicting residues of human evolution.

In most societies of primates (perhaps with the exception of the bonobos), cooperation and loyalty seems to prevail mainly in those situations where superordinate goals are faced by the group and when exploiting other altruists is costlier than the immediate benefit. For most primates, self-seeking behavior with guile seems to be always around the corner. Human beings, on the other hand, seem to have a genuine aversion to non-cooperative behavior, including their own, within the recognized in-group. In a way, there seems to be an innate human morality that rejects intra-group exploit and embraces intra-group cooperation.\(^\text{32}\) Experiments with human infants (between six and ten months old) have shown that already at such a very young age, humans tend to choose to bond with “characters” who are eager helpers of others and reject bonding with those whom they observed either actively harm or even deny help to others (Wynn, Hamilton and Bloom 2007). They also tend to wish to bond with characters who they can more easily relate to (for instance, those having similar food preferences) which may have been in the

\(^{32}\) See Hauser (2006) for more on the evolution of moral impulses.
past a way of discriminating against those less likely to share similar goals and, therefore, less likely to engage in cooperation.

It is easy to see how avoiding interactions with those less likely to cooperate would have benefited individual human beings. However, it is more challenging to explain why humans would have also developed an aversion to exploiting others in the group even when presented with the chance of not suffering any foreseeable cost. One likely explanation is that it evolved as a response to the increasingly more efficient cognitive and social toolkit for spotting and punishing in-group exploiters. Since the survival and reproduction of primitive humans could not occur without social provisioning, the consequence of being denied access to the group’s social product was death and reproductive failure. In communities where everyone is constantly evaluating everyone else’s social interactions in order to identify those who can be trusted and those who cannot, one better protect his reputation at all times. Therefore one would be better off having a genuine aversion to exploiting trust-based interactions with other members of the in-group. Another possible explanation for the evolution of an innate sense of social right and wrong is that under the harsh conditions faced by pre-historic *Homo sapiens* following the Mount Toba eruption, intra-group exploitation, though it could have given an advantage to the disloyal member within the group, would have caused the group as a whole to significantly underperform compared to other more socially cohesive groups. Therefore, groups afflicted by the presence of in-group exploiters would have eventually disappeared along with the disloyal member.

Whether people interact cooperatively or adversarially is directly connected to the perceived group connection between the individuals. From an individual’s point of view there is an in-group composed of those with whom he will likely cooperate towards achieving superordinate goals and there is the out-group with whom occasional interactions are likely to be adversarial. Admittedly, the group distinctions in real life are not this clear, but the simplification is analytically helpful and lead to similar conclusions as a more realistic multilayered depiction of group dynamics in humans. In-group interactions are for the most part cooperative or altruistic and based on trust and loyalty, while out-group interactions tend to be more adversarial. We can think of a tribe or clan as an example of in-group or families and close “buddies” in modern Western societies. In modern industrialized societies, we argue that recognized in-group identities are weaker that refer to non-family groups for reasons explained below.
Individuals tend to trust others whom they perceive as members of the in-group – i.e. they anticipate that an altruistic act to a member of the in-group will always be reciprocated if the conditions are reversed and that each will fulfill his or her role in cooperative interactions. The existence of an innate aversion to in-group disloyalty is supported by the fact that trust-based human interactions are surprisingly stable, even when the ability to exploit is perfectly one-sided. This fact has puzzled many social theorists for years who expected human behaviors to conform to the individualistic hedonist models of rational choice theory. Rational utility maximizers should never tip a waiter of a highway dinner, but they often do. A rational person driving on a desert highway should never stop at a stop sign, but many people do. In the absence of a genuine aversion to breaking trust, things might have been very different. However, the customer knows that the waiter’s service was provided under the unspoken agreement that a tip would be left at the end of the meal. Innately, humans have a need for relatedness which can help explain why most people would rather feel like they belong to the same in-group than not. For the customer, the psychological reward of expanding his in-group (and reducing the out-group) is greater than the benefit from behaving selfishly, even though he will likely never face the waiter again. Were he to fail to perform his part in the reciprocal relationship he might not help but feel guilty for having broken trust. Feeling guilty for having exploited the trust of others or feeling disappointed or angry for having been exploited are the psychological and emotional expressions of a primal aversion to disloyalty.

One of the most surprising social differences between humans and chimpanzees is that between the two, it is the ape that behaves more “rationally” when presented with the chance to benefit at the expense of others. Chimpanzees who have played ultimatum games behaved very closely according to the individualistic utility maximizer model. As initiators, they offer very little to their counterparts and, as followers, take whatever is offered to them. Fairness considerations do not ever enter their decision making (Jensen, Call and Tomasello 2007).

People are different. When humans play ultimatum and dictator games results tend to diverge from each player’s rational optimizing strategy. In ultimatum games, counterparts who get offered “too little” tend to reject the offer even though that is harmful to them suggesting a human tendency to retaliate spitefully against behavior perceived as disloyal or unfair. Alternatively, dictators in the dictator game do not claim the whole share of the reward, but rather share it with counterpart players. Both spitefulness in the case of ultimatum games and
generosity in the case of dictator games suggest that humans who play these games have a “sense of fairness”. Results of players from different social backgrounds suggest that this “sense of fairness” is largely influenced by cultural factors (Pacciotti and Hadley 2003). However, some “fairness bias” is always observed, independent of cultures. Hoffman, McCabe and Smith (1996) have reported that the “fairness bias” in dictator games tends to be reduced when social distancing increases (for instance, if players’ identities are fully anonymous, not known even by experimenters). They conclude from these results that the seemingly selfless behavior of humans in dictator games without social distancing is really the result of them selfishly trying to protect their reputation. Alternatively, we propose that the results are equally compatible with our hypothesis that humans tend to behave more “fairly” towards others when there is a stronger in-group connection between them.

In-group/out-group distinctions serve as signals for people that tell them whom to cooperate with. In other words, they determine whom one can trust. Trust entails less perceived uncertainty as to how the other person will behave in cooperative interactions. When a person interacts with another person perceived as belonging to an out-group, what prevents cooperation is the uncertainty as to whether the other will not try to behave exploitatively. In such cases, they seem to be better off simply being openly adversarial towards each other and trying to be winners in zero sum disputes. However, the overall benefit from such adversarial interactions is obviously much less than mutually beneficial cooperative interactions. Therefore, a fitness advantage must have been obtained by primitive humans who were able to keep out-group interactions to a minimum and expand in-groups as much as possible. In fact, humans seem to be especially averse to adversarial interactions, which cause significant psychological anguish. Humans are never as stressed and psychologically afflicted as when they are put in conflict against other human beings.

In 1954, Muzafer Sherif and a team of researchers brought two groups of young boys to a camp site in order to study the dynamics of social interaction and conflict resolution in what became known as the Robbers Cave experiment (Sherif et al. 1961). In the experiment, the boys were separated in two groups with each group initially being kept unaware of the existence of the other group. Sheriff observed that as the boys from each group participated in different activities with common goals, they developed a tight group structure with clear hierarchies and defined roles. Occasional clashes would occur between the boys as they competed for higher hierarchical
positions especially in the beginning when hierarchies had not yet been established, but eventually group cohesion became strong. Hence, in-group identities do not preclude hierarchical differentiation and occasional competition between members of the group. The role of in-group identity is to enable the formation of trust based mutually beneficial, cooperative interactions in spite of those in-group competitive elements.

When the two groups were finally brought into contact with each other, strong in-group identities had been formed. The immediate response by members of each group was to assume suspicious and antagonistic attitudes towards the other group. Inter-group animosity was intensified as the groups were put into adversarial situations such as contests and competitive games organized by the experimenters. The experimenters observed that as inter-group conflicts intensified, most boys showed clear signs of frustration and stress. While in the beginning the shared animosity towards the other group enhanced intra-group cohesion (by introducing an additional shared motive), as inter-group friction became increasingly more violent, in-group cohesion begun to breakdown as the emotionally distraught boys struggled to maintain their in-group bonds.

The most interesting finding of the Robbers Cave experiment came at the last stage during conflict resolution. After days of inter-group conflict and intra-group drama, the boys had become extremely anti-social in their behavior and one would have been skeptical of the possibility of conflict resolution between the two groups. However, once they were presented with common challenges that required cooperative interaction between the two groups (superordinate goals), the rigid in-group distinctions slowly begun to dissolve. After being presented with just a couple of clear superordinate goals, out-group distinctions all but completely disappeared and the boys were able to extend trust based bonds to others who were previously perceived as members of the out-group.33

We conclude from the Robbers Cave experiment that the presence of superordinate goals and shared motives is a key element for explaining the formation of in-groups. Adversarial interactions between out-groups tend to reinforce the original social separation and, therefore, do not lead to spontaneous conflict resolution and elimination of out-group distinctions, despite the

33 After in-group identities had been redefined as to encompass both groups, boys from one of the groups had to decide whether or not to share a money prize won at the height of the inter-group conflict with the boys from the other group (they had to decide whether to use the money to get sandwiches and drinks just for themselves or to get food for everyone). In this improvised dictator game, the boys playing the role of dictators behaved as expected for players who share social ties with the counterpart and shared the prize.
psychologically and socially harmful effects adversarial interactions impose on members of the fighting groups. Dissolution of out-group distinctions and formation of wider in-groups ultimately seems to require the presence of superordinate goals (which may even be the shared goal of resolving the conflict).

Hence, Sherif’s findings support our claims that an psychological need for relatedness is a fundamental component of human nature. It influences habits and behaviors by creating an aversion in human beings to adversarial interactions. It further suggests that once out-group distinctions have become sufficiently rigid, they may lead to frustrating adversarial interactions that further reinforce any original inter-group antagonism. From the results in the experiment, adversarial interactions seem to have detrimental effects overall psychological health whether they occur within the group or between groups. Contrary to popular belief that says that groups tend to unite when facing a common enemy, whatever contradictions may exist within the group, they seem to be exacerbated by inter-group conflict due to overall psychological distress. Therefore, the effect on in-group cohesion is dual from inter-group conflict: it may unite the group by presenting an additional superordinate goal/motive, but it reduces the social capacities of individual members by subjecting them to overwhelming stress.

In summary, we can say of human nature to our fellow social scientists and to policy makers that, based on our investigation, there are reasons to be optimistic, but cautious. Human nature is surely not neutral as suggested by those who take the over-socialized view of man. However, human nature does not guide human societies perfectly through a path towards ever improving productive efficiency and social optimality as rational choice theorists would have us believe. Human beings are equipped with formidable tools to deal with the challenges faced by them individually and collectively, but those tools are imperfect nonetheless. They are also equipped with conflicting social needs, impulses and capacities that may help them coexist in harmony but also engage adversarially with detrimental consequences to their own health. Ultimately, we must look at the institutional structure to understand how close humans are to resolving their own problems effectively and how harmonious they are coexisting. Our theory of human nature helps us identify where to look and what to look for.

In both dimensions of human nature – epistemic and social elements – the interactions between needs/impulses/capacities and habits can be self reinforcing as the effect of habit driven behavior on human needs and impulses tends to reinforce the habit itself. This can be true when
habits are predominantly ceremonial and when they are predominantly instrumental. For instance, the habit of science releases human capacities towards the intellectually rewarding attitude of basing beliefs on logical interpretations of sense data. The more one exercises science, the more likely he will be to reject propositions presented to him that are either illogical or not compatible with known facts. Surely, the same tends to happen to those who acquire the habit of faith. As we have just argued, in-group and out-group identities may also influence behavior that reinforces the original identities. Shared in-group identities foster cooperative behavior, which in turn reinforces the in-group identity. By hindering cooperative interactions or by causing interactions to be adversarial and consequently frustrating to at least one party, out-group identities are also self-reinforcing.

**Human nature, group identities and class societies**

The debates about the evolution of class societies and finally of capitalist institutions has been dominated by the over and under socialized conceptions of human action. On one hand, those in the under-socialized camp argue that the social and economic transformations that produced class based social and economic systems were simply the unavoidable manifestation of human nature. On the other, those in the over-socialized camp argue that human nature had absolutely no influence in what determined the historical path that eventually led to modern societies. We have argued in this paper that neither position is scientifically justifiable. Instead we propose a short analysis of the development of class societies and the impact of capitalist institutions on human behavior as an example of how to apply the evolutionary framework developed in this paper.

For most of the species’ history, *Homo sapiens* lived in small hunter gatherer communities. Even though some bonds may have been stronger within the larger group –for instance, parent-offspring bonds –, trust based cooperative and altruistic interactions tended to occur between all members of the community. Social provisioning for primitive hunter gatherer communities (what Veblen called savage societies) was truly a collective effort. Most productive activities (hunting, gathering, tool-making, collective child care, etc.) would have represented true superordinate goals reinforcing social cohesion between group members. As a result, strong in-group ties would have encompassed the whole community.
Sexual dimorphism in humans has led to a gender-based division of labor in savage human societies where women would perform tasks such as gathering and tool-making which allowed them to stay close to the young, while men would mostly hunt and protect the group against predators and enemy out-groups. Incidentally, the tasks performed by men were also the ones that were more “notably formidable or baffling” (Veblen 2003, p.10) to the members of the community. As we argued above, humans are natural conspiracy theorists who tend to believe that intentionality is the cause behind every unpredictable occurrence that cannot be explained according to some predictable pattern revealed by past experiences. Women’s tasks, though essential for the survival of the community, were less impressive because they involved dealing with fairly predictable inert forces. Men on the other hand had to defeat and tame mysterious and unpredictable forces. In the primitive minds of those hunter gathering people, men’s work was different from women’s as it was “an assertion of prowess, not of diligence” (Ibid, p. 10).

Even within the more egalitarian savage hunter gatherer communities some hierarchical differentiation must have occurred as result of sexual competition. Because the ability to produce many descendents has been reduced by the fact that child rearing for humans requires the most parental investment in nature, securing high quality mates has become much more urgent. In most social species, hierarchical ordering emerges as a way of determining the pairing of mates. Those higher in the hierarchy get to mate with the fittest members of the opposite sex within the group, who are also positioned higher in the social hierarchy. As is the case with most primates, men are the ones who initiate courtship and more overtly compete for access to mates. However, competition between women may be equally fierce, though less conspicuous. Competition between males for mates may have occasionally escalated into violent disputes. Since the loss of productive members of the group to death or severe injury due to these violent disputes was too costly for the individual as well as for the group; men began to settle their disputes non-violently by conspicuously displaying their prowess.

It is also not unreasonable to assume that members of savage hunter gatherer societies were somewhat possessive of material things, though maybe less possessive than members of barbarian and modern societies are. Paleoanthropological evidence shows that Homo heidelbergensis buried their dead along with personal items such as tools and clothes. This is evidence of two things: Homo heidelbergensis had already developed some proto-religious belief that required the ritualistic recognition of physical death and also recognized individualized
personal possessions. Individualized possessions in savage hunter gatherer societies were probably limited to personal items such as small tools and ceremonial ornaments, while food and the other provisions were collectively shared. Nonetheless, even towards those resources shared by the community there must have been a sense of collective possession that would cause members of the community to react aggressively against out-groups who tried to gain access to those resources.

Therefore, we argue that more egalitarian hunter gatherer societies were not immune to intra-group tensions. There were probably hierarchical divisions, competition for social prestige, etc. What made those communities fundamentally different from class societies was its ability to organize production and provisioning around cooperative interactions. Though most social theorists are correct in linking the transition from savage to barbarian societies to the Neolithic technological revolution, we believe that many of them miss the point. The fact that human beings were now capable of producing a physical surplus was not by itself the cause of the emergence of increasingly more exploitative social and economic relations. Obviously, without the capacity to produce a physical surplus there can be no economic exploitation since all must participate of material provisioning. However, we argue that the eventual substitution of cooperative economic and social relations by exploitation resulted from the elimination of superordinate goals and the consequent weakening of community wide in-group identities. As production became more departmentalized and individualized, people lost sight of the superordinate nature of social provisioning and productive activity stopped serving as reinforcer of in-group ties.

If the weakening of community-wide in-group identities was responsible for the emergence of exploit-based social and economic relations, it is possible to imagine that the opposite movement of strengthening the community-wide in-group identities would lead human societies back to more cooperative interactions without people losing any of the productivity gains generated by the many technological revolutions that happened since the end of the Ice Age. As we have seen, such a movement would have extremely beneficial consequences for overall human health and wellbeing.

**On the Veblenian Dichotomy**
The preceding discussion has been directed at understanding what human nature is, and how it fits into institutional analysis. Toward this latter end, the remainder of this work will discuss the integration of our understanding of human nature into what is perhaps the core analytical tool of institutional economics: the Veblenian dichotomy.

This analytical tool is, at heart, a recognition that the organization of a community may follow different, potentially conflicting, lines and that these lines are most usefully conceptualized in terms of instrumental and ceremonial aspects of the institutional structure—viz. of the ‘settled habits of thought’ of a society. The precise meanings of ‘instrumental’ and ‘ceremonial’ have been debated throughout much of the history of institutional economics.

As Waller (1982) argues, Veblen established the ‘old’ version of the dichotomy in which institutions were understood as habits to which attached an unquestioning adherence by the community. This unwarranted allegiance in itself gave the institution its ‘non-dynamic’ character, operating to impede social progress, the continuation and furtherance of the life process via the technological capacity of the community. The ‘new’ dichotomy, as developed from Walton Hamilton through Fagg Foster, broadens the understanding of institution to include technologically consistent and inconsistent—viz. instrumental and ceremonial—behavior.

From these lines, discussions of the dichotomy often focus on values and valuation, distinguishing the experimental, fallible, and empirical method of instrumental valuation from the mythical, a priori method of ceremonial valuation. This then is considered in terms of its impact on the community: instrumental values allow for the continuation and further progress of society, as against stagnation or even extinction; whereas ceremonial values hinder such, entrenching invidious distinctions, giving undue power to the few to the detriment of the larger community. Common institutions and concepts associated with the ceremonial versus instrumental distinction include business (directed toward pecuniary ends) versus industrial—that is, serviceable—pursuits, predatory versus cooperative proclivities, the invidious values of power versus the non-invidious values of participatory democracy, and so on.

Sheehan and Tilman (1992) have, however, argued that this general approach suffers from a sustained vagueness in the identification of what exactly is social value in terms of instrumental valuation. While accepting the theory of valuation drawn from Dewey and present in the contemporary formulation of the Veblenian dichotomy, the authors suggest that there has yet to be a grounding of instrumental valuation from which contemporary values can be judged.
Specifically, the authors suggest a need for “value constants that provide enduring standards by which to judge existing social,” (Sheehan and Tilman, 1992, p. 205) to which Veblen’s ‘generic ends of life’ is a substantial contribution. The problem, of course, lies in the methodological rejection in institutional economics of absolute, a priori, undisputable values—the very things that make up the ceremonial side of the dichotomy. For this reason it comes as no surprise that Veblen’s ‘generic ends of life’ have been left out the dichotomy attributed to the same author. Thus, for instance, in his discussion of instrumental valuation, Hickerson (1987, pp. 1127-8) recognizes the place of the instinct of workmanship, the parental bent, and idle curiosity in Veblen’s method of differentiating instrumental and ceremonial characteristics of institutions, but keeps this separate from the explicit discussion of the dichotomy itself.

While we believe Sheehan and Tilman to be correct in their appraisal of the problem, and in their argument for a serious consideration of Veblen’s generic ends of life, we, perhaps ironically, find an essential component of the solution to be given by Dewey himself in the following quote:

> Our moral measure for estimating any existing arrangement or any proposed reform is its effect upon impulse and habits. Does it liberate or suppress, ossify or render flexible, divide or unify interest? (Dewey 1922: 293-4)

Following this, we argue that the dichotomy should be understood in two dimensions. The first will correspond to the habit portion of Figure 1 above. This is essentially the discussion that has already been given of the instrumental-ceremonial distinction. It deals directly with the characteristics of habits themselves—whether they are flexible, allowing for adaptation to future circumstances (thus, instrumental); or whether they have become ossified, hindering future change (thus, ceremonial). This dimension corresponds most closely with Dewey’s instrumental valuation and the dichotomy as generally expressed, described above.

The second dimension deals with the generic ends of life considered as the needs/impulse discussed in previous sections. The principle distinction from the needs perspective of human nature is between the satisfaction versus thwarting of those basic needs, common to the species. These include the physiological and psychological necessities of healthy functioning and development of the individual. From the other side of the coin—viz. the perspective of instincts,
or impulses—the dichotomy is made, following Dewey above, between the liberation and the suppression of innate proclivities.

Figure 2

The dichotomy here considered in two dimensions (as depicted in Figure 2) has direct implications for institutional economics as compared to the orthodoxy. To point, the Rational Choice Theory at the core of orthodox strains of economics implicitly assumes that a market-exchange based society will always be—or tend toward—the bottom-left corner of Figure 2. The is simply the implication where theory concludes optimality both at the individual and the social level—needs are satisfied so far as possible and our habits are directed toward the most efficient organization of social activities that can be (presumably through contracting and market exchange).

In contrast, institutional economics seeks to understand the ‘nature and causes of the growth of institutions’ through the lens of the dichotomy herein described. As such we make no
assumption as to where, in Figure 2, an institution or institutional structure will fall, or in what direction it will evolve in the future. Instead, the business of the institutional economist is to understand how actual institutions have developed; and, through the understanding of these dynamics, to inform the potential paths future developments might take.\(^\text{34}\)

We argue that this consideration of the analytical dichotomy in terms of these two dimensions constitutes the integration of Veblen’s generic ends of life and Dewey’s means-ends continuum. The horizontal axis retains the processes of valuation by which habits are formed, while the vertical axis closes the loop depicted in Figure 1 by considering the needs/impulses of which habits direct and effect the experience or neglect. This integration was, of course, suggested prior to our work by Sheehan and Tilman (1992); however, the question was there left open as to whether Veblen’s generic ends of life were equivalent to Dewey’s ends-in-view (p. 205). We believe our approach answers this by adding to the habit-oriented concept of ends-in-view an understanding of innate human nature and its relationship with the institutional structure of a society comprised as it is of settled habits of thought. In this sense, needs/impulses are substantively different from, but a vital part of, the means-ends continuum in which instrumental valuation must occur.

It may be further illuminating to explain this integration in terms of the meaning of ‘evolutionary’ in social analysis. This term as used in the social sciences has often been conjured simply as a means to acknowledge that “history matters” (North, 1990, p. 3)—or more technically, path dependence matters—in explicit refutation of the purely static framework of orthodox neoclassical theory. This basic meaning has led many to doubt the value of the term over simply ‘historical change’ in light of the former’s biological, and hence biological reductionist, connotations.

We argue, however, that the term as used by Veblen meant not just that analysis must consider time going forward from the starting point of the analysis, but also that there must be consideration of historical antecedence to the analysis. Without this understanding of wherefrom the contemporary subject matter comes, it is all but inevitable that the theorists falls into the trap of using the current institutional structure as the criterion with which to judge the adequacy of

\(^{34}\) Cf. Hickerson (1987, p. 1136), who argues (quoting Larkin): "'We use instrumental criteria to judge the adequacy of institutions; we do not use institutions themselves as criteria. This is the mistake of the neo-classicist who uses the institution of the market as a criterion.' The market itself is not a value; it is an institution, the performance of which is to be evaluated according to the criteria provided by the instrumental valuation process.”
that same institutional structure (see note above). This is clear in all institutional analyses that recognize the historical development of institutions such as property, the machine process, &c. as antecedents to the current socio-economic order under analysis.

However, what has been neglected with developments following Veblen, wherein his instinct-habit psychology and the generic ends of life were dropped, is that this consideration of historical antecedence can be drawn even further back, into the biological evolution of the species. The importance of this lies not in the understanding of institutional evolution directly, but in understanding human nature and its relationship to this institutional structure which mediates and impacts our evolved and innate needs/impulses. As such, we argue that, in integrating the method of instrumental valuation and Veblen’s generic ends of life, the framework herein built re-establishes the fuller meaning of evolutionary as used by Veblen in the post-Darwinian tradition.

We conclude by noting that the arguments laid out above all speak to the importance of an interdisciplinary approach, vital to understanding of both how societies are organized through the evolution of settled habits of thought as well as the nutriments necessary to the functioning and flourishing of human life as developed through the evolution of the species. Dewey perhaps put it best:

> When physics, chemistry, biology, medicine, contribute to the detection of concrete human woes and to the development of plans for remedying them and relieving the human estate, they become moral; they become part of the apparatus of moral inquiry or science ... At the same time that morals are made to focus in intelligence, things intellectual are moralized. (Dewey as quoted in Hickerson, 1987, p. 1133)

Institutional economics, we believe, is uniquely positioned to be an important part of this ‘moral inquiry of science.’
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