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A PICOECONOMIC RATIONALE FOR SOCIAL CONSTRUCTIONISM

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Social constructionism is a growing movement in psychology, philosophy, and a number of other fields such as history and literary criticism. The original name (Berger and Luckmann, 1966) has often been replaced with the awkward term "constructivism," apparently in an attempt to give this school of thought clear boundaries (Madison, 1988). The constructionists, or constructivists, start with the well documented observation that people form diverse and even contradictory beliefs on the basis of the same information. They infer from this variability that beliefs are not registered, like photographs, but "constructed" by some active mental behavior according to principles beyond the governance of external facts. Accordingly, they criticize logical positivism, which has been the dominant philosophy of science in this century, for its insistence that controlled observation is a definitive arbiter of beliefs, indeed the only one that exists.

Since I have developed a rationale for belief as a behavior in *Picoeconomics* (1992), it makes sense to examine constructionism from this viewpoint and to analyze the extent to which it is consistent with my model. I shall first describe the difficulties constructionists have encountered in specifying bases for belief other than correspondence with objective fact, then argue for the compatibility of my model with one school of constructionism.

Social constructionists divide roughly into two groups (Mahoney, 1991): "Radical" constructionists say in effect that a person's beliefs are those fantasies, his own or his culture's, which *seem* to have some objective basis. "Critical" constructionists recognize that people are apt to experience constructions as facts, but hold that our beliefs are sometimes selected according to genuinely "objective" factors, i.e., those that do not depend on our constructions.[2]

Radical Constructionism Is Unwarranted

The constructionists endorse Heisenberg's assertion that if there were a purely objective reality, a human being would not be equipped to perceive it (1952). This could mean merely that people cannot read nature's machine language directly—that we could not, for instance, know what color looked like to an organism that did not have our particular visual pigments. However, the radical interpretation is that objective reality cannot be known at all, even through a glass darkly that no factor can relate belief to truly external objects.

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Without such a factor, constructionism drifts among possible bases for belief without examining any of them systematically. Despairing of objective truth as a selective principle for beliefs, some authors are drawn toward the idea that science is a branch of fiction.

> With the destruction of Objectivity and Truth, scientific *knowledge* becomes less valuable than literary or political *activity*; and detailed observational analysis and extended explicatory grids are discarded in favor of instantaneous lightning—flashes of paradoxical illumination (Harland, 1987, p. 3).

Some radical constructionists hold the constraints on scientific knowledge, if any, to be social ones, and the purpose of research to be just to sway audiences:

> Whether rendering the conduct of organisms intelligible or demystifying existing forms of understanding, research methods can be used to produce "objectivications or illustrations useful in advancing the pragmatic consequences of one's work... [The successes of such methods] do not thereby increase the "objective validity" of the resulting constructions. However, like vivid photographs or startling vignettes drawn from daily life, when well wrought they may add vital power to the pen (Gergen, 1985, p. 273).

Even such a veteran scientist as Jerome Bruner has retreated from the "Trinity" of positivistic science—"reductionism, causal explanation and prediction:"

> To insist upon explanation in terms of "causes" simply bars us from trying to understand how human beings interpret their worlds and how *we* interpret *their* acts of interpretation... Why is it necessary under all conditions for us to understand *in advance* of the phenomena to be observed—which is all that prediction is? Are not plausible interpretations preferable to causal explanations...? (1990, p. xiii; original italics)

However, even radical constructionists must distinguish belief from simple wish—fulfillment; to do so they invoke culture. They say that it is not the individual who chooses assumptions, expectations, and other determinants of belief, but rather a group of people who choose for each other.[3] The group chooses, but the individual perceives the choice as a given, and he is incorrect only in believing it to be given by nature instead of by the group. Here culture functions somewhat like an Ouija board, that old parlor oracle, which makes the collective choice of several players feel external to each of them (Ainslie, 1992, pp. 308-311). Each has his hand on the planchet, but none feels that he is determining where it moves.

Many examples in the constructionist literature depict a group that collectively settles on a belief in such a way that its members are unaware of their participation. For instance, Harland describes a teenage group's perception of the virtues of a particular milk-bar as determined not by its qualities *per se*, but by the members' reading of other members' perceptions: "A milk-bar is not 'in' because everyone likes it, but because *everyone else* likes it (1987, p. 21; original italics)." This is not a startling description of social perception, but the radical literature holds that supposedly objective scientists form their conclusions no differently. For instance, Hare-Mustin and Maracek assert that "the 'real' nature of male and female cannot be determined;" rather findings about gender roles are a product of our

"assumptive frameworks (1988, p. 456)."

A critical constructionist, on the other hand, would hold that such examples are only from that subset of beliefs which are at least partially self-confirming, that is, recursive: those where the perception itself makes the milk-bar "in" or the masculinity masculine. Whether such beliefs are entirely arbitrary, or whether they are shaped with some regularity by features that are independent of belief, is an inferential problem often recognized by critical constructionists and even positivists. Hare-Mustin and Maracek skillfully identify a number of sources of bias in gender ascription, but none are problems that an orthodox positivist could not acknowledge. When these authors move beyond self-confirming beliefs to conclude that no "objective" correlates of gender exist, or at least that none can be detected by scientific method, they enter a more controversial realm unique to radical constructionism.

It is quite possible, for instance, that men have a greater innate preparedness for rage and aggression than women, and that this is at least partially responsible for the cultural stereotype to that effect. Observers might find such a non-recursive determinant impossible to factor away from the self-confirming property of this belief, in this culture or even in all human cultures; but such a failure might be simply a limitation of our particular methodologies in analyzing group interactions. No one is likely to propose a cultural cause for differences between a bull's taste for aggression and a cow's, or an ox's. In many cases it may never be possible to tell whether a cultural stereotype survives because it contains a kernel of truth—that is, because it requires less perceptual effort than its alternatives do to impose it on our experience—or whether it is entirely arbitrary and simply a good enough tale to stay popular. But such cases do not refute the detectability of external fact generally.

The radical answer to this argument would be that there is at least some recursive component in all beliefs, in that we tend to see what we expect. Furthermore, we admittedly tend to expect what our culture expects. But where the object of belief is not itself recursive one can often test the extent to which its behavior occurs outside of one's own control. The person in Plato's famous cave may have no way to test his beliefs about the moving shadows on the wall, but he can tell if he controls their movements. He has only to move and see if they follow. Here is the logical positivist's equivalent of the Cartesian *cogito ergo sum*: "If I can't change it, it is objectively external."

This test supports a limited claim that science can lead to objective truth. Controlled experimentation is, after all, just a set of techniques for being sure that an independent variable moves a dependent variable. For example, Koch's postulates provide a prescription for determining whether a certain germ is the cause of a particular disease: If the germ is found in a tuberculosis patient, can be cultured outside of the patient, can cause tuberculosis when injected into a previously well organism, and can be found living in that organism when it gets sick, then that is the germ of tuberculosis (Magner, 1992, p. 321). Under those circumstances we can be said to know objectively what causes tuberculosis, although not necessarily that we know the whole nature of this causal process. As von Glasersfeld has said, experiments can discover only what something is not (1984); but an extensive knowledge of what something is not is no different for practical purposes from

knowing what it is. Certainly it is a more valid foundation than Bruner's "plausible interpretations" (1990, p. xiii).

Even recursive phenomena are not always beyond the reach of positivistic techniques. One of the most notorious of such phenomena is the placebo effect—the ability of a plausible but inert treatment to cure symptoms of disease. This has fooled even astute observers throughout history (O'Connell, 1983). However, it is often possible to control for people's expectations, as in the double-blind experiments (neither subject nor observer knows what agent is in use) by which new drugs are evaluated. Even where blind experimentation is not feasible, placebos behave differently over time than causes that are independent of expectations. Granted that the participation of a whole culture would make the placebo phenomenon seem external to any individual person's will, still, interpretations that were not anchored by any genuine externality would be expected to differ from culture to culture, and shift like fashions over time within a culture. In individuals or cultures, a placebo goes through a period of being experienced as an external power, but then decays into powerlessness, often without ever having been actually unmasked as a placebo (Jobe, 1982). Even through the buffering of a large group, the experience of a phenomenon that is beyond the members' control is eventually different from that of one which is within their control.

Critical Constructionism Is Incomplete

The theorists that Mahoney calls "critical constructivists" recognize external occasions for belief (1991), but they see these as shaping series of trial beliefs rather than impressing their actuality on beliefs in any direct way. They point out that experimentation generates information only about which hypotheses are false; it does not assure that the remaining hypotheses are true. The implication of such a view is that there can be diverse "good" hypotheses about a phenomenon in the same way that there can be many "good" systems of classifying books: If a system permits relatively effortless finding of the books one is looking for, then we could say that it represents a correct hypothesis about the properties of books. The Dewey Decimal System and the Library of Congress system do not represent arbitrary behaviors on the part of the librarians who devised them. Even though they are quite different, their survival as classification systems is constrained by their ability to help their users find books. Reality supports them or not in the same way that it supports a particular system of beliefs or not; and more than one such system can be "true."

Critical constructionism seems entirely compatible with positivistic science for those beliefs that are susceptible to be disconfirmed; in saying that experiments only discover what things are not, von Glasersfeld was only repeating A. J. Ayer's view of positivism (1956). Trial and error soon edits instrumental beliefs, those that either produce a looked-for result or do not, into compatibility with the facts. That this compatibility is not necessarily a one-to-one correspondence means only that beliefs are active choices rather than slavish copies, a change of imagery from our previous picture of positivism rather than a refutation of it.

What the critical school pioneers in criticizing is our tendency to construct beliefs beyond the simple converses of those things which we know are not, that is,

to elaborate and believe in "facts" which, from a positivistic standpoint, we simply have not ruled out. Such a tendency certainly exists: When asked to determine which playing cards are in an experimental pile, people are poor at asking the questions that would narrow down the possibilities. Rather than rule out alternatives, experimental subjects prefer to entertain positive hypotheses as long as they can (Wason, 1966). Also, if subjects are told to guess numbers from a random distribution and are told they are correct with an increasing but also random frequency, they will form and cling to beliefs about how to pick these numbers (Bavelas, cited in Watzlawick, 1984, Page 13). In describing experiences that are at all subtle, we invent layers of cherubim and seraphim well beyond what Ockham's razor permits, as if we had a desire for certainty as great or greater than our desire for accuracy.

Conversely, we generally avoid discovering powers that are demonstrably available to us, such as the blunting of pain, the summoning of emotion, and the very framing of belief discussed here (examples in Ainslie, 1992, pages 100-114, 135-142, 300-308). Uncomfortable with those powers, we make an effort to disown them.

Our propensity to discern external causes when the choice actually lies within us seems to have been one of the main inspirations of the social constructionists. What has to be answered is what separates this overactive discernment, this arbitrary construction of reality, from mere fantasy (or "narrative" as the constructionists often call it). Insofar as constructionism says that positivistic science does not authenticate any of the imaginings with which we fill the realm of the not-yet-disproven, I agree without reservation. But what constructionism needs is a theory of what must constrain fantasy in order for fantasy to become belief. Once someone has left the realm of instrumentality, what do beliefs do for him that frank fantasies do not? How does the admixture of supposed fact improve fiction, and on what principles does it take place?

Constraints On Cognition Are Motivational

Constructionists sometimes express awareness that the choice of belief is subject to "the constraints of some kind of mental 'gravity' (Sperber, 1986, p. 1308)," but they lack concepts to deal with how such gravity might work. If belief is more restricted than fantasy, then some selective process must be at work. But if there is no one-to-one relationship between external events and beliefs, some other principle must limit the extent of belief. I propose that constructionism's inability to supply such a limiting principle comes from its neglect of motivation.

Constructionism has strong roots in cognitive psychology, which has turned increasingly away from motivational concepts to the puzzle-solving orientation of authors like Jean Piaget and George Kelly. As a result, it has only cognitive terms with which to analyze the limitations of cognition. In some cases this privation of concepts is deliberate. Denying any overall systemization in motivation, Schwartz declares that the concept of differential reward is useless (1986, p. 154). In other cases, a role for motivation is recognized but not pursued:

> A cognitive organism evaluates its experiences, and because it evaluates them, it tends

> to repeat certain ones and to avoid others. The products of conscious cognitive activity, therefore, always have a purpose and are, at least originally, assessed according to how well they serve that purpose (von Glasersfeld, 1984, p. 32).

Having said this, the author veers away to discuss other philosophical problems. He does not explore the nature of purposiveness or how it might constrain the choice of cognitions; elsewhere he vaguely depicts purpose as a matter of "eliminating perturbations" and "maintaining of internal equilibrium" (1988, p. 87).
Constructionist references to motives are sporadic and unsystematic. In Hare-Mustin and Marecek's analysis of gender perception, only two motivational concepts can be discerned: social "utility," which they hold up as proper, and "assumptive frameworks...reflecting certain interests," which they deplore (1988).[4] But gender ascriptions can serve many other purposes besides these—prediction of behavior, aesthetic appreciation, erotic fantasy, enhancement of self-esteem, rationalization of symptoms, etc. And even to have assembled a complete catalog of incentives bearing on the perceptual process is still not to have explained the role of motivation in perception.

In *Picoeconomics* I hypothesized that the only factor limiting our extensive ability to reward ourselves through fantasy is a preference for earlier rewards over larger later ones. Space permits only a summary of this hypothesis: The over-valuation of early rewards motivates premature enjoyment of the peak moments of a fantasy as they become familiar, and thus an increasingly inefficient use of the available drive (pp. 249-271). There is some evidence that this self-reward phenomenon occurs even with those drives based on tissue need, like hunger, but here the argument is more tenuous. In the areas of social reward, the commonest application of social constructionism, the relevant emotional processes are obviously available in everyone's repertoire. To avoid premature self-reward, a person must learn to use independent facts to occasion these processes, such as acquisitions to a collection, signs of accomplishment or failure, or signals from other people.

In one respect this hypothesis about the nature of emotional reward takes constructionism one step farther, in that not only perceptions but also the emotional consequences of perceptions are fluid and subject to construction. Since emotional consequences are what motivate perceptions, this hypothesis might seem to have less anchorage in external reality than even radical constructionism. If perceptions are not intrinsically linked to facts but exist in the free market of differential reward, and, furthermore, if emotions are behaviors that compete in this market without any necessary connection to perceptions, how can facts become important?

In the picoeconomic model, only those facts that directly affect the readiness for reward have an intrinsic value. (I use the term *reward* to mean any instance of the process that selects for behaviors, including whatever consequence insures that emotional responses to pain and itch stimuli will be hard to avoid making; see Ainslie, 1992, pp. 99-114, 249-271.)[5] Examples include drugs that stimulate or inhibit appetites and stimuli that create the urge for pain responses. Other facts are valuable only as criteria for self-reward as governed by personal rules—unless they predict facts that in turn have either of those two functions. Rules for pacing self-reward are usually tacit, selected by a process of trial and error that leads people to

discard both overly strict and overly permissive rules. People usually understand such personal rules only tangentially, as openness to particular feelings in particular circumstances. The rules are self-enforcing in that departures from realism are punished by the degeneration of the experience into an ultimately less rewarded fantasy.

For instance, a person who experiences the rule to do his best at school as the *fact* that certain work *needs* to be done might hedge by finding excuses not to do some of the work, or by changing his belief about its needing to be done. In either case, he will weaken his rule and reduce the emotional reward for finishing the work. Relief from the task is always in his hands, but the reward that he experiences will depend on the extent to which he has tolerated a build-up of the appetite for it. Maximal tolerance means maximal commitment to the task, perhaps to the extent that he avoids perceiving his control over the meaning the task has for him.

The class of facts that derive their value from predicting other facts, together with intrinsically valuable facts themselves, form the basis of a well-understood motive for accuracy that is often called "instrumental." The hypothesis that self-reward is readily available, but attenuates through premature satiation if not limited by some factor beyond the person's spontaneous wishes, suggests a motive for belief in addition to the instrumental one. This hypothesis provides a rationale for both the construction of reality beyond the domain of the still-undisproven, and a limitation of this construction by links to events outside of the person's control. It supports both the position that belief is a potentially unlimited form of behavior and the position that, even beyond the demands of instrumentality, people can detect realities that are independent of their constructions.

Beliefs always have a hedonic impact. Whatever their usefulness in obtaining other goals, they are schemata for pacing self-reward, and so are shaped not only by the rewards they make possible through their accuracy but also by the rewards they occasion through their own forms. Thus, an investor selects his beliefs about the stock market to maximize his financial return, but he also deviates from this policy to improve his current comfort (Thaler, 1991). When he would have to acknowledge a loss in selling a stock, he is apt to hold it in the hope that it will rise under circumstances where he would never buy it again—the notorious "sunk cost fallacy" (Arkes and Blumer, 1985; see Ainslie, 1992, pp. 291-293). Money as an occasion for self-reward in the game of making money competes with the reward value of the things money can buy. Having impulses to adjudicate the former "unrealistically," we undermine the latter.

There seems to be a dynamic balance between the rewards for accuracy and the optimal pacing of self-reward. Obviously, people would most rather see accuracy coincide with optimal pacing. This wish probably motivates many fanciful attributions of causal efficacy to the elements that pace reward well.

The hedonic function of belief is best seen in areas that turn on disputation, like psychoanalysis, theology, and history, where evidence for the difference in instrumental effect that one belief has over another is most lacking. There are whole professions where practitioners want to choose one belief over another, not for any instrumental purpose, but so that they can believe a single coherent story. The questions of who wrote Shakespeare's plays (Looney, 1920), or why Byron left

England in 1809 (Stoppard, 1993), can call forth great amounts of effort in defense of one theory or another, but not because we need the information.

For many purposes, "objective" reality is better than myth only because there is a reason to choose one of many competing possibilities. We can be irritated by factual uncertainty in exactly the same way that many people were irritated by John Fowles' novel *The French Lieutenant's Woman*, when he let the reader choose between two alternative endings. Conversely, the factor that makes news more vivid than history is usually not its practical implications for its audience but rather its uniqueness: There are many past moments, but only one present one. Similarly with news and fiction: If the quantity of available news becomes greater, the choice of what to show, or watch, becomes increasingly arbitrary, until the facts presented have no more impact than fiction—the curse of "infotainment." (See also Ainslie, 1992, pp. 300-303, 313-315).

Since it is the rarity of the occasion, not factuality *per se*, that protects experiences from losing their motivational impact, virtual realities that are known not to exist or even to be impossible are subject to the same hedonic rules as facts. Thus, science fiction and time-travel genres are more or less vivid depending on their consistency and parsimony. A highly "real" convention for historical time travel, for instance, would make all events during the travel have their expectable consequences in modern times. To contradict this logical necessity, or to make the reader disregard the question, is to make the story more arbitrary, more "fictional," less powerful a pacer unless the loss of discipline is compensated for by richer images. Literary styles serve to set a consistent degree of arbitrariness. A fanciful situation that smoothly accords with one's suspension of disbelief in a farce might so undermine the plausibility of a drawing-room comedy that it would spoil the play.

Bright lines become "facts". Constructionists hold that assumptions about what is natural or fundamental attain their power from their unconsciousness, that is, from the fact that the person who has them cannot examine them critically. Instead, I would argue that assumptions take on power insofar as they reflect some unique boundary that allows a personal rule to mediate between powerful motives, a boundary that I have called a bright line (1992, pp. 163-173). Anniversary phenomena are good examples. A person who is drawn toward an emotion that would disrupt a preferred emotional tone may be unable to resist it on the anniversary of a compelling occasion, that is, when the occasion "happened on that day." Of course it did not happen on that day; the anniversary is more real than a day two months earlier or five weeks later only in the sense that the event happened a whole number of years before (i.e., without additional days), and thus can uniquely correspond to that day. For that reason it becomes an obvious occasion for indulging one side of an ambivalence, for instance a sadness that one can mostly avoid but not entirely. The point of interest for our discussion is that in Western culture anniversaries are "believed in" as re-creations of the original time, sometimes even leading to magical events, eg. the medieval legend that the anniversary of Christ's birth enables animals to talk.[6]

Where the environment does not offer conspicuous lines, a person is apt to declare facts arbitrarily and then believe in them rigidly. The most obvious examples

are pathological extremes, such as the borderline personality who rules, on the basis of scant evidence, that people are either entirely friendly or entirely hostile. Examples from ordinary experience are not hard to find, but they are apt to be mediated by the cultural Ouija board. If I am prompted to disgust at some object, I foster this feeling or not depending on whether the proper ritual has made it "clean." If I have an urge to panic at the possibly cancerous pain in my stomach, I seek divination of the fact from a doctor, or shaman, which quite aside from its accuracy will be reason to either panic or relax. If I have urges to both empathize with lower mammals and eat them, I divide them into "household" animals and "farm" animals, and empathize only with the former.

In all these perceptions, I rely on my culture to provide a bright line in a practical place, since I perceive obliquely that my own judgment about what shall be clean, or safe, or edible will be too responsive to my motives. But my culture in turn searches for reasons outside of everyone's collective control to anchor these lines, if not in conspicuous features of nature then in what we hope are the unique conclusions of positivistic science; for lines not so anchored will drift according to the laws of group psychology.

Where bright lines do not exist in nature, culture may or may not agree on a synthetic line. Suppose that, having an urge both to blame and to sympathize with my alcoholic spouse, I ask whether alcoholism is a disease or a character flaw. Because my culture contains both conclusions and argues them hotly, I have to pick a conclusion arbitrarily, or perhaps abandon my conception of the dichotomy. Similarly, if nature creates two equally bright lines, culture is apt to divide its allegiance. We have strong motives both to limit additions to our families and to care for people, but we are cursed with two equally conspicuous lines that could divide our attribution of personhood from that of nonpersonhood—the moments of conception and birth. It is in the bitter debate about such cases that we are first faced with our construction process.

Drives motivate the perception of facts. When a person has a drive—i.e., a capacity for reward in a particular modality, he will search for the most effective stimuli to pace that reward. This phenomenon is most obvious in certain psychiatric conditions: A phobic patient will find objects to be afraid of, and if he succeeds in avoiding all of them he will begin to fear others. Similarly, the compulsive patient will find duties, and the hypochondriacal patient will find signs of disease. Such beliefs are notoriously resistant to evidence and to contrary argument.

It is also easy to find examples of ordinary people picking beliefs to serve markets in their psychic economies. This may happen within individuals, as when people who crave attention are continually discovering a unique problem that compels them to tell others; in small groups, as when a couple who are uncomfortable with intimacy always find some reason that obliges them to be angry at each other; and with whole cultures, as when rapid increases in cleaning technology led to proportional increases in the perception of dirtiness, so that the actual time housewives spent in cleaning did not decrease (Cowan, 1985). This process is literally proverbial: "If all you have is a hammer, everything looks like a nail." These are good examples of constructions that might get called arbitrary social

whims, but which are actually constrained by the need to mediate motivational conflicts.

Realism As Self-Control

We have had a striking reluctance to examine the process of belief. We accepted a "human factor" that distorts simple perception only near the end of the eighteenth century (Boring, 1950). Freud described the process of projection, whereby we interpret our own choices as external givens, in 1896, and Titchener recognized empathy, the process of perceiving other people's thoughts and feelings through one's own internal modeling of them, only in 1909 (1926).[7] Constructionism *per se*, although presaged by Bacon and Vico and Kant, has begun to analyze the dependence of perception on assumption only within the lifetime of many current graduate students (Berger and Luckmann, 1966).

This failure to recognize until recently something so familiar demands explanation, as does most people's hesitancy to acknowledge it even on good evidence. If belief is indeed a form of behavior and subject to the needs and wishes of the individual, with or without the mediation of culture, why have people gone to such trouble throughout history to avoid recognizing this process? Why have people insisted that their beliefs are strictly shaped by environmental events, and denounced bitterly, as relativism, solipsism, and nihilism, any notion that they have constructed these beliefs?

The energy that goes into this insistence suggests that impulse control is at stake—that the projective interpretation of experience as determined by stimuli supports rules for making reward depend on external events, or even represents a stronger form of these rules: Not only is reward to be paced by events, but variations in the reward experience are to be explained only in terms of these events. A person rules that he must be helpless against the belief dictated by these events, and must work out the importance he should give them according to their logical place in a thoroughly rationalized natural law. Such rules are resistant to hedging, but they lead to artificial bookkeeping schemes that make choice seem riddled with anomalies: We act against our better judgments, or fool ourselves, or believe two contradictory propositions at once, to the despair of the philosophers of rationality (eg. Davidson, 1980; Pears, 1984).

Although rules for "objective" belief are apparently formulated to increase self-control, their suppression of our awareness of actual motivation can lead to the opposite effect. For instance, when a person is committed to regard himself as a unitary, rational decision maker whose only task is to weigh external costs and benefits, he can easily be convinced that it is irrational to borrow money so as not to spend savings. He may have had the intuition that his natural over-valuation of earlier goods demands a personal rule never to touch his savings (Shefrin and Thaler, 1988), but objectivity seems to require that he override it. If he does not allow himself to recognize his complex role in the valuation process, he may squander his savings while preserving his metaphysical realism.

Whole belief systems have been formulated with an eye to controlling impulses. The most comprehensive example is probably the "natural law" of the

medieval Catholic church, which defined a number of behaviors—masturbation, abortion, usury, etc.—as sinful on the basis of their supposed unnaturalness. At the height of the scholastic belief system in the twelfth and thirteenth centuries, even ideals were interpreted projectively, that is, as corresponding to an external reality that was reflected only imperfectly in concrete objects. Western culture seems to have buttressed its rules for testing reality by denying that they are in fact rules, asserting instead that they are simple descriptions of external fact. Such denial seems designed to counter the lure of promiscuous self-reward, imagined as the specter of solipsism.

The medieval formulation of nominalism in opposition to this "realism" can be seen as the first step toward dismantling our culture's normative rules for projective belief. Social constructionism proposes to finish the job. However, in its radical form it does not recognize any process that leads belief to be constrained by facts. This results in a distortion just as great as the original realism. An examination of the phenomenon of self-reward suggests other possible constraints for belief and thus a middle ground for critical constructionism to occupy, as we have seen. Nevertheless, the idea that we can think about the process of constructing belief without lapsing into solipsism may be as threatening to many as the announcement a few years ago that alcoholics can sometimes return to controlled drinking (Cook, 1985). Opposition to constructionism seems to aim at giving temptation the widest possible berth, but it cannot make this argument explicitly without acknowledging the motivational nature of belief.

Conclusions

Social constructionists are right that beliefs are chosen, not determined by external facts; but where there is choice there is motivation. Without an awareness of how beliefs serve motives, and especially of how beliefs mediate motivational conflicts, the constructionists have no way of recognizing the role of bright lines in the selection of beliefs. Having no other explanation for this selection than the social pressure of others' beliefs, they sometimes propose that there can be no other explanation.

The limits of human objectivity lie in our motives. When a person is motivated to seek objectivity, he is often able to tell whether he can change an object to suit his fancy. Positivistic science is a system of controlled experiments for doing this. However, information of no motivational significance will not be processed, and information *with* motivational significance will structure the person's attention to it according to that motivation. Thus the world is, in effect, made of incentives, and will inevitably interact with whatever motive there is to perceive it. This is the basis for the constructionists' "Heisenberg principle."

Since a belief is a form of reward-dependent behavior, it may or may not get shaped to fit objective facts. Such a fit is possible about as often as positivistic science claims. Where reward is strictly linked to accuracy, as in many instrumental beliefs, the fit will usually be good; if a hungry person does not edit his beliefs so that they lead him to real food, his attempts to reward himself with food fantasies will be spoiled by hunger pangs. However, most significant activities in the modern

world are rewarded by emotional processes, which are not intrinsically limited by external events. Here the hyperbolic discount curves of delayed reward make self-reward too facile unless it is paced by criteria outside of the person's momentary control; and objective fact vies with the canons of good fiction to offer reward-pacing criteria of optimal rarity and unpredictability.

With emotional rewards the eye of the beholder becomes idiosyncratic, as the constructionists have said, and the benefits from limiting sheer fantasy motivate us to make personal rules for testing reality. Conceiving these rules as properties of nature reduces our hedging on them, but causes us to resist seeing that we choose both our beliefs and their emotional meanings.

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NOTES

1. I thank William Whipple, Elizabeth Ainslie, and the editor, Max Hocutt, for extensive advice on the construction of this article.

2. These terms are not transportable from one author to another. For instance, von Glasersfeld, a critical constructionist the by this test, calls himself radical because he relinquishes "metaphysical realism" (1984, p. 24), something all constructionists say they relinquish.

3. Sometimes they mean this mechanism to be normative as well as descriptive: "The practitioner can no longer justify any socially reprehensible conclusion on the grounds of being a 'victim of the facts' (Gergen, 1985)." By this test, if Galileo's heliocentrism threatened the faith of millions, there was good reason for the intellectual community of his day to find it invalid!

4. By *utility* they do not mean efficiency in classifying information, but consequences for social welfare. By *interests* they mean the partisans who gain social advantage from convincing people that current circumstances are given by nature rather than decided upon by a power elite.

5. This model has extensive leeway for itch- and pain-range rewards to become available if the organism attempts some kinds of self-reward in the absence of a "natural" stimulus, e.g. the pangs brought on by fantasied eating in the absence of food. Such a mechanism can account for the apparent absence of a self-reward problem in lower animals, and in some modalities in humans.

6. The same logic leads people or nations in conflict to seek solutions in "natural law." For instance, the Pyrenees are the "natural" boundary between France and Spain because they are the most conspicuous line between two populations that were each about the right size to form nation-states when the boundary got defined. The force of this perception was sufficient to split the Catalan people, who straddle the Pyrenees.

7. The concept of an internal modeling process itself began as the idea that aesthetic feelings come from sensing one's own behavior in response to a work of art, as opposed to the sensation of perceiving the work itself, which had occurred to the aesthetician Lipps only forty years before (Paget and Anstruther-Thomson, 1912, pp. 35-44).