

The History of Dual-Process Notions, and the Future of Preconscious Control

GORDON B. MOSKOWITZ
IAN SKURNIK
ADAM D. GALINSKY

If I say that I see a book before me on my desk, I shall be criticized, because nobody can see a "book." . . . Even the character of being an "object," or "thing," which I have tacitly attributed to the experiences I have called "book" and "desk," is improper in correct psychological description . . . we must learn to make the all-important distinction between *sensation* and *perception*, between the bare sensory material actually given to us and the host of other items which since childhood have become associated with it. You cannot see a book, I am told, since this term involves some knowledge about a class of objects to which this specimen belongs, and about their use, etc., whereas in pure seeing such knowledge cannot enter. . . . Objects cannot exist for us before sensory experience has become imbued with meaning.

—WOLFGANG KÖHLER (1930, pp. 54–55; emphasis in original)

In the quotation above, Köhler asserts that even the simplest forms of knowing, such as knowing that the thing on the desk is a "book," require the individual to make inferences that are not directly revealed by the properties of the thing (book). Such inferences represent a leap beyond what is objectively revealed by the stimuli, and this inferential leap becomes far more elaborate when the stimuli are social in nature—such as interpreting what others are like. A basic principle of human social-psychological functioning is that a person's understanding of self and others is transformed and "constructed" according to the specifications that the perceiver brings to meet the world of stimuli that bombard his or her senses (Gollwitzer & Moskowitz, 1996).

People are biased by their particular views; they see what they want to see, that which they already believe to be true. Certainly, this epistemological canon predates its exposition by psychologists such as Köhler (1930). Shakespeare invoked this principle when Hamlet, after likening Denmark to a prison, responds to his friend Rosencrantz's disagreement by retorting "Why then 'tis none to you; for there is nothing either good or bad, but thinking makes it so. To me it is a prison." Kant (1781/1990) stated this more formally: "Without the sensuous faculty no object would be given to us, and without the understanding no object would be thought" (p. 45). Instead of tracing this epistemological dictum through Hegel to Socrates and down through the ages to the

Talmud (where it is written: "We do not see things as they are; we see things as we are"), we focus on the final 100 years of the millennium—on empirical examinations of the psychological mechanisms through which social cognition is regulated and controlled.

How people negotiate their sense of meaning and understanding of the social world by making inferential leaps from sensory stimulation is the theoretical domain of social cognition and the dual-process models that inhabit the domain. If even a book is not immediately perceived, how do people come to arrive at a sense of knowing when perceiving other people and forming beliefs? Dual-process models in social psychology have approached questions of this type by conceiving of information processing as happening along a continuum. The anchors of this continuum reflect the "duality" invoked by these models. On the one hand, people can utilize little cognitive effort, elaboration, or capacity in thinking about the social world. They can lean on prior knowledge, heuristics, stereotypes, expectancies, scripts, and schemas to impose structure and order on new situations. In each of these cases, people act in a somewhat "mindless" fashion, arriving at their sense of knowing through a "top-down" process whereby a preconception is imposed on new information. On the other hand, people can expend a great deal of time, effort, and mental energy in systematically building decisions, beliefs, and a sense of knowing. This more "mindful" strategy is a "bottom-up" process that requires the exertion of cognitive effort to reflect on and examine the stimulus. Neither strategy guarantees a bias-free response; the two are just distinctive paths to arriving at knowledge—paths that individuals have the cognitive flexibility to choose between.

Dual-process models share a subset of beliefs about the quest for knowledge, opinions, and understanding. Each section of this chapter explores a theme that is common to these models, and traces some of the historical roots of the assumptions made concerning human epistemology.

THE CONSTRUCTION OF KNOWLEDGE

We have already seen the first theme emerging from the passage by Köhler that begins this

chapter—that perception and knowing are never simply given to a perceiver by stimuli, but are constructed by the perceiver. Even a pencil cannot exist for an individual before the sensory experience of the object has been transformed through an interface with the individual's prior knowledge about writing utensils. As Bruner (1957, p. 123) put it, a perceiver's use of prior categories in inferring the identity of a perceived object "is as much a feature of perception as the sensory stuff from which percepts are made." This process in which the individual helps determine the identity of a stimulus (moving one from receiving a sensory cue to having a sense of knowing what the sensory cue actually is) was described as a process of forming *inferences* about identity. Bruner (1957, p. 133) labeled this "the most ubiquitous and primitive cognitive activity," where the person goes beyond the information given in order to imbue the stimulus with meaning (consistent with Köhler, 1930).

Constructing Knowledge Can Occur Unconsciously

The sense of "knowing" that inferential processes provide is experienced as something immediate—the identity of an object "pops" into our heads because the meaning seems to be a natural part of the object itself (we simply "know" that this is a pencil, he is a priest, etc.). But this "phenomenal immediacy" is actually mediated by a categorization process that occurs through a series of stages, and at each stage the interpretation of the sensory stimulus is subjected to being influenced by the perceiver. Bruner (1957, p. 124) believed that all perceptual experience occurs through a process whereby the thing (or person) being perceived "is placed in and achieves its 'meaning' from a class of percepts with which it is grouped." When the process is complete, the perceiver has moved from an unidentified sensory stimulation to an inference that categorizes the stimulus, producing knowledge of what it is: "That is a pencil" we state. The immediacy of this process led Bruner (1957) to believe that as "Helmholtz long ago suggested, the process is a silent one. If you will, the inference is often an 'unconscious' one" (p. 129).¹

Thus, although we are influenced by internal processes of inference and categorization in understanding the social world, these processes

proceed unconsciously, without our awareness. The "silence" of this process is dependent on how much overlap there is between the cue and our categories. As a consequence, even inferences about another person's disposition could "silently" pop into our heads through unconscious inferential processes. However, the overlap between cue (the other person's behavior) and our categories often is less complete in the case of categorizing interpersonal behavior, making the silence of the inference less likely. But given clear and diagnostic behavior (Moskowitz & Roman, 1992), perceivers do passively infer qualities in others and accept them as something inherent to the perceived person (Uleman, Newman, & Moskowitz, 1996). An important consequence of a silent (or spontaneous) inference is its phenomenal immediacy: A perceiver does not experience the judgment as a construction, built through the aid of expectancies, needs, and heuristics. Instead, there is what Asch (1952) called a "naïve realism," a belief that one's inferences accurately reflect, without mediation or bias, an external reality. Ichheiser (1943) articulated this view that subjectivity in perceiving others is so commonplace that it proceeds unconsciously:

[A person] is not aware of the fact that certain processes [of misinterpretation] are at work within him [*sic*], which distort and falsify his experience of other people even on the level of immediate observation. It remains concealed from him that what he considers as "facts" is permeated by . . . unnoticed and unconscious but nevertheless systematically proceeding misinterpretations . . . we automatically interpret manifestations of other persons in specific ways without being aware of our doing so and without noticing that our observations are based on, and guided by, those unconscious interpretations. What we consider to be "objective facts" are actually products of our unnoticed interpretative manipulations. (pp. 145-146)

The Passive versus the Active Mind

Bruner's model of perception is consistent with Köhler's (1930, p. 61) view that "no experience escapes from the influence of meaning" and that psychology's task is to separate meaning from "pure" sensation. The notion that perception and sensation are distinct, and that the mind actively imposes meaning on

sensory data, is by no means universally accepted. Indeed, Köhler and his fellow Gestalt psychologists were a minority at the time they stressed the active and constructed nature of object perception. The behaviorist movement dominated during that period and did not deem speculations regarding the nature of cognition to be proper for the domain of psychological inquiry. The focus instead was on observed behavior as the only true form of psychological data. The behaviorists, instead, reflected the philosophical position of the 18th-century empiricist school (e.g., Berkeley, Hume, Locke), which stressed the role played by pure sensation in shaping perception. The empiricists rejected the notion of abstract or unobservable "causes" in favor of laws that are not predicated on the assumption of some unseen entity. It is simply enough to know that objects fall to the ground at a constant rate and to use the word "gravity" to describe this, rather than to believe in the notion of an entity called "gravity" that somehow "pulls" things and causes them to move at a constant rate. Empiricists regarded observable facts as the domain of reality; in their view, unseen entities are nice metaphors, but they have no place in science or philosophy.

For example, Locke (1690/1844, p. 75) presumed that the mind starts out like white paper—"void of all characters, without any ideas; How comes it to be furnished?" The one-word answer was "experience." All knowledge was said to be founded through two sources that together account for all of one's experience: "sensation" and "reflection." Locke described sensation as the understanding one achieves when the senses convey to the mind how an external object of stimulation affects the senses. Knowledge of coldness comes through experiencing the way in which an object labeled as "cold to the touch" affects the sense of touch. This basic type of knowledge was labeled a "simple idea," and Locke claimed that (1) "the mind is wholly passive in the reception of all its simple ideas" (p. 110), and (2) such ideas served as the material and foundation for more complex ideas. Reflection (e.g., thinking, doubting, believing, and willing) was described as the understanding one achieves when the mind operates on the simple ideas it already has. Through reflection, the mind has the power to repeat, compare, unite, and associate ideas, forming new and complex

thoughts. "All this creative power of the mind amounts to no more than the faculty of compounding, transposing, augmenting, or diminishing the materials afforded us by the senses and experience" (Hume, 1788, p. 30).

Whereas the philosophical stance of behaviorism, with its emphasis on concrete experience and principles of association, followed from empiricism, Gestalt psychology adopted its philosophical stance from links to pragmatism and back to Kant and Hegel. Thus, though the early part of the 20th century presented a debate between Gestaltists and behaviorists, this debate had a character similar to that which epitomized James's (1890/1950, p. 403) and other pragmatists' stance toward the empiricists:

These writers are bent on showing how the higher faculties of the mind are pure products of experience; and experience is supposed to be of something simply given. . . . [They] regard the creature as absolutely passive clay upon which experience rains down. The clay will be impressed most deeply where the drops fall thickest, and so the final shape of the mind is moulded. . . . These writers have, then, utterly ignored the glaring fact that subjective interest may, by laying its weighty index finger on particular items of experience, so accent them as to give to the least frequent associations far more power to shape our thought than the most frequent ones possess. . . . [Interest] makes experience more than is made by it. (Emphasis in original)

Gestalt Psychology and the Construction of Knowledge

The conflicting philosophical moorings of Gestalt psychology and behaviorism resulted in a dispute over the proper subject matter for psychological study. In one corner was Köhler's (1930) description of "direct experience" or the naive experience of reality (e.g., a feeling of warmth at family gatherings, memories of the Rhine's serenity along the German-Swiss border). Behaviorists labeled such experiences as impervious to and unavailable for scientific study, equating them with terms like "spirituality," which they saw as reflecting a "prescientific mythology." Instead, they took physics as their template, emphasizing how a system reacts under certain conditions, and how the reaction changes under different conditions. Such in-

formation is gained by objective observation and measurement. Behaviorism held this to be the proper form of experimentation in psychology, with observable behavior as the only subject matter.

Köhler (1930) believed that behaviorists wrongly equated studying experience with the psychology of introspection and its limited methodology. According to Köhler, psychology was driven to embrace behaviorism as a reaction against the introspectionists (e.g., Ebbinghaus, Wundt), whose approach (1) utilized reports about one's own mental experiences rather than experimentation, and (2) excluded external stimuli from the domain of interest. Gestalt theorists rejected both introspectionists' attempts to ignore external stimuli and behaviorists' reactionary belief that naive experience is outside the realm of study because such experience is not directly observable. They applied the scientific method espoused by behaviorists to the content area (mental experiences) focused on by introspectionists.

As a scientific attitude the Homeric assault of behaviourism against "direct experience," "consciousness" and so forth appears very strange to me. . . . The behaviourist forgets, however, that it is a truism in epistemology that I shall never be able to "prove" conclusively the existence of an independent physical world. As an extreme purist I might argue this point exactly as the behaviourist disputes the assumption of direct experience in others. Somehow it does not occur to the behaviourist to apply his epistemological criticism to the assumption of the physical world . . . he assumes the reality of this world with all the healthy naivete which he lacks in psychology. . . . Of course, personally and practically I am as convinced of [the physical world's] existence as any behaviourist has ever been, and I am fully aware of the fact that sciences may and must believe and postulate where the epistemologist, if he likes, may doubt. But then I shall believe and postulate the direct experience of others. (Köhler, 1930, pp. 23-24)

Postulating such experience, and believing that sensory data are altered into a perception by the mind's use of meaning and prior learning, reflect the fundamental assumptions of Gestalt psychology: The parts of a mental representation interact to make up a structure, and those interacting parts are dy-

namic in that they exert influence on one another. Understanding a structure cannot be achieved by examining the individual elements; it is achieved by examining the nature of the relationship between the parts and the emerging properties that the dynamic system reveals. A *gedanken* experiment illustrates this. Imagine a man walking toward you; he is 10 yards away, then 5. The image on the retina informs you that as the man approaches, he grows in size. But you do not perceive an emerging giant. Although the physical object remains constant, the stimulation that strikes the sensory apparatus varies. Yet your experience agrees with the constancy of the object. This apparent constancy illustrates that the organism does not respond to local stimuli as a series of mutually independent events, but to a constellation of stimuli as a functional "whole" (Köhler, 1930).

Gestalt psychology posed a dynamic view of perception, implying that the perceptual field is structured into *meaningful and understandable units* that are built through relationships among the parts, including the prior knowledge and needs of perceivers. This perspective influenced social psychology through two directions: first, through the Austrian and German researchers (e.g., Fritz Heider, Kurt Lewin) who emigrated to the United States at about the time of Hitler's rise to power; second, through the brand of pragmatism that emerged from the "metaphysical club" at late 19th-century Harvard (e.g., Charles Peirce, William James, Oliver Wendell Holmes), which influenced Allport and Bruner at Harvard in the 20th century. We now turn to social psychology's adoption of the idea that knowledge is a "construction."

Field Theory and the Life Space

The Gestalt movement was so nested in the hard-wired world of the psychology of perception that it was not uncommon to hear Gestalt psychologists reject the idea of studying such things as interpersonal judgments and motivation. But the general point that perceiving and knowing are not equivalent to pure sensory stimulation is especially true in the realm of social perception, where the stimulus behaviors observed are open to many interpretations, and perceivers are

equipped with biases/expectations they are ready to impose.

Kurt Lewin worked during the early part of this century in Berlin (the center of Gestalt psychology) and applied Gestalt principles to a level of analysis that included the social sphere. Lewin believed that to discover the basic principles guiding behavior, we cannot reduce the elements being studied to neurophysiology. Rather, behavior can be understood only within the entire field of stimuli, as an interaction of a person within a situation. His general approach was labeled "field theory" (e.g., Lewin, 1936), and a person and his or her environment together made up a unit known as the "life space." The notion of life space was meant to capture both the physical and psychological (conscious and unconscious) environment. It emphasized a dynamic systems approach (combinations of elements in a stimulus field yield a product that is more than the sum of the qualities of the individual parts) and reflected the Gestalt principle of holism, in that action can be understood only within the context of the entire field:

Every action one performs has some specific "background," and is determined by that background. A statement or a gesture which may be quite appropriate between companions in a swimming pool may be quite out of place, even insulting, at a dinner party. Judgment, understanding, perception are impossible without a related background, and the meaning of every event depends directly upon the nature of its background . . . the background itself is not often perceived, but only the "figure." (Lewin, 1935, p. 175)²

Another way Lewin's model leaned on the Gestalt notion that perception is subjective, is that needs were said to play a central role in structuring experience; wants of the individual operate like forces that guide perception of and movement within the life space. Of course, there are many forces operating at a given time on an individual, as the individual has many wants and desires simultaneously competing with one another. Behavior is as much a function of which of these internal wants is strongest as it is a function of which environmental opportunities (or obstacles) are present for promoting movement toward obtaining (or blocking obtaining) a desired object that would satisfy one of the individual's wants. Important in this thesis is

the idea that the forces that direct perception and action are joint products of the individual and the environment. Lewin conceived of these forces as being like vectors between the individual and the environmental stimuli. The strength of each of these vectors, and in turn their ability to direct behavior, is dependent on the extent to which the environmental stimulus attracts or repels the individual. Through this ability of the stimulus to "speak" to the individual, the vector between the stimulus and a particular need of the individual develops what Lewin called *aufforderungscharakter*, which is translated as "valence." Thus, vector-like forces guide behavior by providing both a direction to act and a strength associated with that direction. In their ecological approach, McArthur and Baron (1983) similarly discussed the ability of stimuli to "speak to" one's needs, labeling the ability of the environment to draw out a specific behavior unique to that situation (and the individual's needs within that situation) as "affordance."

As an example, a person studying for an exam in his or her room may be enticed by the bed to lie down or by a novel on the bookshelf to procrastinate. This is not meant to imply that the person mechanically responds to stimuli; the bed alone does not trigger sleeping, the novel reading, or the exam notes studying. Whether the person sleeps, reads, or studies depends on his or her goals within that situation and which environmental stimulus speaks to those goals most clearly.

In addition, the model states that motives direct perception and movement in the life space latently, even if such motives were initially consciously chosen: "A goal can play an essential role in the psychological situation without being clearly present in consciousness" (Lewin, 1936, p. 19). Lewin referred to consciously chosen motives and goals that nonetheless operate unconsciously as "quasi-needs." To illustrate, when a person who usually walks to work adopts the goal of driving there, objects relevant to driving that normally go unnoticed begin to "appear" to the individual. Thus, signs along Nassau Street in Princeton that forbid a U-turn and appear every 20 yards went unseen while the person walked past them every day, but they now entice him or her to attend to them. The signs have not suddenly appeared; only their ability to speak to the person's current needs has, so that they no

longer fade into the background of the perceptual field. Furthermore, a sign's ability to capture attention (the intensity of the valence) depends on the strength of the quasi-need. Does the person need to make a U-turn? If not, he or she may drive past the sign, as oblivious to it as when the individual is on foot. Finally, valence exerts its influence even though the person is not consciously "looking" for signs. The goal is operating passively: An environmental cue is linked to and can trigger the goal, initiating an intended response (despite the person's not *consciously* intending the response at the time it occurs). Thus, people are not mechanically controlled by stimuli; goals operate preconsciously and surrender control over attention, perception, and action to the environment, so that the goal can be activated by relevant cues (See Moskowitz, Gollwitzer, Wasel, & Schaal, in press).

Construction That Draws from One's Culture

Much as Lewin did, Sherif brought the Gestalt emphasis on the dynamic and holistic nature of perception to social psychology. Sherif's focus, however, was not on needs and motives, but on culture and norms as a frame of reference used in constructing perception.

Experience appears to depend always upon *relations*. . . . Perception, conceived as a case illustrative of experience in general, is the result of the organization of external and internal stimulating factors that come into functional relationship at a given time. Factors that come into such functional relationships are interdependent; they affect each other and the properties of any factor are determined partly by the properties of other factors. . . . This relational whole in our perceptions, judgments, and other experiences, involves definite frames of reference. These frames of reference prove to be not an arbitrary abstraction from the experience but a fundamental characteristic of every situation consisting of external and internal factors which form a functional whole. (Sherif, 1936, pp. 32-33; emphasis in original)

Sherif discussed two ways in which frames of reference guide the construction of knowledge. First, each time a stimulus is perceived, it may not arouse the same effect on the person: "There is no point-to-point correlation be-

tween a physical stimulus and the experience and subsequent behavior it arouses; the experience and the behavior may be, to a large extent, a function of the state of the organism at that time" (1936, p. 28). Second, different individuals perceive the same information in different ways: "Different persons may notice different characteristics of the same stimulus field . . . each culture emphasizes different aspects of the field, so that the field may take on altogether different modes of organization" (1936, p. 31). Such variations in perception both within and between individuals occur whether the external information is highly structured and well defined or not. But in ambiguous situations, where the physical stimuli do not impel an obvious meaning, the state of the organism, attitudes and anticipations, culture, and so forth exert a particularly large effect; a person does not experience confusion, but form, "total structures."

This point is made by Sherif's classic experiment utilizing the autokinetic effect to create an ambiguous situation in which a light, though stationary, was perceived as moving. When participants were asked to estimate the distance the light moved (the ambiguous judgment), their responses demonstrated how in ambiguous situations people rely on frames of reference, or norms, provided (in this case) by the responses of others to help achieve structure and meaning.

In the course of the life history of the individual and as a consequence of his contact with the social world around him, the social norms, customs, values, etc., become interiorized in him. These interiorized social norms enter as frames of reference among other factors in situations to which they are related, and thus dominate or modify the person's experience and subsequent behavior in concrete situations. (Sherif, 1936, pp. 43-44)

Phenomenal Causality

Sherif's work stresses that in ambiguous situations, where the stimuli are not highly structured, we don't experience confusion; instead, units or wholes are formed that are structured and perceived as meaningful through their order. The perceptual system moves away from random groupings, open systems, irregular patterns, seeking instead closure (*Gestalt-*

mehrdeutigkeit). This was the starting point for Heider's (1944, 1958) examination of the processes involved in interpersonal perception.

Heider (1944) asserted that when we have an experience of any sort, the psychological situation has changed, and the cause for the change must be ascertained. The origin of the changed state can be attributed either to ourselves, to others, or to some environmental force. In attaining phenomenal causality, "causal effects often play the role of data and can be thought of as stimuli through which are mediated to us properties of the origin which belong to the stable relevant psychological environment" (p. 359). Adopting the Gestalt perspective, Heider assumed that the origin of the behavior (the other person) and the change (the person's behavior and its effects) form a perceptual unit, such that the two are believed to belong together. As a consequence, the behavior is then seen as a property of the person, and the person as the cause of the change.

Heider believed that this tendency to form units between people and their actions leads to a tendency to overattribute the causes of actions to the inherent qualities (personality) of the persons performing them—"to see the cause of their successes and failures in their personal characteristics and not in other conditions. When Nietzsche says, 'success is the greatest liar,' he refers to this error in attribution" (p. 361). This attributional bias occurs despite the fact that perceived behavior is almost always caused by a combination of factors (e.g., a perceived person's disposition, situational forces, and our own actions that could have provoked the behavior; see Heider, 1958). The result, as Ichheiser (1943, pp. 151-152) put it, is that "in interpreting individual behavior as an expression and consequence of personal traits, with disregard to the all-important role played by the (social) situation, we usually misinterpret the real underlying motivation of behavior."

Heider was proposing that our perception of others is an active construction, in that we have *cognitive processes* that promote unit formation, which affects the manner in which a stimulus is categorized. But he further believed that we subjectively determine the meaning of a stimulus through the filter of our *wants*, or the value in the life space of the

person we are perceiving. "If we are inclined to disparage him we shall attribute his failures to his own person, his successes to his good luck or unfair practices" (p. 361).

Perceptual Readiness and Values

Rather than describing people as making attributional errors, Heider (1958) felt that wants, needs, expectancies, and meaning guide perception because they create "a general readiness to perceive" (p. 58). Bruner (1957) defined such readiness in interpreting a stimulus as

the accessibility of categories for use in coding or identifying environmental events. Accessibility is a heuristic concept . . . we measure the accessibility of the category apples [for example] by the amount of stimulus input of a certain pattern that is necessary to evoke the perceptual response "there is an apple" . . . The likelihood that a sensory input will be categorized in terms of a given category is not only a matter of fit between sensory input and category specifications. It depends also on the accessibility of a category. To put the matter in an oversimplified way, given a sensory input with equally good fit to two nonoverlapping categories, the more accessible of the two categories would "capture" the input. (pp. 129-132)

Accessibility leads perceivers to interpret relevant information in line with what they are perceptually ready to see, rather than some competing interpretation. If a situation is ambiguous or overly complex, and its features are difficult to fit into a category (as is often the case for perceiving people), then accessible categories guide categorization. This interpretive influence is exerted by providing a frame of reference for the stimuli to be eased into. Thus, if a stereotype of a Jewish man is activated, the behavior of that man will be seen in line with the stereotype. The greater this perceptual readiness is, according to Bruner, "(a) the less the input necessary for categorization to occur in terms of this category, [and] (b) the wider the range of input characteristics that will be 'accepted' as fitting the category in question" (1957, p. 129). Thus, the minutest of actions, and a wide range of such actions by the man, will be interpreted as being consistent with the stereotype of Jews.

But how do people become perceptually ready? Heider spoke of "perceptual styles," indicating an emphasis on chronic states of readiness that guide a person from situation to situation (see also Higgins, King, & Mavin, 1982). Bruner noted that readiness often reflects a learned probability of events—the probability that a given category frequently occurring in a given context will come to be activated in the presence of that context. But Bruner also focused on the role played by the subjective needs and values of the perceiver, in relation to a given object of perception, in structuring the interpretation of the situation.

In short, the accessibility of categories I employ for identifying the objects of the world around me must not only reflect the environmental probabilities of objects that fit these categories, but also reflect the search requirements imposed by my needs, my ongoing activities, my defenses, etc. (1957, p. 132)

Much as Lewin saw needs as operating passively to direct attention to environmental cues that facilitate movement toward achieving one's goals, Bruner believed that the role of values and needs in structuring perception is pervasive. Postman, Bruner, and McGinnies (1948) demonstrated this point by focusing on attention:

What one sees, what one observes, is inevitably what one selects from a near infinitude of potential percepts. Perceptual selection depends not only upon the "primary determinants of attention" but is also a servant of one's interests, needs, and values. (p. 142)

They demonstrated that value-laden words had different thresholds of perceptivity, depending on whether the words were valued or disliked by an individual. James (1890/1950) eloquently put forth this idea that values and needs determine what, and how easily, attention is captured by determining what we are prepared (perceptually ready) to see. James asserts that the object we wish to capture with our attention may be very weak, a small noise in the midst of a crowd, and the way not to miss it is to prepare for it by either rehearsing it mentally or actually coming into contact with an exemplar. In doing so, this allows one to stand ready to receive the outward impression.

Watching for the distant clock to strike, our mind is so filled with its image that at every moment we think we hear the longed for or dreaded sound. So of an awaited footstep. Every stir in the wood is for the hunter his game; for the fugitive his pursuers . . . the image in the mind is the attention, the preperception is half of the perception. (p. 442)

Bruner and Goodman (1947) demonstrated that needs affect not only attention, but judgment as well. They asked participants to judge the size of coins, using a knob that controlled a circle of light. They found that the value of the coins distorted judgment, so that a 5-cent coin was less distorted in size than a 25-cent coin. The greater the value of the coin, the more likely participants were to distort their perception of how big it was; and the distortion due to value of the coin was even greater for poor participants, for whom money would be especially valued.

Construction as Integration

What distinguishes modern social cognition (and dual-process models) from the models of early researchers in the field (described above) is the emphasis in the modern models on examining the processes through which judgments are produced. Solomon Asch's (1946) pioneering experiments in person perception helped bridge this transition from theorizing that employed Gestalt principles to examinations of the processes utilized in social perception. The Gestalt focus is evidenced in Asch's belief that we must "look at the facts as they interpenetrate, as they complete or fit each other, or as they clash and move away from each other. We must see what kinds of units they form, what kind of center the units have, and what principle governs the whole" (Asch, 1946, p. 60).

The focus on process is evidenced in Asch's belief that the goal in person perception is to provide a unified and coherent image of the person—one in which the perceived traits are integrated together and make sense in describing the person.³ Asch examined trait integration through presenting lists of traits about a target. An element-alistic perspective suggests that the perception produced should be a summary of the

individual traits. However, a Gestalt perspective, where the individual integrates traits, suggests that the relationship between the traits should affect one's final judgment. Asch assumed that some traits are "central," in that they serve an organizing function that integrates one's impression into a coherent Gestalt. Thus, even when diverse traits are applied to the same individual, the traits are seen in a lawful relation that produces a coherent impression. When one is cognizing about others, their "characteristics seem to reach out beyond the merely given terms of the description . . . the final account is completed and rounded. Reference is made to characters and situations which are apparently not directly mentioned in the list, but which are inferred from it" (Asch, 1946, p. 261; see also Bruner's [1957] "going beyond the information given," or what Markus [1977, p. 64], in discussing the impact of schemas, called "going beyond the information available"). Asch and Zukier (1983, p. 1240) pointed out that seeking unity should not be equated with describing perceivers as simplistic in their processing: "Persons are not simple. (However, because unity implies patterning and order, it greatly enhances the possibilities of comprehension.) It follows also that unity is not equivalent to homogeneity, nor is it at odds with contradiction and conflict."

This section began with Köhler's belief that "sensory fields are replete with qualities and properties which one neglects if one takes 'sensations' as their sole content" (1930, p. 144). It ends with Asch's bringing this principle to a process-oriented study of social cognition. Person perception is not the forming of an exact mental representation of sensations impinging on the sensory apparatus; rather, it is a dynamic process of subjectively determining how other people are to be categorized, known, and understood. Asch (1952) remarked about studying such phenomena that "it is dangerous to concentrate on the parts and to lose sight of their relations" (p. 60), as the perceptual system does not produce inferences and meaning by transcribing the environment in the way a video camera reproduces the external world. Knowledge is developed through a lens of subjectivity.

PRODUCING MEANING AND CLOSURE THROUGH REMOVING DOUBT

Doubt is an unhappy and dissatisfied state from which we struggle to free ourselves and pass into a state of belief, while [the feeling of believing] is a calm and satisfactory state which we do not wish to avoid, or change into a belief in anything else. On the contrary, we cling not merely to believing, but to believing just what we do believe . . . The irritation of doubt causes a struggle to attain a state of belief. I shall term this struggle inquiry. . . . With the doubt, therefore, the struggle begins, and with the cessation of doubt it ends.

—PEIRCE (1877, p. 66)

In the preceding section, we have outlined the support for the belief that people construct knowledge. But this raises the issue of why it is that meaning is pursued both so relentlessly and so subjectively. From Jones and Thibaut's (1958) discussion of the interaction goals that guide interpersonal perception, to Smith and Mackie's (1995) overview of social psychology, various social needs that direct action and cognition have explicitly been examined by social psychologists. Jones and Thibaut classified these goals as "maximizing beneficent social response," "securing motivational and value support," and "gaining cognitive clarity." Maximizing beneficent social response describes the human need to receive approval and to have high self-identity and social identity. Securing motivational and value support describes the human need to affiliate with others.

Social cognition focuses mostly on the final need, gaining cognitive clarity, which describes the drive to attain meaning. Bartlett (1932) spoke of the role cognitive structures play in pursuing meaning, describing people as exerting "effort after meaning." Bruner, Goodnow, and Austin (1956) described a "motive to categorize" that impels a search for meaning (invoking Tolman's [1951], notion of a "placing need"). Heider (1944, p. 359) described attribution as having "its roots in the individual's pursuit of meaning. . . . Some authors talk of a general tendency toward causal explanation, a causal drive. Oppenheimer (1922) considers it as a third basic drive beside the drives for self conservation and for conservation of the species." Allport (1954) described people as having an "insatiable hunger for explanations" (p. 170),

and as being "under constant pressure to obtain definite meanings . . . intent upon the task of organization" (p. 316).

This motive is also central in the research by Lewin's doctoral student, Zeigarnik. Zeigarnik (1927) noted a tendency for people to persevere on interrupted tasks, and suggested that this occurs because the goal of completing the task is unfulfilled. This creates a state of tension due to lacking closure, which leads people to strive toward closure by continuing to devote mental energy to the task. Lewin believed that a system that has closure is stable or at rest—frozen. A system that lacks closure instigates what he likened to a cognitive thaw: There is an "unfreezing," in which effort is exerted until the system is brought back to closure.

The Dissatisfaction of Doubt

Though the belief in the search for meaning as a fundamental drive is a commonly held assumption in dual-process models, it was also a central component of the cognitive consistency models that preceded them, such as Festinger's (1957) cognitive dissonance theory. Aronson (1992, p. 304) described dissonance theory as being about "how people try to make sense out of their environment and their behavior—and thus, try to lead lives that are sensible and meaningful." The logic was that if a person holds two cognitions that are inconsistent, he or she will experience dissonance and will need to reduce that state of discomfort by producing a coherent sense of understanding. The use of the word "need" was deliberate in this model, as it likened dissonance reduction to the pursuit of drives such as hunger and thirst. Lacking meaning produces an intolerable state—one that the individual is driven to reduce through attaining new, consistent meaning. This idea was expressed by James (1907/1991, p. 29) when he stated:

The individual has a stock of old opinions already, but he [*sic*] meets a new experience that puts them to a strain. Somebody contradicts them; or in a reflective moment he discovers that they are incompatible; or desires arise in him which they cease to satisfy. The result is an inward trouble to which his mind

till then had been a stranger, and from which he seeks to escape by modifying his previous mass of opinions. He saves as much of it as he can, for in this matter of belief we are all extreme conservatives.

Striking is the similarity between Festinger's proposal of the dissonance reduction drive, James's discussion of an "inward trouble," and Peirce's description of "inquiry" in the quotation that opens this section. Each invokes the notion of a tension state created by the existence of an unsettled opinion; each describes a process of seeking to reduce that state; and, finally, each notes the individual's wish to avoid returning to that state (preferring instead the relative calm of having a system in balance, without tension).

The existence of dissonance, being psychologically uncomfortable, will motivate a person to try to reduce the dissonance by achieving consonance. When dissonance is present, in addition to trying to reduce it, the person will actively avoid situations and information which will likely increase the dissonance. (Festinger, 1957, p. 3)

Thus, central to both Lewin's and Festinger's models (along with subsequent cognitive consistency theories) was the pragmatist dogma articulated by Peirce (1877), and later by John Dewey (1929). People actively avoid having their knowledge upset and faced with contradiction; the arousal of doubt shakes them from the calm and satisfactory state of firmly knowing what they feel to be the "truth." From this perspective, the experience of having truth is not a reflection of the actual external realities, but a state of mind whereby people are secure in their beliefs, free of doubt: "The true conclusion would remain true if we had no impulse to accept it; and the false one would remain false though we could not resist the tendency to believe in it" (Peirce, 1877, p. 64). People do not seek meaning by discerning absolute truth—by objectively examining and accurately representing the data. They simply seek to terminate doubt in a manner that produces sufficient closure, allowing them to experience having arrived at meaning.

The sole object of inquiry is the settlement of opinion. We may fancy that this is not enough for us, and that we seek not merely an opinion, but a true opinion. But put this fancy to the test and it proves groundless; for as soon as a firm belief is reached we are entirely satisfied, whether the belief be false or true. (Peirce, 1877, p. 66)

Assimilation: Constancy in the Mind's Meanings

We now see one consequence of conceiving of the quest for meaning as a process of eliminating, and actively avoiding the return of, doubt: Individuals accept any sufficiently held belief to be a reflection of truth. James (1907/1991, pp. 88–90) put this in the ultimate pragmatic terms, defining truth not as an accurate reflection of reality, but as those ideas that

we can assimilate, validate, corroborate and verify . . . the truth of an idea is not a stagnant property inherent in it. Truth happens to an idea. It becomes true, is made true by events. Its verity is in fact an event, a process: the process namely of its verifying itself, its verification . . . from this simple cue pragmatism gets her general notion of truth as something essentially bound up with the way in which one moment in our experience may lead us toward other moments which it will be worth while to have been led to. (Emphasis in original)

But there is an additional consequence of conceiving of the attainment of meaning and the "experience" of truth in this fashion. Because people feel sufficiently confident that the beliefs they have are correct, they cling tenaciously to these beliefs, despite the presence of contradicting evidence. The process of inquiry leads people to transform the data, assimilating them to fit with and maintain prior structures. This is how Aronson (1992) described the dissonance reduction process, stating that in trying to produce meaning "we frequently get ourselves into a tangled muddle of self-justification, denial, and distortion" (p. 304).

James described the act of fitting new information to be consistent with what we already believe as the most important of all the features of our mental structure. He referred

to this tendency toward assimilation and perceptual unity as "the principle of constancy in the mind's meanings." We do not merely construct what we see; we see what we already believe.

[The] sense of sameness is the very keel and backbone of our thinking . . . we do not care whether there be any real sameness in things or not, or whether the mind be true or false in its assumptions of it. Our principle only lays it down that the mind makes continual use of the *notion* of sameness . . . the outer world might be an unbroken flux, and yet [we] perceive a repeated experience. (1890/1950, pp. 459–460)

Thus, contradictory evidence is dealt with in a manner that allows the structure to be maintained (e.g., ignoring, subtyping, and manipulating new data). "Observe the part played by the older truths . . . their influence is absolutely controlling. Loyalty to them is the first principle . . . for by far the most usual way of handling phenomena so novel that they would make for a serious rearrangement of our preconceptions is to ignore them altogether" (James, 1907/1991, p. 30). This position was very much tied to James's pragmatic conception of truth, whereby beliefs and judgments that we hold to be true can "pass" as true as long as they are functional; they produce good results. James (1907/1991, p. 92) asserted that beliefs arrived at through assimilation and reliance on prior constructs "pass" because they typically work:

All things exist in kinds and not singly . . . so that once we have verified our ideas about one specimen of a kind, we feel free to apply them to other specimens. . . . A mind that habitually discerns the kind of thing before it, and acts by the law of the kind immediately, without pausing to verify it, will be a "true" mind in ninety-nine out of a hundred emergencies.

Although keeping old knowledge unaltered, to be utilized time and again, is functional, James did not believe that people were incapable of breaking from their set knowledge. This is simply a default strategy, that, barring contradiction, will be followed. But, as James (1907/1991) told his audience at Co-

lumbia University, contradictory evidence could be perceived:

You listen to me now with certain prepossessions as to my competency, and these affect your reception of what I say, but were I suddenly to break off lecturing, and begin to sing "We won't go home till morning" in a rich baritone voice, not only would that new fact be added to your stock, but it would oblige you to define me differently. (p. 74)

Given an inability to hold to a prior set, the tension of doubt gets reintroduced, setting people off on a quest for greater certainty and new beliefs. But the point at hand is not that people are incapable of altering beliefs; they simply avoid doing so, preferring to see sameness.

Assimilation in Person Judgment

Gestalt psychologists proposed, in their notion of "holism," that pieces of information fit together and make sense. When they do not, there is confusion, which needs to be removed so that coherence and closure can be achieved. The idea that this is accomplished through assimilating new information to prior structures is captured by the principle of *prägnanz*: The products of perceptual organization tend to be structured in the clearest, least ambiguous way. There is a tendency toward perceptual rigidity, toward intolerance of ambiguity, and toward viewing new experiences from the standpoint of an existing set (e.g., Block & Block, 1951; Frenkel-Brunswick, 1949).

Heider (1944) directly incorporated into the groundwork for attribution theory the idea that a lack of closure and simple structure produces tension, which the perceiver is motivated to reduce. Earlier we have outlined Heider's belief that people seek to form perceptual units that serve to link an actor with an action; this causes them to impute causal responsibility for the act to the actor, and to tend to see the two as corresponding (Jones, 1979, referred to this as the "correspondence bias"). We have detailed how this perceptual bias grew out of the Gestalt principle of closure—the perceptual system's tendency to parse the life space into coherent units, to

seek structure. We have described this earlier as if it were relatively void of motivational influences—as a function of Gestalt ideas about how the cognitive system operates.

However, Heider believed that the reason people seek closure is to illuminate the life space with meaning, to alleviate the discomfort of doubt. When behavior is observed, it requires an explanation. According to Heider, a situation once comprehended has now been changed to some extent, and this upset system is in a state of imbalance—lacking meaning. Attributing the cause for an event as lying in the dispositional qualities of others is one type of resolution to this tension and doubt, enabling a person to achieve meaning and closure: “The organism is enabled to reinstate an equilibrium even when otherwise irreversible changes have disturbed it” (1944, p. 361). Heider (1958) believed that equilibrium is reinstated (meaning is achieved) by forming person-action units not only because this transforms behavior into disposition, thus successfully providing meaning (by placing causal weight on the person), but because this is the simplest way to achieve closure: “Persons, as absolute causal origins, transform irreversible changes into reversible ones. . . . The person can represent the disturbing change in its entirety” (p. 5).

Heider (1944) further posited that the tendency toward unit formation creates a reliance on *assimilation*, whereby an act is seen as consistent with some “perceptually ready” interpretation. Expectations surrounding a perceived person color the interpretation of the behavior of that person.⁴ Allport (1954) described a similar process in explaining the ubiquity of stereotyping: People rely on stereotypes to assimilate information about groups, and in so doing are constantly supporting and maintaining the stereotypic categories while using them to structure the world (for a more recent review of the effects of stereotypes on judgment and recall, see Stangor & Lange, 1994). He described stereotypes as stubborn, resistant to change, even resistant to contradictory evidence. People can avoid such inconsistencies by a process of “refencing,” or subtyping, creating separate categories for members of groups who break the mold. They selectively admit new information to a category only if it confirms their prior beliefs.

Our experience in life tends to form itself into clusters, and while we may call on the right cluster at the wrong time, or the wrong cluster at the right time, still the process in question dominates our entire mental life. . . . Open-mindedness is considered to be a virtue. But, strictly speaking, it cannot occur. A new experience must be redacted into old categories . . . categorization assimilates as much as it can to the cluster. There is a curious inertia in our thinking. We like to solve problems easily. We can do so best if we can fit them rapidly into a satisfactory category and use this category as a means of prejudging the solution. (p. 20)

Warranted Assertibility: Producing Sufficient, Rather Than Accurate, Knowledge

Aside from pointing out the tendency toward assimilation that accompanies the drive to avoid doubt, our discussion of the pursuit of meaning as a process of inquiry raises a separate issue. The manner in which people pursue knowledge was described by Peirce as not the most accurate method possible, but a process of accepting any belief that seems “enough” to remove doubt. Jones and Davis (1965) stated that “the perceiver seeks to find sufficient reason why the person acted. . . . Instead of a potentially infinite regress of cause and effect . . . the perceiver’s explanation comes to a stop when an intention or motive is assigned that has the quality of being reason enough” (p. 220). As discussed above, what one will deem to be “reason enough” will vary according to one’s goals and expectancies. A prejudiced person might accept seeing a member of an ethnic minority giving an ambiguous shove as reason enough to come to the conclusion that the minority individual is violent (e.g., Duncan, 1976). As Allport (1954, p. 7) stated, “It is not easy to say how much fact is required to justify a judgment. A prejudiced person will almost certainly claim that he has sufficient warrant for his views.”

The idea that people seek “sufficient” rather than accurate knowledge, attempting to alleviate a tension state instigated by doubt, is implicit in dual-process models. The very notion of accurate, individuated, systematic processing as one extreme of the processing continuum (and not the default level of processing people use) signifies that absolute accuracy is

not what these models view people as typically striving for. For example, the heuristic-systematic model describes a “sufficiency threshold,” whereby people stop processing once they have attained a sufficient level of confidence in their judgment (see also Chen & Chaiken, Chapter 4, this volume; Bohner, Moskowitz, & Chaiken, 1995). Because it is effortful, systematic processing is not likely to occur in the absence of specific motivating circumstances (e.g., Thompson, Roman, Moskowitz, Chaiken, & Bargh, 1994). The default processing strategy is the heuristic route. But such economy-minded processors become motivated to process systematically when a feeling of insufficiency arises, such as when heuristics produce an actual confidence that falls short of the sufficiency threshold (their desired confidence). Later in the chapter, we return to discuss factors that lead people to abandon a reliance on heuristics and exert the cognitive effort to overturn beliefs.

PREPARING FOR ACTION AND EXPERIENCING CONTROL

Let me begin by reminding you of the fact that the possession of true thoughts means everywhere the possession of invaluable instruments of action; and that our duty to gain truth, so far from being a blank command from out of the blue, or a “stunt” self imposed by our intellect, can account for itself by excellent practical reasons. . . . We live in a world of realities that can be infinitely useful or infinitely harmful. Ideas that tell us which of them to expect count as the true ideas. . . . The possession of truth, so far from being here an end in itself, is only a preliminary means towards other vital satisfactions.

—JAMES (1907/1991, p. 89)

It has been posited above that in person perception we seek to end doubt; the goal is to give meaning to the action of others. But why do we desire meaning? Why is this a fundamental drive? James’s (1907/1991) pragmatic definition of “truth” has the answer to this question built in. To pragmatists, truth is the arrival at meaning that has *practical use* for us: “All realities influence our practice . . . and that influence is their meaning for us” (p. 24). Truth is conceived of as something *instrumental*—an idea that is capable of carrying us from one experience to the next, linking things in a satisfactory fashion. Without attaining this type of practical meaning, we are

ill prepared to act in our environment. With it, as is seen in the quotation that begins this section, we are armed with invaluable instruments of action. As James stated, we seek meaning because “beliefs are really rules for action. . . . To attain perfect clearness in our thoughts of an object, we need only consider what conceivable effects of a practical kind the object may involve—what sensations we are to expect from it, and what reactions we must prepare” (pp. 23–24).

Social psychologists adopted James’s (1890/1950) functionalist declaration that thinking is first, and always, for doing. Allport (1954, p. 167) paraphrased this pragmatic view when he stated that “thinking is basically an endeavor to anticipate reality. By thinking we try to foresee consequences and plan actions that will avoid whatever threatens us and will bring our hopes and dreams to pass. There is nothing passive about thinking.” Bruner (1957) relied on Peirce’s (1878) pragmatic belief that meaning is tied to function; the behavioral consequences of the thing are categorized (e.g., a pencil can write, a diamond is hard). “Let us ask what we mean by calling a thing *hard*. Evidently, that it will not be scratched by many other substances” (Bruner, 1957, p. 126).

Predictive Veridicality

“Predictive veridicality” is a term used by Bruner (1957) to indicate that the truth of an idea is bound up with the extent to which the idea is predictive (i.e., it provides information about the function of the thing categorized). One achievement of categorization is

the direction it provides for instrumental activity. To know by virtue of discriminable defining attributes and without need for further direct test that a man is “honest” or that a substance is “poison” is to know in *advance* about appropriate and inappropriate actions to be taken. . . . The moment an object is placed in a category, we have opened up a whole vista of possibilities for “going beyond” the category by virtue of the superordinate and causal relationships linking this category to others. (Bruner et al., 1956, pp. 12–13; emphasis in original)

If an object is classified as an “orange,” it not only derives meaning from this classification;

it also allows us to predict what we can do with it—we can eat it.

But there is a danger to arriving at meaning through categorizing, assimilating new data to fit with existing knowledge, and then generalizing from the category to the current experience. The danger is that one's existing categories are not always adequate for explaining the new information. Providing a "satisfactory" explanation, for the sake of preparing appropriate action, can lead either to an incorrect meaning being attained (a miscategorization) or to an incorrect generalization being made (going *too far* beyond the information). James (1907/1991) asserted that defining meaning as that which satisfactorily fits with existing categories is functional because it works most of the time. But he recognized that opponents would view this conception of truth as "a sort of coarse lame second-rate makeshift article of truth. Such truths are not real truth. Such tests are merely subjective. Against this, objective truth must be something non-utilitarian, haughty, refined, remote, august" (p. 32). Bruner (1957) agreed with James that categorization is both functional and ubiquitous, but he also cautioned that attempting to predict appropriate action through the process of categorization produces judgments that are only varyingly veridical:

The meaning of a thing, thus, is the placement of an object in a network of hypothetical inference concerning its other observable properties, its effects, and so on. . . . All of this suggests, does it not, that veridicality is not so much a matter of representation as it is a matter of what I shall call model building. In learning to perceive, we are learning the relations that exist between the properties of objects and events that we encounter, learning appropriate categories and category systems, learning to predict and to check what goes with what. (p. 126)

In assigning a percept to a category (items with similar features and functions), the veridicality of the inferences that result depends upon the goodness of fit between the thing being categorized and the category to which it has been assigned. Though categorization may be imperfect—"[categories] represent with varying degrees of predictive veridicality the nature of the physical world in

which the organism operates" (Bruner, 1957, p. 129)—it typically can provide reliable information about function. Going beyond the information given in this fashion allows one to predict as-yet-untested properties of the person/thing being categorized. As a result, it allows one to prepare appropriate action.

Control

To this point, we have discussed various achievements of categorizing in a manner that is directed by the accessible constructs and wants of the individual. First, this has been described as the process by which meaning and a feeling of "experiencing having truth" are attained. We have described this as being sought because lacking such a state produces an uncomfortable tension that the individual is driven to reduce. The tension has been said to be associated with the fact that survival in the physical and social world is difficult, if not impossible, without being able to predict what others are like.⁶ Such prediction affords the individual a menu of appropriate behavior, a guideline for action. However, in addition to this pragmatic function, the ability to predict what can be expected from others also provides a sense of control for the individual over his or her outcomes. Rather than being subjected to the random effects of the social world, the person can control the interactions and situations he or she enters into, and thus can play a role in determining what happens. Heider (1958, p. 71) stated:

In Lewin's (1936) terms, an unstructured region, that is, a region whose properties are not known to the person, can be considered a barrier which makes action and therefore control difficult if not impossible. Perception helps to structure the region and to remove this barrier.

THE NOTION OF LIMITED CAPACITY AND THE LEAST-EFFORT PRINCIPLE

The Notion of Limited Capacity

Millions of items of the outward order are present to my senses which never properly enter into my experience. Why? Because they have no *interest* for me. My *experience* is what I agree to attend to. Only those items which I *notice* shape my mind—without selective

interest, experience is an utter chaos . . . the consciousness of every creature would be a gray, chaotic, indiscriminateness, impossible for us even to conceive.

—JAMES (1890/1950, pp. 402–403; emphasis in original)

We arrive now at the final set of assumptions in the rather functionalistic perspective that characterizes social cognition in general and dual-process models in particular. People construct experience to provide meaning, and they seek meaning to end doubt, to prepare for action, and to gain subjective feelings of control. But why settle for a mere end to doubt? Why cling to past knowledge? Why not seek accuracy and complete verification of each stimulus? If the functional view is maintained, this is deemed not possible for the processing system, because cognitive capacity is bounded and limited. In the quotation above, James characterized the stimulus world as millions of items that bombard the senses, and argued that unless the intake is limited somehow—unless structure is imposed on it from within—experience will be chaotic and meaningless. James (1907/1991) paraphrases Kant's view of experience (*gewühl der erscheinungen, rhapsodie der wahrnehmungen*) as something to be discovered rather than passively labeled—"a motley which we have to unify by our wits" (p. 76). Lippmann (1922) stated that the senses are met by the "great blooming, buzzing confusion of the outer world." He echoed James's notion that experience and interest serve to limit our intake. We handle the confusion of the stimulus world not by scrutinizing each element in it, but by choosing what to attend to—that "which we have picked out in the form stereotyped for us" (p. 55).

Bruner et al. (1956) began their book with this point (p. 1):

We begin with what seems a paradox. The world of experience of any man is composed of a tremendous array of discriminably different objects, events, people, impressions. There are estimated to be more than 7 million discriminable colors alone . . . [and even subtle differences] we are capable of seeing, for human beings have an exquisite capacity for making distinctions. But were we to utilize fully our capacity for registering the differences in things and to respond to each event encountered as unique, we would soon be

overwhelmed by the complexity of our environment. . . . [It] would make us slaves to the particular. . . . [The resolution to this paradox] is achieved by man's capacity to categorize. To categorize is to render discriminably different things equivalent, to group the objects and events and people around us into classes and to respond to them in terms of their class membership.

The phenomenological paradox they propose is that despite being capable of making fine distinctions, we are nonetheless limited in our capacity to do so. The external world is too complex, and attempts to verify and process each stimulus to the fullest degree would render us frozen and inactive, slaves to the details of the environment. Thus, "by categorizing as equivalent discriminably different events, the organism *reduces the complexity of the environment*. It is reasonably clear 'how' this is accomplished. It involves the abstraction and use of defining properties in terms of which groupings can be made" (p. 12; emphasis in original). The eucalyptus and sequoia are discriminably different, but are reacted to similarly; they evoke the same response, "tree." Categorization frees us from being slaves to the particular, reducing the "*necessity of constant learning* . . . we do not have to be taught *de novo* at each encounter that the object before us is or is not a tree. If it exhibits the appropriate defining properties, it 'is' a tree" (p. 12; emphasis in original).

The Principle of Least Effort

The assumption that the capacity for attending to and processing information is limited led researchers interested in attention (e.g., Broadbent, 1958; James, 1890/1950; Kahneman, 1973; Logan, 1980; Treisman & Geffen, 1967) to discuss the metaphor of a preconscious filter that selects what is consciously attended to from the environment. Boring (1932) believed that what an organism picks out is what is important to it for survival and welfare. This metaphor was adopted by social psychologists interested in how people attend to, recall, and judge information about the social world. Kelly (1955) believed that each person's mental constructs can serve as a "scanning pattern which a person continually projects upon his world. As he sweeps back

and forth across his perceptual field he picks up blips of meaning" (p. 145). Bruner (1957) assumed that categorization processes serve to simplify the world, leading people to reserve their refined discriminatory skills only for that with which they are specially concerned. Categories are preconsciously used to promote inferences and "the ability to use minimal cues quickly in categorizing the events of the environment is what gives the organism its lead time in adjusting to events. Pause and close inspection inevitably cut down on this precious interval for adjustment" (p. 142). This implies that the information-processing default is to use simplifying strategies "in the service of cognitive and emotional economy" (Jones & Thibaut, 1958, p. 152), but more complex strategies can be called into use when needs and goals are engaged. Similarly, Tajfel (1969) stated that the effort used to pursue meaning "works within the limits imposed by the capacities of the individual" (p. 79), and that "for reasons of cognitive economy [meaning] will tend toward as much simplification as the situation allows for" (p. 92).

Allport (1954) labeled the fact that people seek to maximize outcomes with the least amount of work possible, choosing cognitive economy as a strategy to allow them the ability to maneuver through a complex stimulus environment, as "the principle of least effort." This is a functional account of how people cope with limited resources: They avoid effortful expenditures of cognitive energy by developing simplifying strategies, such as assimilation, stereotype use, and a reliance on heuristics and schemas. This is seen in Kelley's (1973) definition of a "schema" as

abstract ideas about the operation and interaction of causal factors. These conceptions [enable perceivers to make an] economical and fast attributional analysis, by providing a framework within which bits and pieces of relevant information can be fitted in order to draw reasonably good causal inferences. (p. 115)

We see this assumption reflected in a wide range of dual-process models: Langer's (1978) proposal that processing is often "mindless"; Bargh's (1984) discussion of automatic processing; Fiske and Taylor's (1984) notion of humans as "cognitive misers"; Gilbert and

Hixon's (1991) suggestion that stereotype use is ubiquitous because people avoid "the trouble of thinking"; Sedikides and Skowronski's (1991) "law of cognitive structure activation," in which assimilation is said to predominate; Eagly and Chaiken's (1993) description of a "least-effort principle" that promotes a reliance on heuristics; and Uleman et al.'s (1996) discussion of unintended inferences. But the idea of a least-effort principle in psychology can be traced back to James (1890/1950):

The stream of our thought is like a river. On the whole, easy simple flowing predominates in it, the drift of things is with the pull of gravity, and effortless attention is the rule. But at intervals a log-jam occurs, stops the current, creates an eddy, and makes things temporarily move the other way. If a real river could feel, it would feel these eddies and setbacks as places of effort. (p. 451)

James (1907/1991) named his dual-process theory a "pluralistic monism," with his intent being to characterize two types of individuals—an idealistic, religious, free-willist, theory-driven, monistic type versus a materialistic, fatalistic, data-driven, pluralistic type. But he warned that people are not as uniform as these characterizations suggest; they possess qualities on both sides of the line:

Most of us have a hankering for the good things on both sides of the line. Facts are good, of course—give us lots of facts. Principles are good—give us plenty of principles. The world is indubitably one if you look at it one way, but as indubitably is it many, if you look at it in another . . . your ordinary philosophic layman never being a radical, never straightening out his system, but living vaguely in one plausible compartment of it or another to suit the temptations of successive hours. (pp. 9–10)

Despite a belief in a default strategy of seeing constancy and relying on prior theories, there is the clear exposition of the idea that the "temptations of successive hours"—that is, fluctuations across time and situations in a person's needs and goals—can lead to a shift from a theory-driven approach to processing the world to a data-driven approach. People are capable of doing more, because they possess an exquisite capacity for making distinctions, but they often choose to do less.

CONCLUSIONS

Evaluation of other persons, important as it is in our existence, is largely automatic, one of the things we do without knowing very much about the "principles" in terms of which we operate. Regardless of the degree of skill which an adult may have in appraising others, he [sic] engages in the process most of the time without paying much attention to how he does it.

—TAGIURI (1958, p. ix)

The dual-process models that lean on the set of assumptions concerning limited capacity, least-effort processing, seeking an end to doubt, constructing meaning, and attaining control all describe people as having a default strategy in which "truth" is achieved at the cost of systematic attempts to examine the data. Instead, heuristics, schemas, stereotypes, and expectancies are used to draw conclusions. Bargh (Chapter 18, this volume) tells a fable of how this description of the individual as "cognitive miser" has evolved in recent years to that of a "cognitive monster." The metaphor is used to indicate that perceivers are so adept at effortless processing that much of their social life proceeds automatically—even those aspects of it that are somewhat "ugly" or undesirable. For example, Devine (1989) has concluded that stereotypes are automatically activated, and that only through conscious exertion of the will can people overturn such thoughts and be unprejudiced. Gilbert, Krull, and Malone (1990) state that people automatically believe any assertion put to them, and only subsequently consider its truth or falsity through conscious exertion of the will.

Researchers have rebelled against this extreme position in the 1990s, attempting to "cage" it (thus extending Bargh's "monster" metaphor) by showing the limits to automatic processing. Bargh's point in his thesis is that in attempting to demonstrate that automaticity is indeed limited when discussing social perception, these researchers have attempted too zealously to reassert the role of free will (and to squash the image of humans as mindless automatons), ignoring methodological and interpretive flaws in the findings. This is a point worth noting, for we should opt for rigor over righteousness in science. However, like all monster stories, Bargh's is a bit of a fiction. For the rigor we should exercise when examining attempts to control automaticity should also be exercised when examining the

evidence for automaticity in social perception. Such examinations would reveal that the monster is not quite what it seems when examined with closer scrutiny (for critiques of the evidence for automaticity, see Gilbert & Hixon, 1991; Lepore & Brown, 1997; Locke, Macleod, & Walker, 1994).

What this discussion reveals is that issues centering around control over cognition are still open to debate and will be moving to the forefront as dual-process models move into the next millennium. Questions concerning the nature of control, and even the possibility of control (given the "cognitive miser/monster" we have described), must be addressed. Dual-process models, to this point, have implicitly conceived of control and exertion of the will as operating via conscious intent—that is, as something effortful. Initial "automatic" responses can be later overturned through cognitive effort, by exerting what Bruner (1957) called a "closer look" at the information. What factors cause people to lack confidence in their judgments and fail to have a sense of closure that will motivate such "close looks"? There have been two general responses to this question (e.g., Chen & Chaiken, Chapter 4, this volume). One has been that this occurs when the information is so inconsistent with prior structures that it challenges the perspective of perceivers and undermines their confidence in judgments arrived at through least-effort processing (for a review, see Moskowitz, 1996). A second response has been that this occurs when "close looks" are willfully chosen. For example, people can desire accuracy (e.g., Tetlock, 1985), thus rendering judgments arrived at through least-effort processing insufficient (see Fiske & Neuberg, 1990). People are not doomed to be cognitive misers, but are "flexible processors" (e.g., Uleman et al., 1996)—capable of elaborate processing when they desire greater certainty in their judgments.

Utilizing "close looks" to control cognition has been shown to be successful at reversing the effects of least-effort processing (see Gollwitzer & Moskowitz, 1996). However, from Bruner (1957) to Bargh (Chapter 18, this volume), reasons have been put forth for us to suspect the utility in everyday life of relying on a regimen of close looking. If control is conceived of as effortful and conscious—capable only of "debiasing" judgment from the effects of automatic responses, rather than preventing

such responses from ever occurring—then it means that for control to be successful people must be (1) aware of such biases, (2) motivated to “debias,” and (3) in possession of cognitive capacity to exert the required effort. But the functional approach we have reviewed in this chapter has suggested that least-effort processing has evolved as a default processing strategy precisely because people typically lack at least one of these elements. The cost of constantly taking “close looks” is too high for organisms that possess only limited capacity. Bruner (1957) stated:

With enough time and testing of defining cues, “best fit” perceiving can be accomplished for most but not all classes of environmental events with which the person has contact. There are some objects whose cues to identify are sufficiently equivocal so that no such resolution can be achieved, and these are mostly in the sphere of so-called interpersonal perception: perceiving the states of other people, their characteristics, intentions, etc. on the basis of external signs. And since this is the domain where misperception can have the most chronic if not the most acute consequences, it is doubtful whether a therapeutic regimen of “close looking” will aid the misperceiver much in dealing with the more complex cue patterns. But the greatest difficulty rests in the fact that the cost of close looks is generally too high under the conditions of speed, risk, and limited capacity imposed upon organisms by the environment. (pp. 141–142)

Although goals are capable of consciously operating to cause people to initiate closer looks, goals can also preconsciousely operate to affect initial categorization. The future for dual-process models must contain an examination of this possibility for preconscious control—one not dependent on “debiasing” or reversals of effects. We have described earlier how preventing least-effort responses from occurring was clearly articulated as possible by Lewin (1936). We conclude this chapter with a discussion of two domains (stereotyping and the truth value of new information) in which motivated control has previously been conceived of as possible only through conscious acts of will, and we instead suggest a role for passive, silently operating, preconscious control.

Preconscious Control and Stereotype Activation

We have noted earlier that Lewin (1936) believed that intentions (“quasi-needs”) direct movement in the life space without an individual’s being conscious of their impact. Instead, the individual surrenders activation of a motive–plan structure to the environment and the presence of the appropriate cues (those that have valence). Postman et al. (1948) adopted this belief when they asserted that attention is determined by needs and values that preconsciousely sensitize the individual to relevant stimuli. Bargh’s (1990) “auto-motives” model directly updates this notion. Bargh suggested that goals are knowledge structures that can be activated, much as any other category can be, and thus are capable of “capturing” relevant stimuli and determining the nature of categorization. Whether a goal is activated upon exposure to a stimulus depends on that goal’s having been chronically and habitually paired with the stimulus. Despite the fact that such goal strivings stem from an initial conscious goal intention, the repeated pairing of a goal with a set of situations leads to the eventual movement of goal pursuit from consciousness.

Gollwitzer (1993) similarly applies Lewinian theory to explaining how behavioral control can be willed or intended, yet can still be passive and unconscious. Gollwitzer has defined an “implementation intention” as the process of committing oneself to when, where, and how a goal is to be pursued, as well as what course the subsequent goal pursuit is to take. Such volitional acts connect a goal-directed intention to behave with an anticipated situational context that will allow one to implement the plan of action. The purpose of such intentions is to promote the initiation and efficient execution of goal-directed activity. When relevant cues (occasions or opportunities) are encountered, they prompt the intended behavior. Thus, an initially conscious intent operates to control behavior automatically.

Moskowitz et al. (in press) have adopted this logic and proposed that stereotype activation can be controlled through passively operating goals to be egalitarian (activated by relevant environmental cues). The logic is that both chronically operating goals and tempo-

rarily adopted goals (e.g., those adopted through an implementation intention) can interfere with the activation of social stereotypes by promoting the activation of a goal construct instead. In accordance with Allport’s (1954) belief that what gets activated by the presence of a member of a stereotyped group is whatever is most dominant in the mind of the perceiver, Moskowitz et al. propose that egalitarian goals can be more dominant than stereotypes, passively capturing the stimulus instead of the stereotype (see also Moskowitz & Salomon, in press).

Fiske (1989) has discussed stereotype control using a similar language—“dominant” (or “easy”) choices versus “less dominant” (or “hard”) choices. In her analysis, the hard choice is the motive to be egalitarian; the easy choice or dominant goal is the desire to seek simple structure and rely on stereotypes. The point is that both types of motives are “intended,” even though the easy choice is a type of intent that gets carried out without awareness or a conscious feeling of having choice from moment to moment. This makes the case that goals promoting stereotyping are intended (and thus an individual performing a goal-relevant behavior is responsible for stereotypic actions), regardless of whether the individual is *aware* of the goal driving the current behavior. At some point even dominant responses have been consciously chosen, and their subsequent routinization does not make action “unintended.” Moskowitz et al. (in press) show that egalitarianism can be the dominant rather than the hard choice; preconscious stereotype control can be triggered, rather than preconscious stereotype activation. This means that control can be exercised several ways: (1) if one initiates conscious goals with the intended effect of removing bias, (2) if one initiates conscious goals with the incidental effect of removing bias, and (3) if one develops passively operating goals that prevent the activation of a stereotype and the occurrence of bias.⁸

Preconscious Control in Social Judgment: Metacognition and Correction Processes

The association of mental control with a correction process that requires accuracy, awareness, and effort, and that follow a biased, low-effort, initial judgment, is also common-

place in research on how people “decontaminate” (Wilson & Brekke, 1994) or “correct” (Wegener & Petty, 1995; Strack & Hanover, 1996) their thinking. Gilbert et al. (1990) argued that people represent the truth value of information by accepting information as true automatically, and by correcting this judgment only after expending additional cognitive effort. The logic for this position is drawn from a philosophical debate Gilbert et al. pose between Descartes and Spinoza.

Descartes articulated a position we generally take for granted: First we understand and make sense of information, and then we decide whether it is true or false. For example, Descartes asserted that “I do not see that . . . [Nature] teaches me that for those diverse sense-perceptions we should ever form any conclusion regarding things outside us, without having carefully and maturely examined them beforehand” (1641/1931, p. 97). Gilbert et al. (1990) state that, in contrast to this Cartesian position, Spinoza believed that comprehending information and accepting it as true are two names for the same psychological event. That is, we automatically represent information as true upon comprehension, if only for a fleeting moment. Changing this default “true” response to “false” requires an extra cognitive step that is not automatic. In an experimental test of this debate, Gilbert et al. found that distracting people while they were trying to learn the truth value of information resulted in their mistakenly thinking of false information as “true” more often than wrongly thinking of true information as “false.” Since the bias did not emerge without distraction, Gilbert et al. argued that the distraction prevented people from making the effortful change of representation from true to false, leaving them with only the default automatic representation in memory. In other words, our intuitions may tell us we are Cartesian processors, but Gilbert et al.’s evidence suggests that we may be Spinozan processors.

The idea of heuristic responses and systematic corrections has also been invoked to explain a number of phenomena in person perception, such as the correspondence bias (e.g., Gilbert, Pelham, & Krull, 1988) and priming phenomena (e.g., Martin, Seta, & Crelia, 1990). Gilbert et al. (1988) concluded that dispositional inferences occur relatively automatically (see Uleman & Moskowitz,

1994), and that correcting such inferences involves controlled responses that require processing resources. Moskowitz and Skurnik (in press) review the role of correcting for initial inferences in assimilation and contrast effects. In priming studies, participants are exposed to trait-relevant information in such a way as to make the information more accessible in memory. After the priming task, an ostensibly separate judgment task is introduced, in which participants learn about and report their impressions of a "target" person (e.g., Srull & Wyer, 1979; Higgins, Rholes, & Jones, 1977). Generally, participants who have been exposed to primes and participants who have not been primed report different impressions of the target person, despite the fact that the priming task has no logical bearing on resolving the vagueness or ambiguity of the target person. Martin (1986) and Lombardi, Higgins, and Bargh (1987) found that subtle priming produced assimilation effects, but that blatant priming produced contrast effects.

Martin (1986) explained this difference with reference to accuracy motivation (e.g., Thompson et al., 1994). Specifically, when priming is blatant, people become aware of the possible biasing influence of the prime words on their impressions; in the interest of giving a bias-free response, they avoid using the trait construct associated with the prime words when reporting their final impression (resulting in a contrast effect). Martin et al. (1990) found that when participants lacked the motivation or ability to expend cognitive effort, blatant priming led to assimilation effects rather than to contrast effects. Martin et al. (see also Martin & Achee, 1992) reasoned that using a primed construct in impression formation is a relatively low-effort, heuristic response, but that enacting a goal to correct the impression after it has been formed requires cognitive capacity. An expansion of this account of assimilation and contrast effects in priming comes from Wegener and Petty (1995; Petty & Wegener, 1993). These researchers suggest that contrast effects in priming paradigms are the result of participants' using a theory of influence to guide their corrections. That is, if participants believe that the primes will make them assimilate, they will engage corrective processes (when they are able to do so) to counter this perceived influence. If participants believe

that primes will make them contrast their judgments, then correction attempts will lead them to assimilate. In other words, people have an initial judgment that they adjust in light of their theories about the nature of inappropriate influences.

It is important to point out, however, that "theories" or beliefs about the impact of events on mental processing are often employed in initial judgments as well as in later adjustments to judgment. Heuristic cues and theory-based corrections should not be thought of as separate bases for judgment; in fact, a belief about the meaning of heuristic cues is often required in order for them to be employed in judgment. For example, research on the availability heuristic (Tversky & Kahneman, 1973; Schwarz et al., 1991) suggests that when people estimate the frequency or recency of events, they do so in part by considering the ease with which examples of the events come to mind, separately from any aspect of the content of the examples. This habit can lead to error, because many aspects of events that are unconnected with frequency or recency (such as vividness or correspondence with prior expectations) can contribute to ease of recall. Furthermore, it is difficult to tell whether ease of retrieval of an event is the result of the event's frequency, recency, or correspondence with expectations. The availability heuristic can be thought of as a metacognitive misattribution.

What makes a given feature of the context plausible as the source of a reaction is a "theory" or belief about the connections among accessibility, mental processing, and the immediate context. In a sense, such beliefs license the use of heuristic cues as information in judgment processes. In the availability heuristic, ease of recall is diagnostic of frequency or recency. The heuristic would not operate if people did not believe that ease of recall is a sign that the recalled event is a recent or frequent occurrence, and the heuristic would not lead to systematic error if people believed that ease of recall could also be a sign that the recalled event was especially vivid. Indeed, any misattribution effect requires a belief of this general sort. People can employ a theory about the impact that external or internal stimuli have on their thinking, regardless of whether they are processing systematically or heuristically.

This logic can be applied to the Gilbert et al. (1990) research on how people represent

the truth value of information. Why would a belief that familiar information is more likely to be true than false develop? People's use of communication rules such as Gricean "conversational norms" leads them to expect information to be truthful (see Schwarz, 1994; and Sperber & Wilson, 1986, for reviews). If most information people encounter is true, then information that is familiar is perforce likely to be true. Hence if familiarity is the only available information when people are judging truth value, the most logical guess is that the information is true. Recall that participants showed a bias to call things "true" if they had seen them before—a bias that did not extend to new information.

A possible alternative explanation to Gilbert et al.'s "Spinozan" model of truth's being inferred automatically is that people have a metacognitive belief about the meaning of familiarity—specifically, that familiarity is more likely to be an indication of truth than of falsehood.¹ Control over this response need not be exerted by effortful correction and conscious theories. Such theories are not automatic and uncontrollable, but subject to change. Thus, preconscious control would be viable if one could change people's metacognitive beliefs about the meaning of familiarity. In several studies, Skurnik and Moskowitz (1997) created contexts where familiar information was more likely to be false than true, and reversed the bias: True items were called "false" more often than false items were called "true" and more often than new items were called "false." People did not automatically label information as true.

Volition versus Effort, Heuristic versus Systematic Processing: Dueling Processes?

In conclusion, we have been discussing the counterintuitive notion that intent, will, and control can operate without awareness. Dual-process models are not inconsistent with this idea of preconscious control. Rather, the models have simply evolved following a set of principles that have shifted the emphasis away from this notion. But there is nothing inherent in the principles underlying these models that rules out the possibility of such control, as evidenced early on by the pioneering research of Lewin, Bruner, Postman, and others. The process-oriented models described in this volume not only do not rule out the possibility of pre-

conscious volitional processes, but are well equipped to address such issues. Examining the interaction of active and passive processes is a fruitful direction for future research; and, despite the placement of such processing strategies at opposing endpoints of a metaphorical continuum in most dual-process models, there is no reason to assume that heuristic and systematic processing cannot operate concurrently (for discussion, see Bohner et al., 1995; Chen & Chaiken, Chapter 4, this volume). These dual processes need not be conceived of as "dueling" processes.

NOTES

1. Bruner's belief that "perceptual experience is necessarily the *end product* of a categorization process" (1957, p. 124; emphasis added) that proceeds unconsciously is most similar to the unconscious inference (*unbewusster schluss*) that Helmholtz (1910) spoke of (in German) decades earlier. The direct translation of *unbewusster schluss* would be "an unconscious ending," and Bruner assumed that the ending Helmholtz referred to is the end product of an inferential process.

2. Similarly, Sherif (1936) emphasized the role that the "ground" plays in shaping the interpretation of the "figure" in social situations. One does not simply respond to figural stimuli such as the face and words of the partner, but regulates one's responses in accordance with the ground as well, such as the setting one is in (e.g., funeral vs. party).

3. This perspective has had a profound impact on modern-day social-cognitive research, as we see it mirrored in the perspective of researchers working in the area known as "person memory." Hamilton (1981, p. 140) stated that "we conceived of impression development as a process of integrating and organizing successively received information about a target person into a coherent cognitive representation of him or her. We assumed that the perceiver seeks coherence and organization in impression and that . . . all items of information characterizing the person should make sense."

4. But meaning was also posited to be produced through the equally simple process of contrast, whereby the event is subjectively interpreted to be opposite to some standard (see Moskowitz & Skurnik, in press, for a review). According to Heider (1944), "Shakespeare makes use of this kind of contrast when he describes Othello as a person to whom jealousy is foreign. If he had introduced Othello as a man inclined to be jealous, his acts of jealousy would have lost much of their dramatic force" (p. 364).

5. As James (1907/1991) informed us, the

very term "pragmatism" (introduced to the philosophical literature by Charles Peirce in 1878) is derived from the Greek word for "action," which is also the source for the English word "practical."

6. Harvey (1963, p. 3) stated:

One's concepts or system of meaning serves as a transformer through which impinging events are coded and translated into psychological significance. Without some such internal mediating system, the enviroing world would remain in a state of irrelvance. . . . [Concepts provide] a reliable basis for responding to an otherwise disorganized physical bombardment. Indeed, it is quite probable that without some fairly stable and at least somewhat veridical system of reading and reacting to the situation about him, the individual, both in self structure and biological being, would be doomed to extinction.

7. Ironically, though Fiske frames this argument while making the case for the controllability of stereotype activation, it labels stereotype activation as the "easy choice" and control of that activation as the "hard choice," once again implying that such control is effortful and consciously intended.

8. It is odd that Bargh (1996, p. 172) makes the argument that one needs to be aware a process is occurring to control it: "An individual cannot control a process without awareness that it is occurring. To me, this is an important caveat to any contention that people can make the 'hard choice' and counteract automatic processes from influencing social judgment and behavior." Although it is true that awareness may be required to make the "hard choice," Bargh's "auto-motive" model suggests that a goal can be passively activated, and this can be conceived of as a type of control that does not require awareness—control can become the "easy choice."

9. Gilbert et al.'s (1990) procedure, which involved interrupting participants when they were trying to learn the information, was supposedly preventing the participants from representing the information as false, and was thus demonstrating that the illusion of "truth" was automatic, whereas the assignment of the correct label "false" was effortful. However, this merely could have made it more difficult for the participants to rehearse the information and make associations that would assist recall later. As a result, participants were later forced into an overreliance on familiarity when they were asked to remember truth value, which led them to answer "true."

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