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

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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 concrete psychological description. . . . We must learn to make the all-important distinction between the sensation and perception, between the bare sensory material actually given to us and the meaningful experience that is our observation. The two are not directly related to the properties of the thing (book). Such inferences represent a leap beyond what is objectively realized 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 the world of stimuli that bombard him or her sense (Golwitzer & 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 prefaces its exposition with a statement: "We believe that our experiences are consistent with knowledge that is available to us" (p. 43). Instead of biasing our mind toward the kind of thinking that knowledge preconceptions are often biased toward, we are better off making the assumption that people's experiences are consistent with the knowledge that is available to us. The common sense assumption that knowledge is consistent with the experiences of others is a reasonable one. The only reasonable assumption that knowledge is consistent with the experiences of others is a reasonable one.

The History and Future of Dual-Process Notions

Talor (where it is written: "We do not see things as they are; we see things as we are"), we focus our attention on the social world of the referential—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 obtain 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 conceming 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 limited cognitive effort, elaboration, or capacity in thinking about the social world. They can lean on prior knowledge, heuristics, stereotypes, expectations, scripts, and schemas to impose structure and order on new situations. In each of these cases, people act in a somewhat "mechanical" 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 "reflective" strategy is a "bottom-up" process that requires the exertion of cognitive effort to collect on and examine the stimuli. 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, options, 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 interaction 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 input from which perceptions 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 infer 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 momentary process of becoming 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 input is subject 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 perceptions 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 "Helenhoft's long ago suggested, the process is a silent one. If you will, the inference is often an 'unconscious' one." (p. 129).

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, 1986). An important consequence of a silent (or spontaneous) inference is its phenomemal immediacy. A perceiver does not experience the judgment as a construction, built through the aid of expectations, needs, and heuristics. Instead, there is what Asch (1952) called a "naive realism," a belief that one's inferences accurately reflect, without mediation or bias, an external reality (Licklider, 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 drive him and influence his experience of the other person even on the level of immediate observation. It remains concealed from him what he considers "facts" is permeated by unconscious and unconscious but nevertheless systematically proceeding, misinterpretations (1) that are uncontrolled and unconscious and (2) that are automatic interpretations of manifest consequences of others in specific ways without being active on our doing so and without noticing that our observations are based on, and guided by, the unconscious interpretations. What we consider to be "objective facts" are actually products of subjective interpretations. (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. For example, Gestalt psychologists were a minority at the time they stressed the active and constructed nature of perception. The Gestalt movement dominated during that period and did not deem speculations regarding the nature of perception, Gestalt psychology a 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 intangible "causes" in favor of laws that are not predicated on the assumption of some unseen entity. It is simply enough to know that an event occurs at a certain 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 (1690/1984, p. 75) presumed that the mind starts out like white paper—"void of all characters, without any object impressed, blank." He added that the one-word answer was "experience." All knowledge was said to be founded through objects of knowledge, which was labeled a "simple idea" 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 contact with something in which an object labeled as "cold to the touch" affects the sense of touch. This basic type of knowledge is further complicated by the way in which such ideas are represented. For example, ideas are represented as a chain of ideas, which Locke claimed that (1) "the mind is wholly passive in the reception of all of its simple ideas" (p. 110) and (2) such ideas served as the material and foundation for more complex ideas. Reflection (e.g., thinking, believing, 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 combining, transposing, augmenting, or diminishing the materials afforded us by the senses and experience" (Hume, 1788, p. 30). Therefore, the philosophical stance of behaviorism, with its emphasis on concrete experience and principles of association, followed from the empiricists. Gestalt psychology followed a more philosophical stance from links to pragmatism and back to Kant and Hegel. Thus, through the early part of the 20th century presented a debate between Gestalts 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. . . . These regard the creature as absolutely passive clay upon which experience rains down. The clay will be impressed more deeply where the drops fall thicker, and so the final shape of the mind is moulded. . . . These writers have, then, uniformly ignored the glaring fact that subjective interest may, by laying its weight in the deepest parts of the mind, work its way up to the surface. The empirics have never been able to explain how the experience exposed to behaviorists in the content area (mental experiences) focused on by introspectionists.

As a scientific attitude the Homeric assault of behaviorism against "direct experience," "consciousness" and so forth appeals very strongly to me. The behaviorists, 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 postulate I might argue this point exactly as the behaviorists, for it is the whole assumption of direct experience in others. Somehow it does not occur to the behaviorists to see the assumption of the physical world which we have 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 behaviorist has ever been, and I am fully aware of the fact that science may and must believe and postulate where the epistemologist, if he likes, may doubt. But 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 in a perception by the mind's use of meaning and prior learning, reflects the fundamental assumption 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 relations between the parts and the emerging properties that the dynamic system reveals. A good example of this is the "field theory" of Gestalt psychology, which holds that the whole is more than the sum of its parts.

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 whole organism. Lewin believed that to discover the basic principles guiding behavior, we cannot reduce the elements being studied to separate physiology. Rather, behavior can be understood only within the entire field of stimuli, as an interaction of a person within a situation. His general approach of "field theory" (e.g., Lewin, 1936), and a person and his or her environment together make what is known as the "life space." The notion of life space was meant to capture both the physical and psychological (conscious and unconscious) environment. He 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, that action can be understood only within the context of the whole.

Every action one performs has some specific "background" and is determined by that background. A statement or a gesture which may be quite appropriate, here and there 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, the quality of any situation is directly upon the nature of its background... the background itself is not often perceived, but only the "figure." (Lewin, 1935, p. 29).

Another way Lewin's model leaned on the social is this notion that perception is subjective, that needs were said to play a central role in structuring experience; wants of the individual operate like forces that guide perception 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. However, the concept 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 and direction of each of these vectors, and in turn their ability to direct behavior, is dependent on the extent to which the environmental stimuli attract or repel the individual. Through 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 "affektorischercharakter," 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 Banon (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 "affricance.

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 whole does not trigger the person to read a novel, 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 the model, the states that involve 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 "quaistatic." 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 Nana Street in Prince- ton that forbade a U-turn and appear every 20 yards went unseen while the person walked past them every day, but now the person either goes or is driven to attend them. The signs have not suddenly appeared; only their ability to speak to the person's current needs has, so 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 as a sign, oblivious to it as when the individual is on foot. Finally, valence exerts its influence even through 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, Wollwitzer, Wesel, & Schaud, 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 on the 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, construed as a case illustrating of experience in general, is the result of the organization of external and internal stimulating factors that are constituting a 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, 1935, 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-
between a physical stimulus and the experience and subsequent behavior it elicits; the experience and the behavior may be, to a large extent, a function of the state of the organism at the 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 because the internal 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 autistic 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 strategies 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 as a consequence of his contact with the social world around him, the social norms, customs, values, etc., become internalized in him. These internalized 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 are formed that are structured and perceived as meaningful within their order. The perceptual system moves away from random groupings, open systems, irregular patterns, seeking instead closure (Gestaltnahmeung). 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 factors (e.g., a perceived person's disposition, situational forces, and our own actions that could have provoked the behavior; see Heider, 1953). The result, as Schiefer (1943, pp. 151-152) put it, is that "in interpreting individual behavior as an experience and consequence of personal traits, with disregard for the all-important role played by the (social) situation, we usually misinterpret the real understanding of behavior."

Heider was proposing that our perception of others is an active construction, in that we have a psychology of perception in that we do not simply accept the environment as it is presented to us. Instead, we construct our own perceptions of the environment based on our personal experiences and beliefs. This is similar to the Gestalt principle of closure, which states that our brains fill in gaps in our sensory input to form complete and meaningful wholes. In this case, the "stimulus" is the environment, and the "perceiver" is the individual who interprets it.

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 applies 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, 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 common-sense 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 stimulus 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, (b) the wider the range of input categories that will be "accepted" as fitting the category in question." (1957, p. 129). Thus, the mixture 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 Higgin, 1957; L. M. Levy, 1962). 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 McAllister (1948) demonstrated this point by focusing on attention:

What one sees, what one observes, is inevitably what one selects from a near infinity of potential perceptions. Perceptual selection depends not only upon the "primary determinants of attention" but also upon 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 valuing or being captured by interest. It was determined by determining what we were 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 its name 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 chime for or dreaded sound. So of an awaited footnote. Every star in the west for the hunter’s gaze; for the shepherd’s ears under vine and poplar, the image in the mind is the attention, the preoccupation is half of the perception. (p. 442)

Bruner and Goodman (1947) demonstrated that needs affect not only attention, but judgments 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 judgment are formed. Solomon Asch (1946) and pioneering experiments in person perception helped bridge this transition from theorizing that employed Gestalt principles to examination of the processes utilized in social perception. The Gestalt focus is evidenced in Asch’s belief that we “look at the facts as they interpenetrate, as they complete or fit each other, as they clash and move away from each other. We must see the kinds of units they form, what kind of center the units have, and what principle governs the whole” (Asch, 1946, p. 65).

The focus of 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 up a whole. Asch described the phenomenon of the examined trait integration through presenting lists of traits about a target. An elementaristic 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 thinker saw one single final judgment. Asch assumed that some traits are “centrals” 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 be 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. 241; 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 organization) it is the emphasis on the possibilities of comprehension). It follows also that unity is not equated with reality, but rather with the oddness with contradiction and conflict.”

This section began with Kühler’s belief that “sensory fields are replete with qualities and properties which one neglects if one takes ‘sensations’ as their sole content.” Discontinuities in the role cognitive structures play in social interaction, describing people as exerting effort after meaning.” Bruner, Goodnow, and Austin (1956) described a “perception to categorize” which involves a search for meaning (invoking Tolman’s [1951], notion of a “placating 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. Overton (1972) considers it as a third brain drive beside the drives for self conservation and for conservation of the species. Allport (1954) described people as having an “instinctive hunger for explanations” (p. 170), and as being “under constant pressure to obtain definite meanings... (p. 316). This motive is also central to the research by Lewin’s doctoral student, Zeitig. Zeitig's (1927) noted a tendency for people to perseverate on interrupted tasks, and suggested that this occurs because the goal of completing the task is unfinished. 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, there 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, to lead lives that are meaningful 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 is 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 retaining 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] most a new experience that puts them to a strain, somebody contra- dictates them; or in a reflective moment he discovers that they are inconsistent; or at once, lose their value and arrive in him which they cease to satisfy. The result is an inward trouble to which his mind
The sole object of inquiry is the settlement of opinion. We may fancy that this is not enough for us, and that we must more satisfy an opinion by settling an opinion of opinions. He says as much of it as he can, for in this manner of belief we are all extreme conservatives.

Striking is the similarity between Festinger's proposal of the dominance 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 dissonance theories) was the ambiguous dogma articulated by Peirce (1877), and later by John Dewey (1929). People actively avoid having their knowledge upset and faced with contradictions; the arousal of doubt shakes them from the calm and satisfactory state of firmly knowing what they feel to be "true." From this perspective, the experience of having truth is not a reflection of the actual external reality, 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 false one would remain false though we could not resist the tendency to believe in it." (Peirce, 1877, p. 64). People do not think meaning by discarding absolute truths—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.

Asimilación: 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, it made true by events. Its verity is in fact an event, a process the method of testing its verity, to be the eventual process of discrediting or corroborating a single original truth of anything as something essentially bound up with the way in which one moment of experience may lead us toward other moments which it will be worthwhile 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 theories they have are correct, they cling tenaciously to these beliefs, despite the presence of contradictory evidence. The process of implying that people transform the data, assimilating them to fit with and maintain prior structures. This is how Aronson (1992) described the dissonance reduction process, stating that the process of trying to produce meaning "we frequently get ourselves into a tangled muddle... justification, denial, and postponement" (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 assimilating and perceptual unity as "the principle of constancy in the mind's meanings." We do not merely recall an opinion or an opinion of opinions. He says as much of it as he can, for in this manner of belief we are all extreme conservatives.

[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. (1897/1950, pp. 439-440)

Thus, contradictory evidence is dealt with in a manner that allows the structure to be maintained (e.g., ignoring, subverting, and manipulating data). "The observation that people... their influence is absolutely controlling. Loyalty to them is the first principle... but by 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, 1897/1950, 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 functionally they produce satisfactory 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 passing to verify it, will be a true mind in ninety-nine out of a hundred emergencies.

Although keeping old knowledge unaltered, they utilized time and again is functionally, 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 Columbia University, contrary evidence could be perceived:

You listen to me now with certain prepossessions as to my competency, and this affects your reception of what I say, but were I suddenly to break off lecturing, and begin to say "We won't go hostile till morning" in a rich baritone voice, not only would that fact be added to your store, 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.

Asimilación en 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 "sameness": 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 a long-standing set (e.g., Block & Block, 1951; Frenkel-Brunswik, 1949).

Heider (1944) directly incorporated into the groundwork for attribution theory the idea that a lack of closure and simple structures produces tension, which the perceiver is motivated to reduce. Earlier we have outlined Heider's belief that people need to form perceptual units that serve to link an actor with an action; this enables them to implicate causal responsibility for the act to the actor, and to maintain a relative of the act's cause—perception's system's tendency to parsi 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 nervous system operates.

However, Heider believed that the reason people seek closure is to illuminate the life space around the center of attention to alleviate the dissonance 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. Any time an issue for an event arises, 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 restate an equilibrium even when otherwise irreversible changes have been disturbed" (p. 54).

Heider (1958) believed that equilibrium is reinitiated (meaning is achieved) by forming personal-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 (1954) 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. 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 categorization by structuring the world to fit stereotypes on judgment and recall, see Stangor & Lange, 1994). He described stereotypes as stable, resistant to change, even resistant to contradictory evidence. People can avoid such incongruities by a process of "rescuing," or subtyping, creating separate catagories 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 behavior. Open-mindedness is considered to be a virtue. But, strictly speaking, it cannot exist. A new experience must be placed into old categories—categorization assimilates as much as it can to the clusters. This 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 Assentibility: 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 Perce 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 evidence is interpreted. . . . In the case of a potentially infinite regress of cause and effect the perceiver's explanation comes to a stop when an intimation or motive is assigned that has the quality of being enough" (p. 220). As discussed above, what one will deem to be "enough" will vary according to one's goals and expectancies. A prejudiced person might accept seeing a member of an ethnic minority giving an argument as reasonable 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 is an important one to keep in mind. It is implicit in dual-process models. The very notion of accurate, individualized, systematic processes existing 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, & Barsh, 1994). The default processing strategy is the heuristic route. But such economy-minded processes become dominated 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 a weapon, whether it be the possession of illegal instruments of action; and that our duty to gain truth, so far from being a blind command from out of the blue, or a "must" still imposed on our will, can account for itself by external physical reasons. . . . We live in a world of realities that can be infinitely useful or infinitely harmless. Ideas that still fill up to them to expect count as the true ideas. . . . The possession of truth, so far as it can be said in itself, is only a preliminary means toward other real satisfactions.

—James (1870/1959, p. 89)

It has been posited above that in person perception we seek to end doubt, the goal is give meaning to the action of others. But why do we desire meaning? Why is this a fundamental drive? James (1870) /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 real ideas are ideas that are 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 it 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 (1896/1950) 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 bring our hopes to pass." In other words, there is nothing passive about thinking. Bruner (1957) relied on Perce's (1978) 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 "hot" or that a substance is "poison" is to know its advancement about appropriate and inappropriate actions to be taken. . . . The man 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 in arriving at meaning through categorization, 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 misattribution) 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 one would view a conception of truth as "a sort of coarse laced 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, laudatory, refined, remote, august" (p. 32). Bruner (1937) 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 vaguely 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 function. I shall call model building. To learn 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 concept 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—it represents with varying degrees of predictive veridicality the nature of the physical world in which the organism operates" (Brainer, 1957, p. 129)—it typically can provide reliable information about the environment. The information given in this fashion allows one to predict as-yet-untested properties of the personifying 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 a feeling of tension that the individual is driven to reduce. The tension has been described as the sense of the fact that is revered in the physical and social world is difficult, if not impossible, without being able to predict what others are like. 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 own outcomes that are subject 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) term, 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. We have picked out in the form stereotyped for us (p. 53).

Bruner et al. (1956) began their book with this point: it helps to structure the region and to remove this barrier.

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 the life of an animal is 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. . . . [H]e would make as 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 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 comprehended through the abstraction and use of defining properties in terms of which groupings can be made" (p. 12; emphasis in original). The cat, the butterfly, and the 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 to move 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, 1890/1915; Kahneman, 1973; Logan, 1980; Treisman & Gelfen, 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 in the sociocultural 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 shape the world, leading people to reserve their refined discriminatory skills only for those which they are specifically concerned. Categories are precociously used to promote inferences and "the ability to use minimal cues quickly in categorising the events of the environment is what gives the organism its lead time in adjusting to events. Panoce 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 cognitive 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 schemata. This is seen in Kelly's (1955) definition of a "schema" as a network of ideas about the operation and interaction of causal factors. These concepts enable perceivers to make and retain fast and accurate attributions, 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) propose that processing is often "mindless"; Bargh's (1984) discussion of automatic processing; Fiske and Taylor's (1984) discussion of automaticity for making distinctions; Gilbert and Hixon's (1991) suggestion that stereotype use is ubiquitous because people avoid "the trouble of thinking"; Suls and Wozniak's (1991) "law of cognitive structure activation," in which assimilation is said to predominate; and Fiske and Taylor's (1991) description of a "least-effort principle" that promotes a reliance on heuristics; and Uleman et al.'s (1994) discussion of unintended inferences. But the idea of a least-effort principle in psychology can be traced back to James (1890/1955):

"The stream of our thought is like a river. On the whole, the easiest flowing predominates in it, the drift of things is with the pull of gravity, and effortless attention is the rule. But as intervals a logjam occurs, stops the current, creates an eddy, and makes things temporarily cover the other way. If a real river could feel, it would feel they are the set-backs as places of effort." (p. 431)

James (1907/1911) 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 given, but as indubitably as if it is many, if you look at it in another...your ordinary philosophical layman never being a radical, never straightening out his system, but living vaguely in one plausible compartment of it in another to suit the temptation 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 "sumptions of successive hours"— BLEVER, 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 capacities for making distinctions, but they often choose to do less.

CONCLUSIONS
Evaluation of other persons, important as it is to 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, effort, or as adult may have in appraisal others, he [or she] engages in the process most of the time without paying much attention to how he [or she] does it." —TAGORE (1938, p. 81)

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, schemata, stereotypes, temporary expectations are used to draw conclusions. Bargh (Chapter 18, this volume) tells us of how this description of the individual as "cognitive misers" 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 will the can people overcome traditional stereotypes. Unconscious bias is not a bad thing, but it is an important one.偏与Uleman et al. (1990) state that people automatically believe any assertion put to them without subsequently considering the truth or falsity through conscious exertion of the will.

Researchers have rebelled against this extreme position in the 1990s, attempting to "cage" it (this extending Bargh's "monster metaphor": see Chapter 18, this volume). Researchers have attempted to demonstrate that automaticity is jacks limited when discussing social phenomena, Bargh's point is that is an attempt to demonstrate that automaticity is jacks limited when discussing social phenomena, that is, we don't always need to be conscious of what we are doing.

Researchers have attempted to do this by demonstrating that automaticity is jacks limited when discussing social phenomena, that is, we don't always need to be conscious of what we are doing.

Utilizing "close looks" to control cognition has shown to be successful in reversing the effects of least-effort processing (see Goldwizer & Marks, 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 effortless 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 control to be successful people must be (1) aware of such biases, (2) motivated to end them, and (3) in possession of the cognitive skill to carry this out without the required effort. But he functional approach we have reviewed in this chapter has suggested that lead-eliciting processing strategy precisely because people typically lack at least one of these elements. The cost of constantly taking "closed loops" in too high for organisms that possess only limited capacity, Bruner (1957) stated.

With enough time and testing of defining cues, "best fit" perception can be accomplished for most but not all classes of environmental events with which the person has contact. There are some objects that we identify as sufficiently reliable so that no such conclusion 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 dramatic if not the most acute consequences, it is doubtful whether a therapeutic regimen of "closed loops" can work as nicely as it appears to work with the more complex cues patterns. But the greatest difficulty remains in the fact that the cost of closed loops is generally too high under the conditions of speed, risk, and limited capacity imposed upon organisms by environments (pp. 141-142).

Although goals are capable of consciously operating to cause people to initiate closer looks, goals can also preconsciously operate to affect initial categorizations. The success of dual-process models must contain an examination of this possibility for preconsciously control—one must not "deliberate" or reevaluate everything. We have described elsewhere how preventing least-effort responses from occurring is clearly an area for inquiry (Wegener & Petty, 1993). We will conclude this chapter with a discussion of two domains (stereotyping and prejudice) in which motivated control news information (in which motivated control news information) has previously been conceived of as possible only through conscious acts of the individual in the role of a 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 any indication of the consciousness 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 preconsciously motivate the individual to relevant stimuli. Bargh (1990) "automotives" model directly updates this notion. Bargh suggested that goals are adjoint structures that can be activated, such as any intended behavior can be, and thus 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 stimuli leads to the eventual movement of goal pursuit from consciousness.

Golwitzer (1993) similarly applies Lewin's "goal-directed thinking" to explain how behavioral control can be willed or intended, yet still be passive and unconscious. Golwitzer has developed an "implementation intention" as the process of committing oneself to when, where, and how a goal is to be pursued, as well as its anticipated goal pursuit is to take. Such volitional acts connect a goal-directed intention to behave with an anticipated intention that will allow one to implement the plan of action. The purpose of such intentions is to make the efficient execution of goal-directed activity. When relevant cues (occasions or opportunities) are encountered, they lead to the goal. Thus, an initially conscious intention operates to control behavior automatically.

Kruglanski et al. (in press) have adopted this logic and proposed that stereotype activation can be controlled through the activation of the egocentric (activated by relevant environmental cues). The logic is that both chronically operating goals and temporally adopted goals (e.g., those adopted through socialization and implementation intentions) can interfere with the activation of social stereotypes by promoting the activation of a goal construct 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 egocentric 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 egocentric; 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 stereotypes are not "intended" (and thus an individual performing a goal-relevant behavior is responsible for stereotype actions), regardless of whether the individual is aware of the goal driving the current behavior. At some point even dominant goals have been consciously chosen, and their subsequent routinization does not make action "unintended." Moskowitz et al. (in press) argue that egocentrism 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.

Preconscious Control in Social Judgment: Metacognition and Correction Processes

The association of mental control with a correction process that requires accuracy, awareness and reflection is that a biased, low-effort, initial judgment, is also common place in research on how people "decomtaminize" (Wolfgang & Brekke, 1994) or "correct" (Wegener & Petty, 1993; Strack & Hanover, 1996) their thinking. Gilbert et al. (1990) argued that people represent the world in a way that restricts the amount 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 these diverse sense-perceptions we should ever form any conclusion regarding things outside us, without having carefully and maturely considered 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 with another task were trying to learn the true value of information resulted in their mistakenly thinking of false information as "true" rather than being correct 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 processes, but Gilbert et al.'s data evidence suggests that we may be Spinozan processes.

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. (1998) concluded that dispositional inferences operate relatively automatically (see Uleman & Moskowitz,
that primes will make them contrast their judgments, then correction attempts will lead them to assimilate. In this view, we would expect that they adjust in line of their theories about the nature of inappropriate influences.

To put it point out, however, that "theories" or beliefs about the impact of events on mental processing is often employed in initial judgments as well as in later adjustments to judgments. 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 the events are brought to mind, separately from any aspect of the content of the examples. This habit can lead to errors, because many aspects of events that are not connected 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 or familiarity.

In several studies, Skurnik and Moskowitz (1997) created contexts wherein familiar information was more likely to be true than rare information and reversed the bias: True items were called "false" more often than false items were called "false." Fewer and more often new items were called "false." People did not automatically label information as true. Is certain information more likely to be true than false? People's use of communication rules such as Grecian "conversational norms" leads them to expect information to be true (see Schwarz, 1994; and Sperber & Wilson, 1986, for reviews). If most information one encounters is true, then information that is familiar is perhaps 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 "Spontaneous" model of truth is the heuristic power of the "what should be" heuristic. People often make assumptions about the nature of familiarity—specifically, that familiarity is more likely to be an indication of truth than of falsehood. 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 wherein familiar information was more likely to be true than rare information and reversed the bias: True items were called "false" more often than false items were called "false." Fewer and more often new items were called "false." People did not automatically label information as true.

Vonk versions: Effort, Heuristic versus Systematic Processing: Dueling Processes? In conclusion, we have been discussing the counterintuitive notion that intent, will, and consciousness operate without awareness. Dual-process models are not inconsistent with this idea of preconscious control. Rather, the models have highlighted the need for a set of principled that have shifted the emphasis away from the notion. But there is nothing inherent in the principles underling these models that result in the possibility of such control, as evidenced early on by the pioneering research of Lewin, Brunswik, Postman, and others. The process-oriented models described in this volume not only do not rule out the possibility of preconscious volitional processes, but are well equipped to address such issues. Prominent among these is the interaction of active and passive processes is a fruitful direction for future research; and, despite the placement of such processing strate- gies at opposing endpoints of a metaphorical continuum in most dual-process models, there is no reason to assume that the description of an active or systematic processing cannot operate concurrently (for discussion, see Boebert et al., 1993; Chen & Chalken, 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 or automatic inference (ambivalent or automatic) that Helmholtz (1910) spoke of in his German editions. The direct translation of Helmholtz' Latin words was "an unconscious ending," and Bruner assumed that the ending Helmholtz referred to is the end product of an inferential process.
2. Similarly, Sheir (1936) emphasized the role that the "ground" plays in shaping the interpretation of the "figure" in social situations. One does not simply respond to figurals stimuli such as the face and words of the partner, but regulates one's response 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 "perceptual memory" (Hamilton, 1983, p. 140) stated that "we concur of impression development as a process of integrating and organizing successively received sensory information about a target person into a coherent cognitive representation of him or her. We assumed that the percept perceives coherence and organization in impression and that . . . all items of information characterizing the person should make sense.
4. But meaning was also postulated to be produced through the equally simple process of contrast, whereby the event in question is interpreted as the opposite of some standard (see Moskowitz & Skurnik, in press, for a review). Jennifer S. Heider (1944), "Shakespeare makes use of this kind of contrast when he describes Orsino as a young man who is unlikely to be jealous, his arm of jealousy would have lost most of its dramatic force" (p. 364).
5. As James (1907/1991) informed us, the
very term "pragmatism" (introduced to the philo-
sophical lexicon by Charles Peirce in 1878) is de-
rived 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
translatory through which we impress upon our
social and psychological meaning a constant
variable. Without such internal instructional
means, the remaining world would remain in a state
of amoral. [Concepts] provide a calculus to
responding to an otherwise disorganized
physical phenomenon. Indeed, it is quite probable
that without some fairly flexible and at least some
knowing verbal system of reading and reacting to
the situation a man is in, the individual, both self
structure and biological being, would be doomed to
extraction.

7. Ironically, though Fiske frames this argu-
ment within the context of the case for the control-
ability of stereotype activation, it labels stereotype
activation as the "pragmat" and creates the role of
activation as the "hard choice," once again implying
that such control is effortless and consciously in-
tended.

8. It is odd that Bargh (1996, p. 172) makes
the argument that one does not need to be aware
a process is occurring to control it. An individual
cannot control a process without awareness that it is
occurring. To this, one must add the important
point that the activity of being aware of oneself
contention that people can make the "hard choice" and
counteract automatic processes from occurring.

9. Broadbent (1968, p. 256) labels the
"pragmat" as "automatic," stating that "only a
game that can be passively activated, and this can be
conceived of as a type of a process does not require awareness—control can become
the "easy choice."

10. Gilbert et al.'s (1990) procedure, which in-
volved monitoring participants when they were
trying to learn the information, was supported by
the participants representing the information as
false, and was thus demonstrating that the illusion of "truth" was automatic, whereas
otherwise it would be effortful. However, this merely could have made
it more difficult for the participants to exercise
control and make associations that would assist
recall later. As a result, participants were later
more likely to be an overgeneralization when
they were asked to remember truth value, which
led them to answer "true."
OVERVIEW

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