

The Psychology of Action

Linking Cognition
and Motivation to Behavior

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CHAPTER 20

Automaticity in Action The Unconscious as Repository of Chronic Goals and Motives

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"In all languages derived from Latin, the word 'reason' (ratio, ratio[n], ragione) has a double meaning: first, it designates the ability to think, and only second, the cause. Therefore reason in the sense of a cause is always understood as something rational. A reason the rationality of which is not transparent would seem to be incapable of causing an effect. But in German, a reason in the sense of a cause is called Grund, a word having nothing to do with the Latin ratio and originally meaning 'soil' and later 'basin'. . . . Such a Grund is inscribed deep in all of us, it is the ever-present cause of our actions, it is the soil from which our fate grows. I am trying to grasp the Grund hidden at the bottom of each of my characters, and I am convinced more and more that it has the nature of a metaphor."

*"Your idea escapes me," said Apenarius.
"Too bad. It is the most important thought that ever occurred to me."*

—MILAN KUNDERA, *Immortality* (1990), p. 237

In *The Rediscovery of the Mind*, Searle (1992) argues against those who deny the reality of consciousness and of subjective states because they are not observable to an objective, outside party. The problem, he notes, is that this equates the methodology used to study a phenomenon with the phenomenon itself; in other words, it confuses the epistemology with the ontology. It is of course true that to study the mind scientifically and objectively, as with the scientific study of anything else, we must deal with observables and must separate the act of observation from what is being observed. But both of these methodological principles are impossible to follow in the case of consciousness: It is not observable in another person, only in oneself; and

one cannot study it in oneself because one cannot separate the act of observing from what is being observed.

The logical fallacy, Searle argues, is to conclude that because one cannot apply the preferred scientific method to the study of consciousness, it therefore does not exist or is epiphenomenal. It is one thing to wish to study a phenomenon as objectively and reliably as possible (i.e., to measure observables that can be operationally defined). It is quite another to draw the conclusion that phenomena that do not lend themselves to this scientific procedure must not exist.

Searle (1992) gives many examples of the nonsensical consequences of confusing epistemology with ontology. Imagine yourself completely paralyzed but fully aware. You can produce no observable signs of consciousness, and an outside observer would have to conclude that you are not conscious, even though you yourself know you are. Searle also quotes the old joke about the two behaviorists who make love, with one saying to the other afterwards: "It was good for you. How was it for me?"

We do, of course, have subjective states and phenomenal awareness. It is just that we cannot observe them in *other* people. We should not conclude from this that other people do not have subjective states. As Searle cautions us, when we study *him* or *her*, we should keep in mind that we are studying the *me* that is the him or her.

IS THE UNCONSCIOUS JUST A SOURCE OF ERROR AND MISTAKE?

Our claim in this chapter is that a very similar confusion of epistemology and ontology has occurred in the study of the unconscious. At a very deep cultural level, as the quote from Kundera's novel illustrates so well, people have a strong and deep faith in the rationality of consciousness. Therefore, in order to demonstrate the existence of nonconscious or unconscious phenomena, researchers have had to demonstrate irrationality—judgments and behavior that cannot be explained in terms of the conscious goals or intentions of the person.

This trend was given a rousing sendoff by Freud (1901/1965), whose *The Psychopathology of Everyday Life*—subtitled *Forgotten, Slips of the Tongue, Bungled Actions, Superstitions, and Errors*—was a rich compendium of counterintentional mistakes, all attributed to the operation of unconscious forces. The more recent body of cognitive research on nonconsciously determined behavior follows Freud's lead, giving the strong impression that unconscious phenomena are solely irrational in nature. Norman (1981) has catalogued a variety of "action slips" in which intentional action becomes sidetracked when attention is distracted away from its performance. A common example is a person's being deep in thought on some matter and deciding to get something from the other room, walking there, and standing there finally wondering what it was he or she wanted. Another is a city bus driver's tak-

ing the family to a shopping mall on a Saturday morning and pulling over at all the bus stops on the way. Without a continual supplying of attentional resources to ongoing behavioral goals, action either ceases or falls into habitual grooves. In any case, the resultant behavior is unintentional—a mistake or "slip."

In another guise, these "slips" have been labeled "mindless" behavioral responses (Langer, 1978; Langer, Blank, & Chanowitz, 1978). Several experimental demonstrations were provided in which subjects acted in a manner that seemed irrational, given the information available in the environment. Again, the key variable that produces such effects is a lack of attention paid to that information, because conscious attention is focused elsewhere. In the absence of noting the presence of a critical detail that might have changed the behavioral response, that response is based on the habitual response to that situation. For instance, when one person asks to cut in front of another in a line, usually the asker gives a good reason for needing to do so. If the person being asked is not paying attention to the actual content of the request, then, as long as the request follows the usual form, that person gives the usual response. Requests that deviate from the usual form do not produce such "mindless" responses, because there is no default habitual response to these unusual, infrequently experienced situations.

Langer et al. (1978) concluded that the source of such behavior in their subjects was nonconscious or "mindless." However, there were no measures taken of awareness or consciousness or memory to substantiate this claim (see Bargh, 1984; Kitayama & Burnstein, 1988). The entire basis for the conclusion that the behavior was not conscious was that it was not *rational*. It did not appear to be the most logical response, based on all of the information present in the situation. But because of the implicit assumption, embedded in our language itself, that what is conscious is rational and what is not conscious is irrational, Langer et al. (1978) concluded that the source of their subjects' behavior was not conscious.

More recently, Wegner's (1994; Ansfield & Wegner, Chapter 21, this volume; Wegner & Erber, 1992; Wegner & Wenzlaff, in press) research on mental control mechanisms has used counterintentional thoughts and acts as the evidence for an unconscious, automatic, ironic process monitor. Intrusions of thoughts one is trying to suppress, or the occurrences of behaviors one is trying to avoid (usually while under attentional load), are typical dependent variables in this research. Jacoby and his colleagues (e.g., Jacoby, 1991; Jacoby, Lindsay, & Toth, 1992) have explicitly played on the assumption of a rational consciousness in their paradigm in order to demonstrate unconscious influences of memory. To the extent that effects occur that are opposite in direction to the subject's conscious intention (as manipulated by experimental instructions)—in other words, errors—one can assume that the effects are unconscious or automatic.¹

In our view, the unconscious has received a "bad rap." Researchers are forced to study its manifestations in terms of errors, mistakes, and slips in

order to convince skeptics that the obtained effects are not attributable to supposedly more rational, conscious processing. In doing so, this body of research has created an illusory data base, as if the only effects of unconscious processing were mistakes or errors. One of the themes of the present chapter is that the unconscious is actually quite adaptive and usually does not produce errors, but instead produces appropriate and rational decisions, choices, and behaviors.

In our own research, we deviate from the usual contemporary practice of relying on errors, slips, or "counterintentional" behaviors as our dependent measures. Instead, we activate different social goals for different subject groups outside of their awareness, and show the corresponding behavioral differences. It is one of our hopes that this methodology will enable the future study of the unconscious to move into realms of normal social functioning instead of focusing exclusively (and, in the long run, misleadingly) on maladaptive miscues.

THE UNCONSCIOUS AS ROUTINIZED CONSCIOUSNESS

Our view of the unconscious is in the spirit of James (1890, Ch. 6), Vera and Simon (1993), Searle (1992, Ch. 7), and others who view it as the as the implicit repository of a person's long-term experience. Any skill—perceptual, motor, or cognitive—requires less and less conscious attention the more frequently and consistently it is engaged in (e.g., Atkinson & Shiffrin, 1968; Newell & Rosenbloom, 1981), and eventually can operate with no conscious attention at all. In social psychology, we have demonstrations of the substitution of several processes with frequency of use; self-relevant thought (Bargh, 1982; Bargh & Tota, 1988), dispositional attribution (Gilbert, 1989), and trait judgments of others' behavior (Bargh & Thein, 1985; Smith & Lerner, 1986) are the best examples. Smith's research (e.g., Smith, 1994) in particular has documented the decreasing need for conscious guidance of social judgments with increased experience in making them. These are intentional, goal-directed processes, just as are typing and driving a car—those two hackneyed but still useful examples of automatic phenomena. With experience, these processes come to operate autonomously; once started in motion, they interact with the complex environment as automated strategies. The professional tennis player does not consciously decide to run to a certain spot on the court, but moves there "instinctively" on the basis of the relevant cues: the speed of the ball, the angle of the opponent's racket, and expectancies of where the return shot will land (based on considerable experience in that same situation). The experienced automobile driver on a familiar route can drive for miles while daydreaming or participating in an intense conversation.

Vera and Simon (1993, p. 14) have referred to this as the "functional transparency" of the skill. With sufficient experience in the given domain,

the relevant information is represented at a highly abstract functional level, so that one does not need to know anything about details. When one is just learning to drive, one must consciously make decisions as minute as when to let go of the steering wheel during a turn. Soon, one no longer needs to make that decision, because it is subsumed under the skill of making a turn; however, one still has to decide consciously to turn the wheel to make the turn. Eventually, on a familiar route, even the decision of making the turn is subsumed—becomes functionally transparent—under the abstract goal of "following the road" or "driving home."

It is important to note that what is running off autonomously and without conscious guidance here is not a static behavioral response, but an automated *strategy* for dealing with the environment to affect a desired goal. The pattern of cars, weather conditions, light, and so on is never the same, no matter how often one drives the same road. What is operating is a mental system that interacts with environmental information; in fact, the system *requires* the input in order to operate. In other words, these skills that operate nonconsciously are not simple, fixed stimulus-response connections, but complex and sophisticated strategies or plans that guide responses according to the information available in the current environment. As Vera and Simon (1993, p. 17) put it, "Plans are not specifications of fixed sequences of actions, but are strategies that determine each successive action as a function of current information about the situation."

Those who tend to view the unconscious as limited or "dumb" (see Bruner, 1992; Greenwald, 1992; Loftus & Klinger, 1992) define it rather restrictively, not allowing for any use of consciously perceived information, and not considering any immediate unconscious (i.e., preconscious) influence beyond perceptual ones. In other words, the unconscious is equated with the subliminal, and because subliminal registration of information is hardly the norm in day-to-day life (see Bargh, 1992) and results in only weak mental activations even then, it is hardly surprising for an "unconscious" so defined to be found to have limited powers. Conscious spatial attention has been found to be necessary for nearly any cognitive effect of interest, including such otherwise automatic and nonconscious effects as the Stroop phenomenon (see Kahneman & Treisman, 1984). Mental processes, not to mention ongoing plans and goals, require informational input to operate; in fact, they *only* operate when they are applicable to the informational input (see Higgins, 1989). To assess the "intelligence" of the unconscious by seeing how it does in the absence of informational input (i.e., by withholding from it any attentionally supplied information) is like taking a fish out of water and concluding from the fact that it just lies there that it is pretty stupid.

THE AUTO-MOTIVE MODEL

It is one thing to hold the position that well-practiced, complex skills can operate autonomously and without conscious guidance. It is quite another

to argue that one can engage in these goal-directed actions without consciously intending to do so.

In all of the examples given above—playing tennis, driving a car, making social judgments, engaging in self-relevant thought—the person intends to engage in the activity. Once that conscious act of will takes place, the goal operates interactively with environmental information without the need for conscious guidance; however, the act of will is necessary to start the process in motion. Therefore, one should not—and we certainly do not—construe them as evidence for unconscious behavior (see Logan & Cowan, 1984).

What these examples do show, however, is that the goals that an individual frequently and consistently pursues in a given situation are capable of operating autonomously and without the need for conscious guidance. What starts them in motion? It is the activation of the goal or intention—the “top node” in the goal system under which the substrategies and processes are subsumed.

The “auto-motive” model (Bargh, 1990) makes a fundamental prediction: that this goal or intention itself—this complex strategy of interacting with the world—can be activated or triggered by environmental stimuli. In other words, the environment can directly activate a goal, and this goal can then become operative and guide cognitive and behavioral processes within that environment, all without any need or role for conscious decision-making. Because there is no involvement of conscious processing at any point in the chain from the triggering environmental information to the enactment of goal-directed action, such a phenomenon can accurately be described as “unconsciously motivated” behavior.

Thus, what the auto-motive model adds to the already extant and well-accepted notion of autonomous, well-practiced skills or goals is that the initiating act of will itself can become delegated to the environment. Take again the example of driving (one we have gotten a lot of “mileage” out of in the past). We have argued above that driving is a complex perceptual-motor skill, in which decisions as to how to move the wheel, how hard to push the accelerator, when to be ready to hit the brakes, and so on are guided nonconsciously (in the experienced driver) by environmental information. In other words, these behavioral decisions are activated by the information in the environment relevant to those decision processes. Now recall that those decisions, in the novice and less experienced driver, are at first made *consciously*. Therefore, with experience, decisions that used to have to be made consciously no longer are, and what makes those decisions if conscious processes do not? Those decisions as to what to do next—what subgoal to follow, in other words—are made directly on the basis of the environmental information present. The information itself triggers those goal-directed actions.

Thus, in principle, there is no reason to believe that the goal “to drive,” or, to take a more social example, “to be patient,” cannot be removed from

conscious control and delegated to the environment. This is the key hypothesis of the auto-motive model of unconscious motivations—that conscious intent or will can be bypassed, that the gap between the environment and the autonomous goal can be bridged, making the entire process from start to finish nonconscious.

This position has precedents. James (1890, Ch. 4) described “secondarily automatic” thought and behavior patterns that function as do instincts (“primarily automatic”) in most animals, and that develop out of extensive experience and repetition. Jung (1931/1969) also posited that regular and routine patterns of behavior can become “instinctive” and, furthermore, can occur in the absence of a conscious motive: “Instincts are typical modes of action, and wherever we meet with uniform and regularly recurring modes of action and reaction we are dealing with instinct, no matter whether it is associated with a conscious motive or not”. Jung went on to note that because the motive for these habitual patterns of behavior may not be accessible to consciousness, the individual will supply a conscious motive or “rationalization” for it nonetheless and experience the action as if it were consciously chosen in the first place:

We are in a far better position to observe instincts in animals or in primitives than in ourselves. This is due to the fact that we have grown accustomed to scrutinizing our own actions and to seeking rational explanations for them. But it is by no means certain that our explanations will hold water, indeed it is highly unlikely. . . . As a result of our artificial rationalizations it may seem to us that we were actuated not by instinct but by conscious motives. . . . [There is no doubt that we have succeeded in enveloping a large number of instincts in rational explanations to the point where we can no longer recognize the original motive behind so many veils. . . . I am therefore inclined to believe that human behavior is influenced by instinct to a far higher degree than is generally supposed, and that we are prone to a great many falsifications of judgment in this respect. . . .

Gazzaniga (1985) has noted the same phenomenon in split-brain or Korsakoff's syndrome patients: A message is flashed to their right brain hemispheres to get up and leave the room (for example), and they do so. When stopped by the experimenter and asked where they are going, the subjects respond nearly immediately with a plausible (conscious) motive, such as “I needed to get a drink of water.” And posthypnotic suggestions have the same flavor. A subject is given the command that when she awakens from the trance, she is to crawl around on the floor on her hands and knees. She is awakened; she crawls around on the floor and says, “I think I lost an ear-ring down here” (Hilgard, 1977; see also Searle, 1992, Ch. 7).

The auto-motive model posits that goals and motives can become automatically associated with mental representations of environmental features in the same way that perceptual representations do—through frequent and consistent coactivation (Hebb, 1948; Shiffrin & Schneider, 1977). Perceptual categories (e.g., “tree,” “house,” “human being,” “hat”) become strongly tied

to their relevant environmental features, so that these categories are activated preconsciously in the presence of the features. By "preconsciously" we mean that the categories are activated immediately and reflexively upon sensory pickup of those features in the environment, with no conscious intent or involvement necessary (Bargh, in press). So too are such more abstract social categories as racial and sex stereotypes (Bargh, 1994; Brewer, 1988; Devine, 1989) in the presence of the corresponding racial or gender features of an individual, and trait categories in the presence of relevant social behavior (Bargh & Thein, 1985; Carlston & Skowronski, 1994; Gilbert, 1989). Goals and motives must be represented mentally, just as are trait concepts and stereotypes (Bargh, 1990; Kruglanski, Chapter 26, this volume), and so in principle, should be just as capable of developing these automatic preconscious links (Bargh, 1990).

Thus, if an individual frequently and consistently chooses the same goal within a given situation, that goal eventually will come to be activated by the features of that situation and will serve to guide behavior, without the individual's consciously intending, choosing, or even being aware of the operation of that goal within the situation.

THE WISE UNCONSCIOUS

We turn next to recent experimental evidence concerning the existence of unconsciously motivated social behavior. But first let us return once more to the issue of whether the unconscious is smart or dumb. If motivations and intentions that have been pursued repeatedly by an individual in a given situation can come to be activated nonconsciously and then guide behavior, the myth of the irrational and counterintentional unconscious would be exploded. The unconscious mind would thus take over control of behavior in situations in which the individual has chronically pursued the same goal in the past. In effect, over time the individual has delegated control over his or her behavior to the environment (Bargh & Gollwitzer, 1994). The system, in other words, recognizes regularities and eventually subsumes them, so that the conscious mind no longer has to make decisions it always makes the same way anyway.

The unconscious can therefore, in principle, be a source of intentions and goals independently from conscious intents and purposes. The unconscious intentions and goals activated by situational features would be the chronic, habitual ones pursued by the individual in that situation, whereas conscious intentions are the momentary, temporary ones that may or may not be the same as the unconsciously activated ones (see Bargh & Gollwitzer, 1994; Gollwitzer, Chapter 13, this volume). That there may be these two independent sources of intentions in any given (frequently experienced) situation fits well with Freud's notion of the society of the mind, in which the

conscious and unconscious portions of the ego were said to function as independent agents with their own agendas (see Glymour, 1992). The action slips categorized by Norman (1981) are good examples of these competing chronic and temporary intentions as well; doing something differently from the usual and habitual is possible but requires effort and attention, lest the behavior fall back into the chronic and unconsciously guided path.

But why should we consider the conscious purpose to be necessarily the "intentional" one, so that if behavior falls into the worn unconscious grooves, it is considered necessarily "counterintentional" or a "slip"? To our minds, the unconscious intention is just as "intentional" as—and, we would contend, perhaps even more "rational" than—the momentary conscious goal. For one thing, the unconscious intention reflects the regularities and frequency of past choices. The unconscious intention is to conscious intention as base rates are to single individuating pieces of information in the domain of judgments and decisions (e.g., Nisbett & Ross, 1980). The unconscious intention, which represents the entire history of choices by that individual in that situation, is arguably more stable and rational than the conscious choice that is in conflict with it, especially given the limits and foibles to which spur-of-the-moment conscious choices are prone (Dawes, 1976; Nisbett & Ross, 1980; Wilson & Schooler, 1991).

And why can't the *conscious* choice be the "unintended" one? Imagine that we say or do something based on how we feel at that moment—perhaps while angry, or after a drink or two, or in a very happy, giddy mood—and that it turns out badly. Later on, when we are not in that same momentary state, we regret our statement or action. We plead that what we said or did was not reflecting our true feelings or beliefs, and we point to our long past history of saying or doing something very different as evidence of our "true" beliefs in the matter. The point is that our conscious intentions and choices are always affected and moved around by our current state. Schwarz and Clore (1983; see also Schwarz, 1990) have shown how even our satisfaction with our entire lives is affected by our current, momentary mood state. To have our conscious intentions and decisions pushed around by our current temporary state is to make them much more variable and "noisy" than those based on a long history of choice; the latter must be the more stable.

Of course, there are bad habits as well as good ones. And being flexible enough to do something different from what one usually does in a situation is a critically important human ability. We are not proposing that unconscious intentions and processing are "better" than conscious intentions and processes—only that it is a mistake to equate *either* conscious or unconscious processing with rationality, and the other with irrationality. Conscious processing can be harmful or beneficial, and the same is true for unconscious processing: in other words, the dimensions "conscious-unconscious" and "good-bad" are orthogonal to one another (Higgins & Bargh, 1992).

UNCONSCIOUS INTENTIONS AND AUTOMATIC BEHAVIOR: EXPERIMENTAL EVIDENCE

Research on social perception has documented the existence of preconscious perceptual processes that influence one person's categorization of another's behavior, and consequently the impressions formed of the other person. Trait concepts such as "honesty," "intelligence," and "aggressiveness" can, with frequent use in understanding relevant social behavior, become capable of preconscious automatic activation in the presence of the features of that type of behavior in the environment. This means that the behavior is encoded and categorized in terms of that trait, regardless of the current focus of conscious attention or the current processing goal (Bargh & Pratto, 1986; Bargh & Thein, 1985; Higgins, King, & Mavin, 1982). The corresponding trait category is activated in the course of perceiving the behavior, without conscious intent or awareness of this interpretation of the information.

In the same way, social group stereotypes have been found to be pre-consciously activated by the presence of features of the stereotyped group (see review in Bargh, 1994). Thus, complex mental representations of social information such as trait concepts and stereotypes can become so strongly associated with patterns of environmental information that they are activated by these patterns with no conscious involvement necessary.

The auto-motive model assumes that such preconscious effects are not limited to social-perceptual representations, but that all aspects of the psychological situation (Mischel, 1973; Mischel & Shoda, 1995)—evaluations and motivations as well as meanings and beliefs—are capable of preconscious activation (Bargh, in press). The rule in all cases is that the psychological state or representation must be frequently and consistently activated in response to the given environmental situation or event. Thus, if a given goal or motive is chronically chosen and pursued within a given situation, it should eventually come to be pre-consciously (i.e., nonconsciously) triggered by the presence of those situational features.

From research on social perception, we know as well that temporarily activated or "primed" trait constructs behave identically to chronically accessible trait constructs (Bargh, Bond, Lombardi, & Tota, 1986; Bargh, Lombardi, & Higgins, 1988). For example, Bargh et al. (1986) found exactly the same biased interpretation of shy or kind behaviors by randomly sampled subjects whose concepts of "shy" or "kind" had been primed as for subjects who possessed a chronically accessible concept of "shy" or "kind" (but who were not primed). Thus, as long as one has independent confirmation that people do possess the mental structure in chronic form, one can simulate the chronic, preconscious effect of the structure in subjects selected at random via the experimental technique of priming.

These same priming techniques should be applicable to the study of whether motivations can also be pre-consciously triggered by the environment. In standard priming procedures (e.g., Bargh & Pietromonaco, 1982;

Higgins, Rholes, & Jones, 1977; Srull & Wyer, 1979), informational input relevant to a mental category is presented unobtrusively in the context of a separate first experiment (e.g., synonyms of a trait concept are presented as part of a "language ability test"), and then the influence of the primed category is measured in a second, ostensibly unrelated experiment.

Priming Cognitive Processing Goals

Researchers have already provided tests of the auto-motive model's hypothesis that goals and motives can be triggered nonconsciously (Bargh, 1990) within the domain of cognitive processing motivations. In the first study of this kind, Gollwitzer, Heckhausen, and Steller (1990) showed how a processing goal used in one context can persist in its activation and then carry over to be used in a subsequent context, even though there is no explicit choice of that goal in the second, apparently unrelated context. Subjects were instructed to adopt either a "deliberative" or an "implemental" mind-set in a first experiment, by thinking about a personal problem either in terms of alternative approaches to solving it, or in terms of specific actions they would actually take to solve it. Next, subjects completed a fairy tale after being given only the first few sentences; one example concerned a king who had to go away to war, but did not want to leave his daughter behind unprotected. Subjects who had previously thought in a deliberative mode were more likely to discuss all the possibilities the king was thinking about, whereas subjects who had previously thought in an implemental manner were more likely to complete the story with what the king actually did to solve the problem. Thus, the primed processing goal carried over to influence information processing in a subsequent task without conscious choice or awareness of that goal's operation, just as primed trait constructs carry over to influence subsequent person perception in the absence of choice or awareness of the influence.

More recently, Chaiken and her colleagues (see Chaiken, Giner-Sorolla, & Chen, Chapter 24, this volume) used the unrelated-first-experiment priming technique to activate either an impression or an accuracy motivation on the part of their subjects. Subjects were given scenarios to read and respond to, in which the protagonist either was concerned with being accurate in assessing the situation, or was concerned with making a good impression on another person. Next, in an apparently unrelated second experiment, subjects expected to discuss their opinions on a certain attitude topic with another subject, who was described as holding either favorable or unfavorable opinions on the matter. They then read an essay that contained arguments on both sides of the issue.

Results showed that subjects whose impression management goal had been primed aligned their own attitude position with that of the other subject; accuracy-motivated subjects' attitudes were not affected by the partner's position. Moreover, analysis of subject thought protocols showed that im-

pression-motivated subjects were evaluating the arguments supporting the partner's position more positively while they were reading the essay. Thus, the nonconscious activation of the impression goal changed the way subjects processed the arguments in the essay, in the service of the interpersonal goal to make a good impression on the partner.

Cialdini and his colleagues (Bator, 1994; Cialdini, Trost, & Newsom, 1995) have investigated individual differences in consistency motivation. Bator (1994) used a priming procedure to activate subjects' consistency goals, in order to experimentally manipulate whether consistency motivation was active for the subject or not during a standard cognitive dissonance experiment. The technique used was similar to that used by Chaiken et al. As part of a first experiment, Bator had her subjects read an essay ostensibly from another subject with whom they were going to interact later, after the second experiment was over. This essay indicated that the partner either valued consistency in beliefs and deeds, or did not. In the allegedly unrelated experiment, subjects wrote a counterattitudinal essay in favor of instituting comprehensive examinations at their university, under free-choice or no-choice conditions.

The standard dissonance effect is that final attitude positions in the free-choice group are more favorable toward the essay issue than are attitudes in the no-choice group. This effect was obtained, but only in the condition in which consistency motivation was primed. Subjects in the no-prime condition showed identical final attitude positions, whether they had written the counterattitudinal essay under free-choice or no-choice conditions.

Importantly, both Chaiken et al. in their research on motivated processing of persuasive arguments, and Cialdini and his collaborators in theirs on consistency motivation, also showed similar differences using measures of chronic individual differences in these motivations. Shechter and Chaiken (see Chaiken et al., Chapter 24, this volume) showed that subjects high in self-monitoring were more likely than those low in self-monitoring to have chronic impression motivations in persuasion situations, and to tailor their expressed attitudes to those of their experimental partner. Cialdini et al. (1995) have developed a "preference for consistency" scale that predicts individual differences in responding to classic consistency experimental situations: foot-in-the-door, balance, and dissonance. Results in line with these three effects was obtained only for those subjects who possessed this chronic preference for consistency; at least half of their subjects showed no such intrinsic preference for consistency in those experimental situations.

In other words, these cognitive motivations exist in chronic form as well as in temporarily primed form. And the same results are obtained with priming as are obtained with the chronic measure. This is important because, as stated earlier, priming as an experimental technique can demonstrate the role played by *chronic* motivational tendencies that are activated nonconsciously by features of relevant situations (i.e., situations in which those particular motivations have been frequently and consistently pursued in the

past). It is thus critical to show, as the research described above has done, that what is being primed exists in the real world in chronic form.

Priming Social Behavior

Thus far, the evidence indicates that both perceptual and motivational constructs can be activated unobtrusively and can proceed to influence cognitive processing, without the subject's knowledge of this influence (and hence without his or her current intention that it occur). Is it possible that social behavior can be determined automatically as well, by the mere presence of relevant situational features that activate the goal to behave in a certain way?

We (Bargh, Barndollar, & Gollwitzer, 1995; see Bargh & Gollwitzer, 1994) used the Strull and Wyer (1979) "scrambled-sentence test" priming procedure to activate the achievement goal, the affiliation goal, or no goal in subjects in an ostensibly separate "first experiment." We primed subjects with words related to achievement (e.g., "strive," "success") or affiliation (e.g., "friend," "sociable") in an initial "word search" puzzle. Next, subjects were placed in a goal conflict situation, in which the subjects could fulfill either the achievement goal at the expense of the affiliation goal, or the affiliation goal at the expense of the achievement goal. Each subject worked together with another subject (actually a confederate) as a team to find as many words as possible in each of a series of five additional word search puzzles.

This confederate, however, was very bad at the task, and as the experimental session progressed the confederate became more and more humiliated for not doing well. The subject was thus placed in a goal conflict situation where he or she could achieve a high score, but at the cost of hurting the confederate's feelings. Results showed that, as predicted, subjects primed with achievement stimuli found significantly more words on the puzzle than did the other subjects, especially on the early trials of the task. Debriefing of subjects revealed no awareness of the possible influence of the priming manipulation on their performance.

In a second experiment, this procedure was replicated, but we also measured each subject's chronic achievement and affiliation needs, using the Thematic Apperception Test to assess achievement motivation (McClelland, Atkinson, Clark, & Lowell, 1953; Sorrentino & Higgins, 1986) and the Jackson Personality Research Form (Jackson, 1984) to assess affiliation motivation. Again, subjects whose achievement goal had been primed performed at a reliably higher level than did the other subjects on the word search task, but only on the early trials. On the later trials, the temporary goal priming wore off, and now the subjects' chronic motivational tendencies look over. On the later trials, chronically achievement-motivated subjects scored higher than did the chronically affiliation-motivated subjects.

This result is important because it shows that priming of achievement and affiliation goals simulates in the short term the same effects that classical measures of chronic motivational states—achievement and affiliation,

in this case—show within the same experiment. Thus our confidence that motivations are being primed with our procedure is increased, because there are alternative interpretations for these findings.

A Nonmotivational Interpretation: The "Behavioral Schema"

Carver, Ganelen, Froming, and Chambers (1983) replicated an experiment by Srull and Wyer (1979) that utilized an unobtrusive priming technique. The concept of hostility was primed for some subjects in an unrelated first experiment. Next, subjects were instructed to shock a "learner" subject. Carver et al. found that those subjects primed with hostility gave longer shocks than did control subjects.

Carver et al. (1983) explained their results in terms of the activation of a "behavioral schema" for hostility. They argued that the mental representation subjects used to perceive hostility in others was likely to share many semantic features with the representation they used to produce hostile behavior themselves, and so activation of the perceptual construct of hostility was likely to spread to the behavioral construct. This would make a hostile response more likely to be consciously chosen by the subjects if such behavior was relevant (applicable) to the situation.

The concept of the behavioral schema has the elegant feature of being able to account for why the same priming manipulation (e.g., the Srull & Wyer [1979] scrambled-sentence test) can produce effects on impression formation in some studies and behavioral effects in others. Because Carver et al. (1983) used the same priming procedure that Srull and Wyer (1979) had shown to influence social perception, the inescapable conclusion is that the preconscious effect of hostile information is *simultaneously* to influence both one's perception of another's behavior and to increase the chances of one behaving the same way oneself.

Are the same mental structures involved in perceiving the behavior of others and in producing that same behavior oneself? This is a long-standing issue within psychology, called the "common-coding hypothesis" (Prinz, 1990). The question is whether perceptual representations and action representations are separate and distinct, requiring some kind of translation of information from one code to the other, or whether the same single code is used both to perceive and to engage in that type of behavior. Especially in the study of imitative behavior, including speech imitation, the controversy has raged for some time as to whether perception and behavior share a common coding system at the symbolic level (e.g., Koffka, 1925; Mackay, Allport, Prinz, & Scheerer, 1987).

The behavioral-schema account of our (Bargh et al., 1995) findings is that our priming manipulation did not activate a motive or goal to achieve or affiliate, but the perceptual representation of one or the other, which then spread to activate the behavioral representation. Thus, the behavioral representation of either achievement or affiliation was primed and more

accessible than the other, and when the subjects made a conscious choice as to what to do in the situation, this choice was influenced by the relative accessibility of one behavioral alternative over the other.

The behavioral-schema alternative raises two difficulties for the automatic model. One is that evidence must be acquired to demonstrate that motivational states are being primed, and not merely nonmotivational cognitive representations. The Bargh et al. (1995, Experiment 2) finding that the achievement- and affiliation-priming manipulations simulated the effects of classically measured chronic achievement and affiliation motivations is one piece of evidence that we did in fact prime motivations.

Motivational Qualities of Primed Goal States

In the face of this alternative explanation, we have conducted additional studies to test for the presence of qualities associated with motivational states that are not predicted by any purely cognitive account of our findings. These qualities are (1) persistence on a task in the face of interruptions or obstacles (Lewin, 1926; Ovsiankina, 1928; see also Heckhausen, 1989/1991; Wicklund & Gollwitzer, 1982); and (2) an increase in motivational tendency over time (Atkinson & Birch, 1970), as opposed to the decrease in activation strength over time (or at least no increase) predicted by all cognitive priming accounts (e.g., Higgins, Bargh, & Lombardi, 1985).

We (Bargh et al., 1995, Experiment 3) found that achievement-primed subjects showed greater persistence on a task in the face of an obstacle than did neutral-primed subjects. Some subjects were primed with achievement-related stimuli, and the remaining subjects with neutral stimuli. Subjects participated three at a time, with partitions between their desk chairs so that they could not see each other. However, all three subjects faced the front of the room, where a hidden video camera recorded them during the experimental session. After completing the priming task under the instructions that it was a separate "language ability" measure, subjects were given a rack of seven Scrabble letter tiles and told to find as many words with those letters as they could in the next 3 minutes, and write each down on the piece of paper provided. The experimenter then explained that she had to leave the room to run another experiment, but that if she could not get back by the end of the 3 minutes, she would give the signal to "stop" over the room's intercom.

Subjects were then told to begin, and the experimenter left the room. At the end of the 3 minutes, subjects were told to stop. The dependent measure was the proportion of subjects who continued to work on finding the words after the signal to stop had been given, as monitored by the experimenter via the hidden camera. The results were as predicted: 55% of the subjects in the achievement priming condition, but only 22% of subjects in the neutral-priming condition, persisted on the task after being told to stop.

In our final experiment (Bargh et al., 1995; Experiment 4), subjects first performed a matrix word search task in which they were primed with achievement-related or neutral stimuli. Next, for half the subjects in each priming condition, a 5-minute delay was interpolated before the dependent measure was assessed; for the other half, no delay was interpolated. Subjects in the delay condition drew their family trees in as much detail as they could. This was a task intended not to satisfy the achievement motive in any way. Next, subjects either read about a target person who behaved in an ambiguously achievement-oriented way (e.g., he crammed for an exam the night before) and then rated the target on achievement-related trait dimensions, or they found as many words as they could in a set of Scrabble letter tiles.

For subjects who performed the impression formation task, those who had been primed on achievement considered the target person to be more of an achiever than did other subjects, but only in the no-delay condition. Importantly, this difference disappeared after the 5-minute delay, replicating previous priming research in social perception. However, on the behavioral task, not only did subjects in the achievement-priming condition outperform the other subjects in both the no-delay and delay conditions; as the motivational interpretation would predict, the performance of the achievement-primed subjects was better after the delay than after no delay.

Another way to put this is that the achievement-priming condition results show a clear dissociation between the behavioral and judgmental effects of priming over time, in that the direction of the effect of delay is reversed between the two dependent measures (Dunn & Kirsner, 1988). Our obtained effect of achievement priming on behavior, in other words, cannot be merely an effect of the activation level of a perceptual or behavioral representation. No model of cognitive activation effects posits an *increase* in activation over time following priming. Only motivational systems show such effects (Atkinson & Birch, 1970).

One additional point to be made in the wake of these results is that it is a goal or strategy that is clearly being activated by our priming manipulation, and not a specific behavioral tendency. If we were just priming a specific behavioral tendency, it would be enacted right away. Instead, the activated goal follows the principle of "applicability" (Higgins, 1989): An accessible representation does not operate on its own, in the absence of relevant input, but only in the presence of environmental information for which it is applicable. Notably, Ach (1935) defined intentional states in a similar way; according to this early theorist of the conscious will, it is usually not the case that one begins acting immediately upon the activation of a motivational tendency. Rather, one waits for the opportune moment in time—the occurrence of situational events that give one the chance to attain the goal (see also Vera & Simon, 1993).

Goals Can Operate without Conscious Consent

The second objection that could be raised by proponents of the nonmotivational, behavioral-schema model is that our studies thus far do not rule out the involvement of conscious intention or choice in producing the achievement or affiliation behavior. The strong form of the auto-motive hypothesis is that the entire sequence from triggering environmental information to enactment of goal-directed action requires no conscious intervention. Without evidence that goals can be activated and operate without conscious choice, what we are left with is evidence for a weak form of the auto-motive hypothesis: that the environment can trigger goals and motives, and make them more accessible, but that conscious choice of those goals is nonetheless needed for action to result.

However, recent studies argue against the necessity of a conscious choice point. We find it implausible, for example, that subjects in the consistency-priming condition of the Barot (1994) dissonance study described above consciously chose the goal of preserving consistency between their attitude and their behavior, and therefore changed their attitude as a result. Equally unlikely in our view is that subjects in the Gollwitzer et al. (1990) study consciously chose the primed implemental or deliberative goal when asked to complete the fairy tale. And in the experiments (Bargh et al., 1995, Experiments 3 and 4) that documented the motivational qualities of primed goal states, our findings of greater persistence, and especially the increase in unconscious motivational tendency with increased time since priming, speak against the role of conscious choice as well. In these studies, the dependent measure was not the *choice* of behavior among possible alternatives, as in the previous studies, but the presence of heightened goal desire and increasing effort over time. It is difficult to see how these effects are somehow a matter of deliberate choice.

As discussed earlier, the standard method for demonstrating that an effect is unconscious and not attributable to conscious intent is to show that it is different from what subjects would do when that unconscious influence is not operating (Jacoby, 1991). Accordingly, in order to demonstrate that activated goals operate without the need for conscious selection of them, an experiment was conducted to show the counterintentional effects of an activated processing goal.

Bargh and Green (1995) showed subjects a videotaped conversation between two men, from the vantage point of behind one man and looking over his shoulder toward the other. Subjects were told either that the conversation was between two acquaintances who had not seen each other for a while, that the situation was a job interview for the position of investigative crime reporter for a city newspaper, or that it was a job interview for a restaurant waiter position. The conversation condition was intended as a control condition in which no explicit evaluative goal was given to subjects. The report-

er and waiter conditions were designed on the basis of pretesting, which showed that the qualities the pretest subjects felt would make a good reporter (e.g., tough, aggressive, dominant) were the opposite of those that would make a good waiter (e.g., friendly, acquiescent), and vice versa. The scripted conversation subjects saw on the videotape was the same for all three conditions, and was ambiguous enough that each of the three cover stories was plausible.

The critical experimental manipulation came about halfway through the tape, in which another male knocked on the door, entered the room, and inquired of the interviewer whether he was ready for their lunch date. The interviewer expressed regret that he was busy at the moment with an interview. At this point, in one condition the interrupter ("Mike") became testy and reminded the interviewer that his (Mike's) time was very short that day and that they would have to leave right at noon. When the interviewer persisted in his position that he could not leave in the middle of the interview, Mike also persisted in his position that he could not wait and they would have to make it another time. In the other tape condition, Mike apologized for having interrupted.

Our hypothesis was that even though subjects were not intending to evaluate Mike (their attention was focused on the interview), they would do so in line with the goal that was currently operating for the interview itself. Immediately after the tape had finished, we informed subjects that we were actually interested in their opinion of Mike, the person who interrupted about the lunch date, and asked subjects to rate Mike's likability. As expected, subjects in the control condition did like the polite Mike better than the assertive Mike. More importantly, this difference was stronger in the waiter condition, and was actually reversed in the reporter condition. Subjects who were considering the interviewee for the crime reporter position liked the assertive Mike reliably better than the polite Mike.

Importantly, auxiliary trait ratings of Mike by subjects showed that the obtained likability effect was not attributable to subjects' interpreting Mike's behavior differently on the basis of their particular processing goal. Subjects in the reporter condition rated Mike as more rude and stubborn, and less agreeable, cheerful, and polite, than did the subjects in the waiter or control conditions; subjects in the latter two groups rated Mike as less adventurous, aggressive, and persistent than did the reporter subjects. In other words, subjects in the reporter condition liked the interrupting Mike better, *despite* having accurately perceived him as behaving badly.

Left to their own devices, subjects in this experiment showed a clear preference for the polite, apologetic version of Mike. When a goal was operating, however, it operated on all available information for which it was applicable, regardless of whether the individual intended it to. Operating goals are autonomous in that respect. Moreover, judgments were made that were clearly counter to what the subjects would make normally. One can imagine asking control subjects whether they would want the interrupting Mike as

a friend, and their emphatic negative answer. Yet subjects in the reporter condition, if asked to choose between the two versions of Mike, would—based on their comparative likability ratings—choose interrupting Mike. And real-life versions of this effect are not hard to imagine either: A person working all day in a cutthroat, competitive atmosphere, where being hard-nosed and tough-minded are highly valued traits, might well choose a romantic partner with the same qualities (with potentially disastrous results), whereas asking him or her about the ideal mate might result in quite a different description.

Summary

Taken as a whole, these studies show that behavioral as well as cognitive goals can be activated directly by the environment without conscious choice or awareness of the activation; that the goals, once activated, direct information processing and social behavior; that the state activated by the priming manipulations in these studies has demonstrable motivational qualities; that the states achieved by priming in these studies also exist in chronic form; that there are individual differences in these chronic motivations; and that the activated goals operate autonomously, bypassing the need for any conscious selection or choice of them, and even producing outcomes different from what the individual would choose if the goal were not primed. In short, every postulate of the auto-motive model (Bargh, 1990) has been supported by these studies, demonstrating that the entire sequence from environmental information to goal and motivation, and then to judgment and action can and does transpire automatically and unconsciously.

CONCLUSIONS

We have argued for the existence of unconsciously generated motivations and automatic action—for a conception of the unconscious as an implicit repository of a person's long-term experience and history of past choices. We have disputed the traditional view of the unconscious as the source of the irrational, in contrast to a presumably rational consciousness. Instead, just as Bayesian notions of decision making call for substantial weight to be placed on long-term frequencies or base rates of events, relative to single recent occurrences (e.g., Kahneman & Tversky, 1973; Nisbett & Ross, 1980), it may often be more rational to base one's decisions and preferences on unconscious rather than conscious information processing (see also Wilson & Schooler, 1991). In any case, we have attempted to show that the unconscious is not limited to brief and relatively uninteresting perceptual effects (see Greenwald, 1992), but plays a important and determining role in the creation of all aspects of the psychological situation, from perception to evaluation (Bargh, in press) to motivations and behavior.

The central proposition of the auto-motive model that guided the research discussed above—that automatic links exist between specific sets of situational features and behavioral goals—is quite consistent with recent research and models of the conditions under which people actually do behave consistently. Ajzen and Fishbein (1977; see also Ajzen, Chapter 17, this volume), for example, argued that attitudes and behavior correlate poorly because attitudes are assessed too generally in relation to the specificity of behavior. Their review showed that the correlation between attitude and behavior increases when a more specific attitude is assessed, that toward performing the behavior in question. In other words, consistency is not found so much over broader domains of attitude-related behaviors, but is found when attitudes toward more specific behaviors are measured.

The auto-motive model is also quite compatible with Mischel and Shoda's (1995) model of personality coherence. They have shown that evidence for the existence of personality as a consistent pattern of behavior is quite weak when behavior is averaged across different situations thought by the experimenter to be similar, but that when behavior within specific situations is examined, consistency is actually quite high (Shoda, Mischel, & Wright, 1995). In other words, it is the psychological situation for the individual that matters, and this may vary for the individual within apparently similar objective situations. Most importantly, when the situation is defined at the level of a specific set of features, a much greater degree of behavioral consistency is found over time. If an individual's chronic goals and motivations are tied to specific sets of situational features, as the auto-motive hypothesis holds, these unconsciously activated and operating goals would be expected to produce the high degree of behavioral consistency that Mischel and Shoda (1995) have uncovered.

William James could think of no better advice for the young than to develop good social and interpersonal habits, so that their behavior would be guided by these habits for the rest of their lives:

We must make automatic and habitual, as early as possible, as many useful actions as we can, and guard against the growing into ways that are likely to be disadvantageous to us, as we should guard against the plague. The more of the details of our daily life we can hand over to the effortless custody of automatism, the more our higher powers of mind will be set free for their own proper work. There is no more miserable human being than one in whom nothing is habitual but indecision. . . . Full half the time of such a man goes to the deciding, or regretting, of matters which ought to be so ingrained in him as practically not to exist for his consciousness at all. (1890, Vol. 1, p. 122)

The grooves into which social behavior falls, for the most part, are laid down by the decisions we make in those particular circumstances in the past. The automation of those decisions of the past, as James noted, results in their being made for us nonconsciously in the present. The automation of the goals we pursue in each of the wide variety of social situations we frequent

ly encounter enables us to deal effectively or ineffectively with the world; they produce either satisfaction or hardship, friends or enemies. Regardless of how adaptive and functional the particular unconscious goals in a person's repertoire may be, in our view they are the *Grund* of that individual's personality and true self.

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NOTE

1. That a given researcher uses counterintentional behavior to document the existence of nonconscious influences does not mean necessarily that he or she personally holds the view that the unconscious is only a source of error or mistake. Our point here is merely that the evidentiary basis for the existence of the unconscious is heavily skewed in the direction of error and mistake, giving a potentially misleading impression as to the actual capabilities and usual functioning of the unconscious.

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