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Automaticity of Social Behavior: Direct Effects of Trait Construct and Stereotype Activation on Action

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For many years, social psychologists have studied the effects of priming on the individual's subsequent impressions of oth-ers. *Priming* refers to the incidental activation of knowledge structures, such as trait concepts and stereotypes, by the current situational context. Many studies have shown that the recent use of a trait construct or stereotype, even in an earlier or unre-lated situation, carries over for a time to exert an unintended, passive influence on the interpretation of behavior (see Bargh, 1994;Higgins, 1989; Wyer & Srull, 1989, for reviews).

We argue here that such passive, automatic effects of priming need not be limited to social perception. Recent research has shown that attitudes and other affective reactions can be trig-gered automatically by the mere presence of relevant objects and events, so that evaluation and emotion join perception in the realm of direct, unmediated psychological effects of the en-vironment (see Bargh, 1994, in press, for reviews). But assum-ing that behavioral responses to situations are also represented mentally, as are stereotypes and attitudes, they should also be capable of becoming automatically activated, by the same prin-ciples that govern the development of automaticity of other representations.

Automaticity in Attitudes and Social Cognition

The extent to which one's own thought and behavior are or are not under one's own intentional control is a fundamental existential question (see Posner & Snyder, 1975; Uleman & Bargh, 1989). Indeed, over the past two decades, researchers in the area of attitudes and social cognition have documented that many of the phenomena they study are unintentional or auto-matic in nature (for reviews, see Bargh, 1994; Smith, 1994, in press; Wegner & Bargh, in press). Attitudes are discovered to become activated automatically on the mere presence of the at-titude object, without conscious intention or awareness (i.e., preconsciously; see Bargh, 1989), to then exert their influence on thought and behavior (Bargh, Chaiken, Govender, & Pratto, 1992; Bargh, Chaiken, Raymond, & Hymes, 1996;

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Fazio, San-bonmatsu, Powell, & Kardes, 1986). The self-concept (Bargh, 1982; Bargh & Tota, 1988; Higgins, 1987; Strauman & Higgins, 1987) is shown to become active automatically on the presence of self-relevant stimuli to affect self-perception and emotions. Stereotypes become active automatically on the mere presence of physical features associated with the stereotyped group (Brewer, 1988;Devine, 1989; Perdue & Gurtman, 1990; Pratto & Bargh, 1991), and categorizing behavior in terms of person-ality traits (e.g., Carlston & Skowronski, 1994; Winter & Ule-man, 1984) and then making dispositional attributions about the actor's personality (e.g., Gilbert, 1989; Gilbert, Pelham, & Krull, 1988) have both been shown to occur automatically to some extent.

This growing evidence of automaticity in social psychological phenomena notwithstanding, it remains widely assumed that behavioral responses to the social environment are under con-scious control (see review in Bargh, 1989). These responses might well be consciously chosen on the basis of automatically produced perceptions and feelings (especially when the individ-ual was not aware of the potential for any such nonconscious influence; see Herr, 1986, and Neuberg, 1988), but the ultimate behavioral decisions themselves are believed to be made con-sciously. Devine (1989), for example, argued for a two-stage model of prejudice in which the perceptual phase is automatic (i.e., activation of stereotypes by the target person's features), whereas the second phase of prejudiced behavior is a matter of conscious choice, driven by one's relevant values. Fiske (1989) argued that a person could "make the hard choice" and over-come stereotypic influences on behavior if sufficiently moti-vated to do so.

Indeed, the traditional rationale for the study of attitudes and social cognition is the belief (even faith) that choices of social behavior are based on the outcome of these processes—thus, it is social behavior that is the long-term focus of this research (i.e., "thinking is for doing"; Fiske, 1992). The historic purpose of attitude research has been that attitudes predicted behavior, and evidence to the contrary (e.g., LaPiere, 1934; Wicker, 1969) was cause for alarm, similar to the purpose of personality re-search (e.g., Mischel, 1968).

The impetus behind automaticity research is no different. Research into the automaticity of attitudes was first conducted because it was

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hypothesized that attitudes that became active automatically (preconsciously) in the presence of the attitude object would be more likely to influence behavior toward the object than those that depended on intentional conscious re-trieval of the attitude (Fazio et al, 1986). The presumption be-hind studies of automatic influences in social perception, such as via primed or chronically accessible trait constructs (e.g., Bargh & Pietromonaeo, 1982; Bargh & Thein, 1985), was that such preconscious influences would play a stronger than usual role in subsequent behavior toward the target person, as the per-ceiver would not be aware of the interpretive bias and so could not correct for it (Bargh, 1989). In a similar fashion, research into the automaticity of stereotyping has been motivated by a larger concern with the controllability of prejudicial behavior (Devine, 1989; Fiske, 1989).

Focusing the research spotlight on attitudes and perceptions as mediators of behavior, in the present view, has obscured the possibility that behavior need not always be so mediated. Al-though it is quite reasonable to assume that attitudes and social perceptual processes exist in the service of guiding behavior, this does not require the assumption that behavioral responses al-ways require such services.

The Case for Automatic Social Behavior

We propose that social behavior is often triggered automati-cally on the mere presence of relevant situational features; this behavior is unmediated by conscious perceptual or judgmental processes. We turn next to a discussion of several lines of sup-port, both theoretical and empirical, for this hypothesis.

Behavioral Responses Can Be Associated With Situational Features

Social-behavioral responses are represented mentally just as are trait concepts and attitudes. Thus, they should be capable of becoming activated automatically on the mere presence of relevant features in the environment by the same principles that produce automatic trait categorization and automatic attitude activation.

Several theorists have argued that behavioral responses are activated immediately by the situational context. Lewin's (1943) notion of the *psychological situation* considered it to consist of the totality of the individual's immediate reactions to the objective, external situation.

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Mischel (1973) further devel-oped this concept as part of his social-cognitive model of per-sonality. He noted that an individual can have all sorts of im-mediate reactions to a person or event, not limited to cognitive or perceptual ones but including (a) expectancies for what was going to happen next in the situation; (b) subjective evaluations of what was happening; (c) emotional reactions one has had in that situation in the past; and, most important to the present thesis, (d) the behavioral response patterns one has available within the situation based on one's past experience (see also Higgins, 1987).

There is no theoretical or conceptual reason why the effects of preconscious, automatic activation should be limited to per-ception and evaluation. Preconscious activation of mental rep-resentations develops from their frequent and consistent activa-tion in the presence of a given stimulus event in the environ-ment (Bargh, 1989; Shiffrin & Schneider, 1977). This is the mechanism behind the automaticity of trait construct activa-tion given the mere observation of trait-relevant behavior, of at-titudes in the mere presence of the attitude object, and of ste-reotypes on the mere presence of a stereotyped group member. To the extent that an individual repeatedly has the same reac-tion to a social stimulus event, the representation of that re-sponse should come eventually to be activated automatically on the mere occurrence of that event. Thus, if an individual con-sistently behaves the same way in response to a situation, that behavioral response should become automatically associated with those situational features. In harmony with this hypothe-sis, Mischel and Shoda (1995; Shoda, Mischel, & Wright, 1994) have provided several demonstrations of a high degree of con-sistency over time in an individual's behavioral responses to the same situations, when situations are defined in terms of specific, concrete sets of features.

The Principle of Ideomotor Action

William James held that the mere act of thinking about a behavior increased the tendency to engage in that behavior; he called this the *principle of ideomotor action:* "We may lay it down for certain that every representation of a movement awak-ens in some degree the actual movement which is its object" (1890, p. 526). James's notion of awakening here is similar to modern notions of accessibility, in that the internal (through ideation) activation of a representation (i.e., through imagining

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the behavior) increases its accessibility of likelihood of activa-tion. Modern research on construct accessibility has shown that mental representations can become activated from many sources, including one's goals, external environmental events, long-term use, and recent thought. Moreover, all of these possi-ble sources increase the accessibility or ease of use of that rep-resentation in an interchangeable, additive fashion (Bargh, Bond, Lombardi, & Tota, 1986; Higgins & King, 1981). For James, imagining or thinking about a behavioral response had the same kind of priming effect on the likelihood of engaging in that response.

However, Lashley (1951), in a famous discourse on the se-quential organization of behavior, was the first to use the term *priming* to describe the preparatory function of thought. Thinking has the function of preparing the body for action, and Lashley's given example of this was the production of fluent speech. To be able to speak words in an understandable, serial fashion, just as to act in a sequential manner, requires a prior organization of the representations that are to be used, in the intended sequence. The function of this preparation allows for the fluidity of spoken thoughts and ideas and the enactment of organized movements in the proper order. Thus, like James, Lashley argued for the necessity of a direct connection between thought and behavioral representations (N.B., not limited to those used in speech).

The automaticity of the ideomotor-action effect—that merely thinking about a behavior makes it more likely to occur, even if it is unintended—has been demonstrated recently in a series of studies by Wegner and his colleagues (see Wegner, 1994, for a review). Wegner's *ironic process* model contends that acts of intentional control over our thought and behavior involve an automatic monitoring of the presence of the unwanted state. When this automatic vigilance notices the to-be-controlled thought or response tendency, conscious processing can inhibit it from occurring. In this way, experimental participants can distract themselves from thinking about white bears (for example) by consciously thinking about something else. But this control over unwanted thoughts can occur only when there is sufficient attentional capacity available for the act of control. If the person is distracted, or is under attentional load, an ironic effect is likely to occur: The very thought or behavior one did not want to happen, does happen.

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The irony of this effect is that the likelihood of this occur-rence (under attentional load) is actually greater than if the per-son had not tried to stop that response. Thus, in one experi-ment, participants under attentional load who are trying not to make sexist completions to word fragments actually make more than participants not instructed to try to avoid sexism. Accord-ing to the ironic process model, this occurs because the repre-sentation of the unwanted response is more accessible than usual because the person is watching out for its occurrence and has to keep it in mind to do so. For present purposes, the im-portance of these findings is that the mere act of thinking about a response, even when the thought involved is meant to help prevent that response, has the automatic effect of increasing the likelihood of that response. The principle of ideomotor action, to put it another way, operates in the absence of the person's intention to engage in that behavior and even when the person is trying to avoid that behavior.

Ansfield and Wegner (1996) applied the ironic process model to understanding the classic literature on automatisms, or be-haviors that do not appear to be consciously produced, like the spinning table in seances, a divining rod, or the movement of the pendulum in Chevreuil's illusion. In the latter case, the pen-dulum held dangling above a table moves—apparently of its own accord—when the person is told to hold it completely still. In fact, the pendulum tends to move along the very axis along which the person is trying to prevent it from moving. Ansfield and Wegner showed in several experiments that this effect is produced by the very attempt to prevent the seance table or the pendulum from moving; participants are of course not aware of the automatic effect that the thoughts about the to-be-avoided movement have on their behavior and so cannot control it.

The Perception-Behavior Link

Just as the accessibility or likelihood of use of a concept in-creases no matter what the particular the source of that accessi-bility, the likelihood of a behavioral response may increase from thinking about that behavior, regardless of the source of that thought. Specifically, cognitions about a type of behavior can come not only from internal sources, as in the above examples, but also from external sources, such as perceiving that type of behavior enacted by others.

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There is a strong historical precedent for postulating an auto-matic link between the representations used to perceive behav-ior and those used to engage in that behavior oneself. Imitation, for example, consists of performing an action that corresponds in its structure to the perceived action of another person. The capacity to imitate is present in early childhood (Piaget, 1946) and even in newborns (Meltzoff & Moore, 1977, 1983). Such scholars ofimitative behavior as Koffka(1935), Piaget(1946), and Bandura (1977) all have proposed that imitation is made possible by a common or shared representational system for perceptual and action codes (see Prinz, 1990, for a review). Schank and Abelson's (1977) script theory argues that the same mental structures used to understand and anticipate the se-quence of behavior in social situations also is used to generate appropriate responses to them. Theories of speech production have increasingly emphasized the mediational role played by the representations involved in speech perception (see Dell, 1986; Meyer & Gordon, 1984; Prinz, 1990). Also, Zajonc, Pie-tromonaco, and Bargh (1982) showed that people implicitly mimic the facial expressions of others, such that when this sub-tle imitation is prevented (i.e., by having them chew gum while the faces are presented), memory for the faces is impaired.

In 1984, Berkowitz reformulated his theory of how violence portrayed in the mass media increased the probability of ag-gression in the viewer by invoking James's principle of ideomo-tor action. Activation was said to spread in memory from rep-resentations of the violent acts perceived in the media to other aggressive ideas of the viewer, and this spreading activation oc-curred "automatically and without much thinking" (p. 410). Similar to Mischel's (1973) analysis, Berkowitz (1984) argued that behavioral responses as well as thoughts and emotions could all be activated automatically by aggressive stimuli: "The present conception does not stop with the individual's thoughts and memories. . .It holds that externally presented ideas can activate particular feelings and even specific action tendencies as well" (p. 410).

An experiment by Carver, Ganellen, Froming, and Chambers (1983) provided evidence in line with Berkowitz's (1984) ideo-motor action model of the effect of aggressive cues on aggres-sion. In a first experiment, some participants' concept of hostil-ity was primed subliminally, following the procedure of Bargh and Pietromonaco (1982). Then, in what they believed to be an unrelated second experiment,

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participants were instructed to give shocks to another "learner" participant (actually a confederate) whenever he or she gave an incorrect answer. Com-pared to participants who were exposed to neutral priming stimuli, those presented subliminally with hostility-related primes gave longer shocks. Carver et al. (1983) accounted for their results in terms of a behavioral schema for hostility and its close semantic associative ties to the "interpretive schema" used to perceive hostility. Because of the degree of semantic feature overlap between the two representations, the authors argued, activation will spread automatically from the interpretive to the behavioral schema, so that perceiving another person's hostilty increases the likelihood that one will behave in a hostile manner oneself.

The behavioral schema notion, which is a variant of the ideo-motor action hypothesis, has the desirable ability to account for how the same priming manipulation can produce effects on impression formation in one study (Bargh & Pietromonaco, 1982) and behavior in another (Carver et al., 1983, Experiment 2). Because the only difference between the two studies was the particular dependent measure collected following the priming manipulation, the inescapable conclusion is that the activation of the concept of hostility had the simultaneous effects of mak-ing the participant both more likely to perceive hostility in an-other person and to behave in a hostile manner him- or herself.

To us, Carver et al.'s (1983) results are an intriguing clue that the influence of perception on behavioral tendencies is auto-matic, in that it is passive, unintentional, and nonconscious. Therefore, recent evidence of automatic influences in- social perception, such as the automatic activation of stereotypes and priming effects on impression formation (see Bargh, 1994, for a review), when related to the foregoing discussion, implies that there may be behavioral consequences of automatic social per-ception for the perceiver. For it is precisely when the individual is not aware of a perceptual process that conscious control over it is not possible (Bargh, 1989; Strack & Hannover, 1996), max-imizing the possibility of the passive perception-behavior effect.

The Present Experiments

From the various streams of evidence reviewed above, several principles can be derived concerning the conditions under which automatic social behavior will be produced. First, behav-ioral

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representations exist and can become activated. They can become active and accessible when one thinks about that kind of behavior, either actively or passively. The tendency to behave in line with the representation is increased when it is activated, whether the reason for that activation is (a) an intention to pre-pare to engage in that behavior (e.g., Lashley), (b) an intention not to engage in that behavior (e.g., Wegner), (c) merely think-ing about that behavior without an intention to engage in it or not (e.g., James), or (d) merely perceiving that kind of behavior in another person (e.g., Berkowitz).

The present hypothesis is that social behavior should be ca-pable of automatic activation by the mere presence of features of the current environment just as are social perceptions and attitudes. By the mere presence of environmental features, we mean that the activation of the behavioral tendency and re-sponse must be shown to be preconscious; that is, not dependent on the person's current conscious intentions (see Bargh, 1989, in press). By these criteria, none of the research reviewed above has demonstrated direct, automatic behavioral effects. The ironic process research has indeed shown automatic behavior in that it is unintended by the individual and even uncontrollable when attention is in short supply. These effects are goal depen-dent in that they are produced by an act of conscious intention (see Wegner, 1994, for a similar but more elaborate analysis) and would not occur without that intention in place.

Moreover, in all of the studies reviewed by Berkowitz (1984) that were in favor of the perception-behavior link, including Carver et al.'s (1983) experiments, participants were given the explicit, conscious goal to engage in the behavior that was shown to be affected by the priming manipulation. In Berkowitz and LePage's (1967) and Carver et al.'s (1983) studies, for ex-ample, participants were instructed to take the role of teacher and give shocks to a learner. These studies showed that the in-tentional behavior could be affected in intensity or duration by the aggression priming manipulation (the presence of guns or prior exposure to synonyms of aggression), but they did not show the behavior to be produced automatically, in the absence of that explicitly given intention.

Thus, although all of these lines of evidence are suggestive and supportive of the hypothesis of automatic social behavior, they have not demonstrated it. The three experiments we report in this article were

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designed to provide a definitive test of this hypothesis. In Experiment 1, participants were primed on the traits of either rudeness or politeness (or neither) with Srull and Wyer's (1979) scrambled-sentence test. In Experiment 2, we again used the scrambled-sentence priming manipulation but used it to activate the participants' stereotype of elderly people. In neither experiment were participants given any explicit con-scious instructions to act in line with any of the trait dimensions being primed or measured. In fact, in both experiments the key dependent behavioral measures were taken at times when par-ticipants believed they were not currently engaged in an experi-mental task at all (i.e., in the hallway between parts of the ex-periment, or after they thought the experiment was over). In Experiment 3, a different priming manipulation—photographs of male African American faces—was used, and it was pre-sented subliminally. This change was intended to extend the generality of the present findings to more realistic environmen-tal stimuli and to effectively rule out any possible demand inter-pretations of the first two experiments.

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