

Social cognition: Categorical person perception

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In attempting to make sense of others, perceivers regularly construct and use categorical representations (e.g. stereotypes) to streamline the person perception process. A debate that has dominated recent theorizing about the nature and function of these representations concerns the conditions under which they are activated in everyday life. The present article reviews this work and considers the automaticity of category activation in person perception.

But then, the people became terribly afraid and anxious. For lo! the Cognitive Miser had become transformed, by the magic of further research, into the Cognitive Monster. No longer did the creature use simplifying categories and stereotypes by choice or strategy, their use had become an addiction—uncontrollable, not a matter of choice at all—and the creature's Will was powerless to do anything else. 'We must do something!' cried the people of Social Psychology. 'We must slay the monster!' And so their heroes came forth.

Bargh (1999, p. 361)

In identifying social cognition as the dominant theme in contemporary experimental social psychology, it is gratifying to acknowledge the prominent contribution that British research has made to the development of work in this area. Motivated by the desire to understand how perceivers make sense of their social worlds, researchers have employed a social-cognitive framework in an attempt to inform a range of issues in experimental social psychology. The fruits of this approach have been many. To give but a brief flavour of some of the topics that have benefited from a cognitive analysis of everyday thinking and behaviour, social-cognitive approaches have advanced our understanding of attitudes, language, attributions, the self, everyday memory, judgment and decision-making, and person perception. In each of these areas, moreover, British research has played an important role in shaping the intellectual landscape. By providing process specificity and theoretical coherence, social-cognitive approaches have illuminated numerous dark corners of the discipline. Given the focus of this special issue (i.e. perception and cognition), however, our emphasis in the present article is on person

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perception—specifically, the activation of stereotypical thinking. This choice of topic was driven by two observations. First, person perception sits nicely within the cognitive perspective that characterizes the other articles in this special edition. Secondly, it is an aspect of social cognition in which there have been significant British contributions.

A ubiquitous demonstration in person perception is that people's outputs (evaluations, impressions, memories) are shaped and guided by their knowledge and pre-existing beliefs about the social world (e.g. Macrae & Bodenhausen, 2000; Sherman, Macrae, & Bodenhausen, in press). Rather than viewing individuals on the basis of their unique constellations of attributes and proclivities, perceivers prefer instead to furnish categorical (i.e. stereotype-based) conceptions of others. That person perception is dominated by schematic thinking was acknowledged by Bartlett (1932) in his influential writings on the constructive nature of cognition. According to Bartlett, information processing is an active process that is guided and shaped by people's generic beliefs about the world (i.e. schematic thinking; see also Brewer & Nakamura, 1984; Neisser, 1976; Schank & Abelson, 1977). As such, rather than responding to the world as it really is, people's inferences and memories are embellished by schematic forces that guide information-processing and its associated products in an expectancy-consistent manner. In one of his most celebrated experiments, for example, Bartlett (1932) investigated the ability of British undergraduates to recollect a Native American folktale entitled *The war of the ghosts*. His findings confirmed the constructive nature of cognition. When participants furnished their recollections of the tale, they reported events that were not part of the original story. What characterized these errors of commission, however, was that they were generally consistent with the sort of information that one would expect to encounter in typical English fairytales. In other words, through the operation of schematic forces, participants manufactured memories that were concordant with their pre-existing beliefs about the world.

Developing and extending Bartlett's (1932) ideas, seminal writers such as Allport (1954) and Tajfel (1969) set the stage for what has now become the dominant assumption in much of person perception—namely that people's schematic preconceptions drive their evaluations of, and reactions toward, others. As Tajfel observed, 'human attempts to understand the physical or biological environment . . . work within the limits imposed by the capacities of individual human minds . . . A "satisfactory" explanation will manage to preserve personal integrity while at the same time—for reasons of cognitive economy—it will tend towards as much simplification as the situation allows for' (1969, pp. 79, 92). Noting the fundamental importance of categorical person perception in mental life, Tajfel and his colleagues embarked on a pioneering research programme. From this research community, a clutch of theoretical ideas have emerged (i.e. social identity theory, self-categorization theory), ideas that continue to dominate empirical work on intergroup behaviour to the present day.

In recent years, research groups in the UK (and beyond) have continued to explore basic aspects of the person perception process. For the most part, this work extends Bartlett's (1932) writings on the schematic nature of person perception and draws heavily on Tajfel's (1969) identification of the cognitive determinants of social interaction (see also Allport, 1954). One particularly fruitful approach to problems in this area has been to integrate European ideas on intergroup behaviour with the more process-based social cognition research that emanates from North America. This integrative perspective has

promised to deliver important new insights into the vagaries of the person perception process. A case in point is the puzzling issue of exactly when perceivers use generic knowledge structures, such as stereotypes, to guide their dealings with others—a topic considered in particular detail in the present article. As is commonplace elsewhere in science, the guiding assumptions of contemporary social psychological solutions to this question are often conveyed via metaphors that capture the essential characteristics of human mental functioning. Prior to detailing the empirical evidence that speaks directly to this issue, we outline some of the metaphors that have attempted to capture the essential features of social-cognitive functioning (see also Sherman *et al.*, in press).

Metaphors of social-cognitive functioning

Cognitive misers and mental sluggards

In what turned out to be a defining moment for the field, Fiske and Taylor (1984) famously characterized the social perceiver as a ‘cognitive miser’. This metaphor of mind draws on the recognition that humans are rarely motivated to engage in the mental activity necessary to optimize their evaluations of others. Rather, they do just enough mental work to get by, mental work that is simplified through the activation of category-based knowledge structures. Gilbert and Hixon (1991) were less charitable in their analysis of this issue, suggesting that people often avoid the trouble of thinking simply because they are mental sluggards and that ‘a stereotype is the sluggard’s best friend’ (p. 509). Although undoubtedly unflattering, this characterization of human nature contains at least a grain of truth. Fundamental to this account of social-cognitive functioning is the assumption that reliance on categorical knowledge structures is mentally easier than the alternative of forming data-based, individuated impressions of others (Fiske & Neuberg, 1990; Pendry & Macrae, 1994). Simply stated, categorical thinking is preferred because it is cognitively economical.

Motivated tacticians and efficiency experts

In the revised version of their classic test, Fiske and Taylor (1991) suggested replacing the cognitive miser metaphor with one of the ‘motivated tactician’, ‘a fully engaged thinker who has multiple cognitive strategies available and chooses among them based on goals, motives, and needs’ (p. 13). Within this general approach, the need to cope with basic information-processing limitations can be viewed as a central and frequently recurring problem that is faced by social perceivers and that influences which cognitive strategies they will deploy in various task contexts. While efficiency may be preferable for the cognitive miser, it is absolutely essential for a mentally busy (i.e. resource depleted) social perceiver. Thus, the metaphor that is most relevant for an understanding of social-cognitive functioning is of the social perceiver as an *efficiency expert* (Macrae, Milne, & Bodenhausen, 1994a; Sherman, Lee, Bessenoff, & Frost, 1998). A mental process is efficient to the extent that it does not require much in the way of attentional resources for its successful execution (Bargh, 1989, 1997). To the extent, then, that categorical thinking fits this description, it should be employed by perceivers when processing demands are high. In other words, when mental economy is required, categorical

thinking is a useful tool that the efficiency expert can employ (Macrae & Bodenhausen, 2000).

Truth seekers and sense makers

Rejecting both the cognitive miser and the efficiency expert metaphors, researchers operating within the framework of self-categorization theory have proposed what they see as a very different metaphor for understanding categorical person perception, namely that of the 'meaning seeker' (Oakes & Turner, 1990). According to this account, perceivers employ categorical thinking to make sense of the social world. However, it is unclear exactly why a distinction should be drawn between efficiency-seeking and sense-making (Sherman *et al.*, in press). One reason why categorical thinking is useful to perceivers is because it enables them to imbue social stimuli with meaning under adverse or difficult processing conditions.

At some level or another, most of the available research on person perception has been guided by one of the previous metaphors. Perceivers think categorically about others because either they are lazy, striving for mental efficiency, or trying to make sense of a dauntingly complex stimulus world. But what evidence is there to suggest that perceivers routinely activate categorical knowledge structures in their dealings with others (Allport, 1954; Bartlett, 1932; Tajfel, 1969)? Our attention now turns to a consideration of this important issue.

Thinking categorically about others

As noted earlier, in their attempts to make sense of a complex stimulus world, perceivers regularly construct and use categorical representations (e.g. stereotypes) in their dealings with others. Given basic information-processing limitations and a challenging social environment, perceivers need some way to simplify and streamline the demands of the person perception process. This they achieve through the activation and implementation of categorical thinking (Allport, 1954; Bodenhausen & Macrae, 1998; Brewer, 1988; Brewer & Feinstein, 1999; Bruner, 1957; Fiske, 1998; Fiske, Lin, & Neuberg, 1999; Fiske & Neuberg, 1990; Macrae & Bodenhausen, 2000). By construing others on the basis of the social categories to which they belong (e.g. race, age, gender), perceivers can make use of the wealth of related (though often inaccurate) stereotype-based material that is acknowledged to reside in long-term memory (Bodenhausen, Macrae, & Garst, 1998; Bodenhausen, Macrae, & Sherman, 1999; Sherman *et al.*, in press; Tajfel, 1969). As Gilbert and Hixon (1991) have reported, 'the ability to understand new and unique individuals in terms of old and general beliefs is . . . among the handiest tools in the social perceiver's kit' (p. 509). But when exactly do perceivers dip into their mental toolbox and activate the knowledge structures that support categorical person perception (Bargh, 1999; Fiske, 1989)?

Orthodox wisdom: categorical thinking is unavoidable

The view that social categories (and their associated stereotypes) are automatically activated in the presence of a triggering stimulus is central to contemporary models of

person perception (Brewer, 1988; Devine, 1989; Fiske & Neuberg, 1990), but this notion has been around for some time. Indeed, its origins can be traced to Allport's (1954) seminal writings on the nature of prejudice. In one memorable passage, for example, Allport noted that 'the human mind must think with the aid of categories . . . We cannot possibly avoid this process. Orderly living depends on it' (p. 20). Later, extending his analysis, he suggested that 'every event has certain marks that serve as a cue to bring the category of prejudgment into action . . . A person with dark brown skin will activate whatever concept of Negro is dominant in our mind' (p. 21). The message that emerges from these statements is a straightforward and powerful one. To simplify the demands of daily interaction, mere exposure to a stimulus target is sufficient to energize categorical thinking and promote the appearance of its associated judgmental, memorial and behavioural products (i.e. stereotyped reactions). According to this account, then, categorical thinking is an unavoidable aspect of the person perception process (Allport, 1954; Tajfel, 1969). Just as night follows day, categorization (hence stereotyping) is believed to follow the registration of a triggering stimulus, be it a verbal label or the member of a potentially stereotyped group. As Devine (1989) has argued, 'because the stereotype has been frequently activated in the past, it is a well-learned set of associations that is automatically activated in the presence of a member (or symbolic equivalent) of the target group' (p. 6).

In person perception research, the term *category* is used to describe the totality of information that perceivers have in mind about various groups of individuals (e.g. Italians, doctors, blondes) and this knowledge can take many forms (e.g. visual, declarative, behavioural; see E. R. Smith, 1990, 1998). Once these categorical representations are triggered, of course, so too are their associated mental contents, hence content accessibility is commonly utilized as an index of category activation. This methodological approach derives from related research in cognitive psychology, primarily work on semantic priming (Neely, 1991). If the associates of a particular concept (e.g. 'doctor') display enhanced accessibility following the prior presentation of a priming stimulus (e.g. 'hospital'), it is widely assumed that a mental representation of the priming stimulus has been activated in memory (Anderson & Bower, 1972; Collins & Loftus, 1975). Similar reasoning is applied in person perception, with category activation also evidenced through the heightened accessibility of related material following the presentation of a priming stimulus (Devine, 1989; Dovidio, Evans, & Tyler, 1986; Perdue & Gurtman, 1990). Just as 'hospital' primes 'doctor', 'nurse' and 'drugs', so too 'librarian' activates 'shy', 'studious' and 'responsible'.

Of course, by endorsing the view that semantic priming is an inevitable consequence of mere stimulus registration, it was quite logical for social psychologists to conclude that category activation must also be an unconditionally automatic mental process. As a result, a raft of experiments emerged in which researchers measured the accessibility of categorical contents (i.e. stereotypic traits) following the presentation of priming stimuli, usually (though not always) verbal labels (e.g. 'Australian'). In one of the earliest studies of this kind, for example, Dovidio *et al.* (1986) presented participants with a priming category label (e.g. 'Black' or 'White'), followed by a series of adjectives (e.g. 'musical', 'metallic'). The critical target items were personality traits that were either stereotypic or non-stereotypic with respect to the priming label and the task was simply to report, as quickly as possible, whether each item could ever be true of the primed category. As

expected, participants responded more rapidly when stereotypic rather than non-stereotypic items were preceded by the priming label, thereby suggesting that the categorical representation of the group was automatically activated during the task. Notwithstanding this empirical demonstration, however, it is somewhat premature to infer the unconditional automaticity of category activation on the basis of these findings (Bargh, 1994, 1997). After all, to perform the experimental task in question, Dovidio *et al.*'s participants were required explicitly to assess the descriptive applicability of the prime-target relationship (i.e. could X ever be true of Y?). By drawing attention to the priming stimulus in this manner, it is not therefore possible to argue that category activation is an unconditionally automatic mental process, requiring only the registration of the priming stimulus for its occurrence (Bargh, 1994, 1997).

Noting this difficulty with the Dovidio *et al.* (1986) procedure, subsequent investigations of category activation have employed a variety of semantic priming techniques that attempt to obscure or conceal the relationship between the experimental stimuli. This is achieved typically in one of two ways: either the priming stimuli are presented subliminally (Devine, 1989; Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997; Lepore & Brown, 1997; Macrae, Bodenhausen, & Milne, 1995; Macrae *et al.*, 1994a; Wittenbrink, Judd, & Park, 1997); or the task instructions are framed in such a way that they conceal any associative relationship between the items (Banaji & Hardin, 1996; Fazio & Dunton, 1997; Fazio, Jackson, Dunton, & Williams, 1995; Gilbert & Hixon, 1991; Kawakami, Dion, & Dovidio, 1998; Locke, MacLeod, & Walker, 1994; Macrae, Bodenhausen, Milne, Castelli, Schloerscheidt, & Greco, 1998; Macrae, Bodenhausen, Milne, Thorn, & Castelli, 1997a; Spencer, Fein, Wolfe, Fong, & Dunn, 1998). The logic underlying these studies is quite straightforward. If perceivers are unable to avoid category activation when the triggering stimuli lie outside awareness or are seemingly irrelevant to the task at hand (Bargh, 1994, 1997; Greenwald & Banaji, 1995), then this would support the notion that category activation is an unconditionally automatic mental process. As it turns out, the available evidence tends to corroborate this viewpoint (Bargh, 1999). Present perceivers with a priming verbal label and they typically activate the corresponding categorical representation in memory. But does this really signal that category activation is an unconditionally automatic mental process, at least in the manner that Allport (1954) suggested?

Quite obviously categorical person perception will not occur if perceivers fail to activate category-based knowledge structures when they encounter others. But what is the status of this mental process? Is category activation inevitable (Allport, 1954), or can it be prevented under certain conditions (Fiske, 1989)? If the latter is the case, then what are these limiting conditions? Many of the social stereotypes that have attracted empirical attention in recent years are ones that are linked to group memberships that can be discerned from a rudimentary visual appraisal of a stimulus target. For example, physical appearance is often marked in ways that readily reveal a person's gender, ethnicity and age group; and clothing (e.g. style, uniform) can indicate membership in socio-economic, occupational and religious groups. As such, it is possible that perceivers may automatically categorize others into groups on the basis of these readily discernible visual cues (Brewer, 1988; Fiske & Neuberg, 1990). But is simply detecting membership in such groups sufficient to elicit mental activation of the stereotypes associated with the group in question?

In a landmark paper in the field, Devine (1989) proposed that racial stereotypes are indeed activated automatically upon detection of a person's group membership. She argued that, because people are inevitably exposed to the cultural transmission of stereotypic ideas during childhood socialization, social category membership comes to be inextricably associated with stereotypic notions that spring to mind without any intention on the perceiver's part. As evidence for this claim, Devine demonstrated that even preconscious presentation of racial material is sufficient to prompt the activation of stereotypic concepts. Specifically, after exposure to preconscious primes pertaining to the category 'African Americans', participants later judged an ambiguous target person in a decidedly stereotypic (i.e. hostile) manner, thereby suggesting that the categorical representation of African Americans had been activated (albeit unintentionally) via the subliminal cues. In more recent research, preconscious cues have also been shown to precipitate stereotype activation in the domains of gender, age and occupation (Macrae *et al.*, 1994a; Perdue & Gurtman, 1990). But does this work really demonstrate the inevitability of categorical person perception?

The automaticity of mental life

For those interested in the workings of the human mind, a favoured strategy has been to parse mental life into the operation of two fundamental, mutually exclusive cognitive processes. Automatic processes are mental activities that are believed to occur outside of awareness in a largely involuntary, unintentional and effortless manner. Controlled processes, in contrast, are activities that possess precisely the opposite qualities: they are intentional, controllable, effortful and are implemented in the presence of conscious awareness (Bargh, 1994; Hasher & Zacks, 1979; Johnson & Hasher, 1987; Kahneman & Treisman, 1984; LaBerge & Samuels, 1974; Logan & Cowan, 1984). Given this definitional specificity, one could be excused for assuming that the task of identifying an automatic mental process, such as category activation, ought to be a relatively straightforward affair. After all, any process that occurs without awareness in an uncontrollable, unintentional and effortless manner must, by definition, be an automatic one. As Bargh (1994, 1997) and others have convincingly argued, however, things are not quite this simple, not by a long shot. Indeed, search the cognitive landscape for a process that is unequivocally automatic in character and one will likely search in vain. So what exactly is the problem?

Under empirical scrutiny, most mental operations fail to satisfy the multiple criteria required to specify a process as exclusively automatic in nature (Bargh, 1994; Kahneman & Treisman, 1984; Logan & Cowan, 1984; Wegner & Bargh, 1998). Indeed, even prototypic examples of automatic mental processes, such as Stroop and semantic priming effects, fail in this respect (Francolini & Egeth, 1980; Henik, Freidrich, & Kellog, 1983; Hoffman & McMillan, 1985; Logan, 1989; M. C. Smith, 1979; M. C. Smith, Theodor, & Franklin, 1983). Although uncontrollable in theory, it turns out that most automatic operations are controllable in practice, an observation that daily experience confirms on a regular basis. As Logan (1989, p. 70) has remarked, 'automatic reactions can be modulated by attention and intention; they can be inhibited and suppressed; and they can be coherent and planful'.

Given this state of affairs, it is unsurprising to learn that a revised conception of automaticity has emerged in recent years (i.e. conditional automaticity), a conception that emphasizes not the unitary nature of the concept, but rather the extent to which its various components (i.e. awareness, intention, efficiency, control) are independently implicated in the execution of specific mental operations (Bargh, 1994; Kahneman & Treisman, 1984; Logan, 1989; Logan & Cowan, 1984). In the realm of social cognition, particularly categorical person perception, this revised viewpoint has given rise to a rather important empirical question. If, like other mental events, category activation is conditionally rather than unconditionally automatic, what are the factors that regulate its occurrence? When, in other words, do perceivers actually activate category-based knowledge structures when they interact with, or think about, others?

Challenging orthodoxy: categorical thinking is controllable

The possibility that category activation is conditionally, rather than unconditionally, automatic is a topic that has recently attracted considerable empirical attention and engendered heated theoretical debate. Such was the authority of conventional wisdom on this topic (Allport, 1954; Tajfel, 1969) that for almost 40 years few thought it necessary to question the belief that categorical representations are automatically activated in the presence of a triggering stimulus. Backed by a revised conception of automaticity, however, researchers recently have challenged this assumption. One provocative feature of Devine's (1989) analysis is the presumption that the automatic activation of stereotypes remains in place even among individuals who do not endorse stereotypic beliefs. Arguing this cultural conditioning makes stereotyping an habitual phenomenon, Devine asserted that only by the deployment of conscious, effortful processes (stereotype inhibition) can low-prejudice persons counter the unavoidable activation of stereotypic notions (but see Macrae, Bodenhausen, & Milne, 1998; Macrae, Bodenhausen, Milne, & Ford, 1997b; Macrae, Bodenhausen, Milne, & Jetten, 1994; Macrae, Bodenhausen, Milne, & Wheeler, 1996; Monteith, Sherman, & Devine, 1998; Wyer, Sherman, & Stroessner, 1998, 2000). Essentially, then, she argued that automatic stereotype activation (at least with respect to highly conditioned stereotypes, such as those pertaining to gender and race) is not subject to individual differences, although conscious resistance to these automatic effects is likely to vary across persons. But is this viewpoint entirely correct?

Some recent findings have suggested that there may indeed be individual differences in the extent to which perceivers activate stereotypic beliefs in the presence of a triggering categorical cue (Lepore & Brown, 1997; Locke *et al.*, 1994; Wittenbrink *et al.*, 1997). As Bargh (1997, p. 14) has argued, 'as with all preconscious processes, what determines whether the stereotype becomes automatically activated {upon just the mere presence of a group member} is whether it has been frequently and consistently active in the past in the presence of relevant social group features'. To the extent that Devine is correct in viewing racial stereotypes as pervasively active in most individuals' cultural environments, then her claim that such stereotypes inevitably are activated in the presence of group members is likely to be largely correct. If, however, there is meaningful variation in the frequency and consistency of people's exposure to such ideas, then there may also be variation in the automatic component of stereotype activation as well. Indeed, this is precisely the message that is beginning to emerge in the developing literature on this subject (Fazio

et al., 1995). Unlike their prejudiced counterparts, egalitarian individuals have been shown to display no evidence whatsoever of stereotype activation following the presentation of a priming categorical cue (Lepore & Brown, 1997; Locke *et al.*, 1994; Wittenbrink *et al.*, 1997). In other words, it appears that bigots and humanitarians are distinguishable at the level of automatic cognitive operations, with humanitarians failing to access stereotype beliefs (cf. Devine, 1989).

In addition to the possibility that individual differences may moderate the automaticity of stereotype activation, other research has suggested that activation may also be constrained by perceivers' level of attentional resources. Most notably, Gilbert and Hixon (1991) reported evidence suggesting that stereotype activation may not occur when perceivers are cognitively busy (i.e. resource depleted). In their experiments, participants viewed a videotape depicting an Asian woman turning over a series of cards on which word fragments were written. Their task was simply to complete each fragment with the first word that came to mind and, critically, several of the fragments could be completed with words that were stereotypically associated with Asians (e.g. completing '_ice' with 'rice' rather than 'mice'). The results demonstrated that participants did indeed tend to choose stereotypic word completions for the fragments, but that this tendency was eliminated under conditions of cognitive busyness. Gilbert and Hixon concluded, therefore, that stereotype activation is conditionally automatic, in that its occurrence depends on the availability of attentional resources.

Extending Gilbert and Hixon's (1991) findings, other researchers have sought to demonstrate that perceivers' immediate processing goals may be a more potent determinant of stereotype activation than the availability of attentional resources *per se*. Spencer *et al.* (1998), for example, have proposed that sufficiently motivated perceivers might be able to activate social stereotypes even under conditions of resource depletion. To investigate this possibility, they examined cognitively busy individuals who either had or had not experienced a threat to their self-esteem. As previous research has shown that one motivation for engaging in stereotyping is to bolster one's self-esteem when it is under threat (Hogg & Abrams, 1988), it is conceivable that this motivation may be sufficient to produce stereotype activation even among resource-depleted perceivers. Importantly, this is exactly what Spencer *et al.* (1998) observed, thereby demonstrating that the resource demands of stereotype activation are rather minimal, such that even cognitively busy perceivers can activate stereotypes if they have some reason to do so.

Further evidence for goal-directed person categorization can be found in a study by Pendry and Macrae (1996). Confirming the observations of Brewer (1988) and Fiske and Neuberg (1990), Pendry and Macrae demonstrated that the extent of stereotype activation is moderated by perceivers' level of involvement with a target. When relatively uninvolved processing objectives are in place, stereotype activation typically occurs at the broadest (i.e. superordinate) level of category representation. When, however, complex interactional goals are operating (e.g. accountability, outcome-dependence), a target is categorized both in terms of a higher-order representation (e.g. 'woman') and a more differentiated category subtype (e.g. 'business woman'). That the categorization process should operate in such a manner should come as no real surprise. More than four decades ago, Bruner (1957) and Jones and Thibaut (1958) drew attention to the importance of goal-directed social categorizations. As Bodenhausen *et al.* (1998, p. 316) have noted, 'whether, when gazing into the eyes of a stranger, we see a potential dream

date or a patient in need of a cataract operation depends on the goals, motives, and expectations we bring to bear on social interaction'.

Developing this line of work, Macrae *et al.* (1997a) have attempted to provide a conceptual framework within which goal-directed social categorization can be located. Based on related issues in semantic priming, Macrae *et al.* demonstrated that the encoding operation that is undertaken on a person is a critical determinant of category activation (see M. C. Smith, 1979; M. C. Smith *et al.*, 1983). Specifically, only the semantic appraisal of a person prompts the activation of relevant categorical knowledge structures; pre-semantic processing orientations (e.g. perceptual goals) are not sufficient to elicit category activation. Effects of this kind may be commonplace in life outside the laboratory. Consider, for example, a shopper in a supermarket who encounters several individuals while proceeding down the dairy aisle. From the standpoint of the shopper's immediate processing goal (e.g. buy dessert for this evening's dinner party), these persons are little more than physical obstacles that need to be circumnavigated in order to reach the raspberry ice cream. Although perhaps irritated by their presence in the aisle, our hypothetical shopper is more concerned with the ice cream acquisition than impression formation. As such, under conditions such as these, there would be little point in activating stereotypes about these individuals because an understanding of their personalities and propensities is of little relevance given the shopper's processing objective. Indeed, it makes sense for stereotype activation to be limited to conditions in which perceivers are interested in the social meaning of the stimuli they encounter.

Anecdotal experience reinforces the plausibility of the previous viewpoint. At one time or another most of us have played the role of the inattentive shopper. Having avoided an obstruction in our quest to reach a particular item, how often have we recoiled in embarrassment on discovering that the obstacle was actually a familiar other, such as a neighbour, former lover or dance partner? How could we have failed to recognize such a well-known person? The answer, we suspect, may reside in the temporary goal states that guide cognition (and action) in various social settings—goal states that frequently fail to promote a detailed semantic analysis of the individuals we encounter. Taken together, then, all these findings suggest that category activation potentially is amenable to control, at least in the sense of being responsive to perceivers' cognitive limitations, temporary processing objectives and chronic beliefs about certain social groups (Macrae & Bodenhausen, 2000).

Unresolved issues

Notwithstanding the emergence of the view that category activation is a conditionally automatic mental operation, some doubts have been cast over the solidity of the empirical foundation upon which this claim is based. The problem is quite straightforward. Variables that seem to qualify category activation in some studies turn out not to be influential in others. For example, whereas some studies suggest that category activation is contingent upon prejudice levels (Lepore & Brown, 1997), Dunning and Sherman (1997) have demonstrated that implicit gender activation can be independent of people's level of sexism. Noting ambiguities of this kind, Bargh (1999) recently has provided a provocative review of the extant literature on the automaticity of category activation. Echoing Allport's (1954) belief that social categories are spontaneously activated when

perceivers encounter a group member (or symbolic equivalent), Bargh has critiqued the emerging literature that takes precisely the opposite view—that category activation is avoidable under certain circumstances (e.g. Blair & Banaji, 1996; Gilbert & Hixon, 1991; Macrae *et al.*, 1997a). Identifying some methodological and interpretive problems with this work, Bargh has argued that:

the field of social cognition has become overly optimistic about the ‘cognitive monster’ of automatic stereotype activation. . . . contrary to what our research is actually showing, the conclusions drawn from the data have overestimated the degree to which automatically activated stereotypes can be controlled through good intentions and effortful thought {p. 362}.

Given the acknowledged perils of stereotypical thinking (Bodenhausen & Macrae, 1998), Bargh’s message is decidedly pessimistic—but, in the context of category activation, is it entirely correct? Have researchers really overestimated the extent to which category activation is controllable (see Fiske, 1989), or are there indeed conditions under which perceivers reliably fail to activate social categories and their associated stereotypes (Gilbert & Hixon, 1991; Macrae *et al.*, 1997a)? On the basis of the available evidence, it is difficult to furnish definitive answers to these questions. In part, this is because the work in this domain is troubled by a number of limitations. One notable problem, for example, is that researchers have tended to rely almost exclusively on verbal stimulus materials (i.e. category labels) to investigate the cognitive dynamics of the category activation process. Indeed, virtually all the evidence that suggests that category activation is an unconditionally automatic mental process has been collected in studies of this kind (Devine, 1989; Dovidio *et al.*, 1986; Perdue & Gurtman, 1990). This reliance on verbal materials poses something of a problem when one considers the generality and theoretical significance of the observed effects. By their very nature, category labels (e.g. ‘dentist’) are already pre-categorized stimuli, thereby potentially demanding that when a label is processed (i.e. registered) its associates will inevitably be activated (Neely, 1991). As Gilbert and Hixon (1991, p. 526) have argued, ‘to do otherwise would be to fail to understand what one has read’. Persons, however, are an entirely different matter. Upon the detection of an individual, perceivers must make a categorization, a categorization that can take many forms. Having encountered a dentist, for example, in no sense is one psychologically compelled to construe the person in this manner. Instead, the person could just as easily be classified as a female, elderly or Spanish. This, of course, clearly is not the case with category labels, where the label itself implies a single precomputed categorization.

Thus, when presented with words and people, the mind may be faced with quite distinct cognitive puzzles, that require different information-processing solutions (Gilbert & Hixon, 1991; Macrae *et al.*, 1997a; Pendry & Macrae, 1996). To assume, therefore, that the processing of verbal labels necessarily elucidates the manner in which perceivers construe others may be a dangerous assumption. Accordingly, whether category activation is a conditionally or an unconditionally automatic mental process remains open to question and further empirical scrutiny (Bargh, 1999; Devine, 1989; Macrae & Bodenhausen, 2000). To clarify matters, however, additional work will be required in which researchers investigate the construal processes that are implemented when perceivers encounter real people. As Gilbert and Hixon (1991, p. 516) have recommended, ‘if we really want to know how persons think about persons, we may have to introduce our subjects to some’.

Of course, by presenting perceivers with real people, another puzzle arises. How does the mind deal with the problem of multiple category memberships? Suppose, for example, you meet a thin, middle-aged woman who is holding a stethoscope and who is introduced to you as Dr MacLeod. Such a person clearly offers multiple opportunities for categorization. Will she be classified in terms of her sex, her age, her somatype, or perhaps even her occupation? One possibility is that the target may be classified in all of these ways and that each of the applicable stereotypes will be activated simultaneously (Kunda & Thagard, 1996). This task could be daunting and counterproductive, however, as a large number of the relevant associates may be semantically or affectively incompatible, prompting cognitive confusion and target ambiguity. In an attempt to resolve this problem, some recent research has suggested that category selection may be facilitated through the implementation of basic inhibitory processes (Bodenhausen & Macrae, 1998; Macrae *et al.*, 1995; Stroessner, 1996; see also E. R. Smith, Fazio, & Cejka, 1996). When perceivers encounter a multiple categorizable target (such as Dr MacLeod), all applicable categories are believed to be activated in parallel and a competition for mental dominance then ensues (see Gernsbacher & Faust, 1991; Neumann & DeSchepper, 1992; Tipper, 1985). Category salience, chronic accessibility and temporary goal states are all factors that are likely to confer an activational advantage to particular categories in such a competition (Bodenhausen & Macrae, 1998). Of course, once a particular categorization achieves sufficient activation to win the competition, a critical question concerns the fate of the losing categories during the race for mental dominance. What happens to unselected social categories?

One emerging viewpoint is that these competing categorizations are inhibited during the category selection process (Bodenhausen & Macrae, 1998; Macrae *et al.*, 1995). That is, potentially distracting (hence disruptive) categorizations are removed from the cognitive landscape through a process of spreading inhibition (Neumann & DeSchepper, 1992). Interestingly, perceivers' motivational states also seem to play an influential role in the active inhibition of competing social categories. In a provocative demonstration, Sinclair and Kunda (1999) showed that after participants received favourable feedback from a black doctor, associates of the category 'Black' became significantly less accessible in their minds, while associates of the category 'Doctor' became significantly more accessible. In other words, when motivated to view a black doctor as competent, participants inhibited the category 'Black' and activated the category 'Doctor'. They did just the reverse, however, when the black doctor provided negative feedback, thus were motivated to view him unfavourably. Motivational factors would therefore appear to be as important in the inhibition of social categories as they are in determining the activation of category-based knowledge structures.

While exciting, research on the role of inhibitory mechanisms in category activation is still very much in its infancy. Indeed, it has yet to be confirmed just how important inhibitory processing may be in shaping critical aspects of the category selection process. If other areas of psychology are to serve as a useful guide, however, inhibitory mechanisms are likely to play a prominent role in person perception. In the same way that inhibitory operations contribute to our ability to see complex patterns of motion, initiate actions, comprehend written text and select objects from complex visual arrays (Gernsbacher & Faust, 1991; Neumann & DeSchepper, 1992; Norman & Shallice, 1986; Tipper, 1985), so too are they likely to facilitate our ability to categorize others when competing construals

are readily available. A categorization process that operated in any other way would simply not be flexible enough to deal with the complex demands of everyday life.

Conclusions

Conceptualizing categorical person perception as a cognitive short cut has helped researchers to unravel some of the more perplexing mysteries of social cognition. By providing mental economy (Allport, 1954; Tajfel, 1969), category activation (and application) enables perceivers to streamline cognition and increase the intelligibility of an otherwise dauntingly complex social world. For many of us, this temptation to think categorically about others is irresistible. The ability to understand and evaluate new information (and people) in terms of established beliefs is a cognitive skill that frequently serves us well. Surprisingly, therefore, the question of exactly when it is that perceivers dip into their mental toolbox and activate categorical knowledge structures remains something of a mystery (Bargh, 1999; Fiske, 1989). What is becoming increasingly apparent, however, is that the commonplace assumption that category activation is an unconditionally automatic mental process is a less than satisfactory answer to this important theoretical question (Allport, 1954; Devine, 1989). Instead, the process appears to be controllable under certain conditions (Gilbert & Hixon, 1991; Macrae *et al.*, 1997a; Spencer *et al.*, 1998).

Of course, were mental life to unfold in any other way, it is difficult to imagine how perceivers could begin to make sense of others. Under these conditions, social cognition would compromise a ceaseless stream of irrelevant category activations—activations that potentially would hinder rather than facilitate the person perception process (see Gilbert & Hixon, 1991; Macrae *et al.*, 1997a). It is most certainly not the case that perceivers benefit from the activation of semantic knowledge for every stimulus they perceive. Just as this is true for non-social objects, it is also true for people (see Macrae, Bodenhausen, Milne, & Calvini, 1999). Category activation is a functional feature of mental life (Macrae *et al.*, 1994a; Macrae, Stangor, & Milne, 1994b), and as such its occurrence is regulated by a variety of cognitive mechanisms, processing limitations and motivational forces. The puzzle for researchers lies in identifying these regulatory factors and charting the role that they play in the person perception process. Given the importance of categorical person perception, this work will hopefully occupy a position of prominence as experimental social psychology embraces the empirical and theoretical challenges of the new millennium.

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