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CHAPTER 2

Dual Modes in Social Cognition

AUTOMATIC PROCESSES ◆ CONTROLLED PROCESSES ◆ MOTIVATIONS INFLUENCE WHICH MODES OPERATE ◆ MODELS OF BOTH AUTOMATIC AND CONTROLLED PROCESSES

First impressions really do count. People judge each other within a fraction of a second, for better or worse. Luckily, under some circumstances people are capable of going beyond those split-second impressions. The relatively automatic first impressions nevertheless anchor subsequent thinking, so they are difficult to undo. Conventional wisdom is correct in this instance—that first impressions matter—but common sense doesn't know the half of just how automatic impressions can be, nor does common sense reveal much about exactly how the deliberate processes operate when they do kick in.

This chapter addresses these two modes of social cognition, a theme that appears and reappears throughout the book. The dual-mode approach has become so established that one edited volume collected thirty-some chapters on this framework (Chaiken & Trope, 1999) and one social psychology handbook devoted a full chapter to it (Wegner & Bargh, 1998). The mind contains a variety of processes, and these models aim to explain the diversity of people's thoughts, feelings, and behaviors toward each other, most models assuming more than one core process (Gilbert, 1999).

The motivated tactician, described in Chapter 1, refers to people's tendency to rely on relatively automatic processes or alternatively on more effortful ones, depending on the situational and motivational demands. The term *tactician* implies that people choose modes in the thick of the action, in the midst of dealing with other people, thinking harder or less hard as they deem necessary. More recent work notes that people typically do not consciously choose between automatic and controlled processes, and that automatic processes influence both motivations that trigger social cognition and behavior that results from it.

In this chapter we begin by illustrating and explaining automatic processes, then describe controlled ones. Next, we examine the motivations that move people from one mode to the other We then explore some examples of two-mode models, anticipating their appearance in subsequent chapters. Finally, we close with some counterpoints to the prevailing two-mode view.

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AUTOMATIC PROCESSES

Automatic processes come in all varieties. Everyday examples include times when people seem not to be thinking; early research dubbed this "mindlessness" (Langer, Blank, & Chanowitz, 1978). Table 2.1 shows the progression from most automatic toward controlled processes. We begin our discussion with the most pure form of automaticity, which is unintentional, uncontrollable, efficient, autonomous, and outside awareness (Bargh, 1997).

TABLE 2.1. Varieties of Automatic and Controlled Processes

Mode	Definition
Full Automaticity	*Unintentional, uncontrollable, efficient, autonomous responses outside awareness*
Subliminal priming, or *preconscious*	Prime registers on senses, but no awareness of it or its effect on responses; depends on context
Conscious priming, or postconscious	Conscious perception of prime, but no awareness of its effects on responses, depends on context
Individual differences in chronic accessibility	Can be preconscious or postconscious, habitual processing by particular categories or concepts, as if chronically primed; depends on person (role, personality, culture, practice—a process called proceduralization)
Goal-dependent automaticity	Intentional control starts process, but without subsequent awareness, need to monitor completion, or intending all specific outcomes
	Unintended effects of goal-dependent automaticity include failures of thought suppression and unwanted rumination
Intent	Requires having options, especially obvious when making the hard choice, and paying attention to the intended response
Conscious will	Experienced when a thought precedes, fits, and explains a subsequent action
Consciousness	Defined variously as reportable thoughts; thoughts consistent with behavior; epiphenomenon irrelevant to ongoing mental processes; executive directing mental processes; necessary condition for intent; constructed from accessible concepts; involved in learning and troubleshooting, stimulus field composed of thoughts, emotional experiences, and body sensations that can compete successfully with the external world
Full Control	*Intentional responses within conscious awareness*

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Subliminal Priming

Consider the following study (Bargh, Chen, & Burrows, 1996): Undergraduate participants in a psychology experiment saw 4 to 20 circles on a series of screens for 3 seconds each time and had to judge whether they were odd or even in number. After 130 tiresome trials, the computer suddenly beeped and displayed an error message indicating that none of the data had been saved and that the experiment would have to restart. Needless to say, participants reacted. Without their prior knowledge (although with their subsequent consent), their faces were videotaped as the computer and experimenter conveyed the bad news. Also unknown to the participants, just prior to each set of circles, they had seen a black-and-white photo of an African American or European American man, displayed at subliminal speeds (13–26 milliseconds). Participants were non-African American, and their facial expressions were reliably more hostile when they had been exposed to a series of Black faces than when they had been exposed to White faces. Hostile emotions were primed, especially ready to appear under provocation

Subliminal priming of emotion appears reliable. Other studies have shown related effects of rapidly presented smiling and frowning faces on later liking for Chinese ideographs, which were otherwise neutral and without meaning to the research participants (e.g., Murphy, Monahan, & Zajonc, 1995). A host of other studies similarly show how affect can be conveyed by verbal concepts that are primed by being flashed below awareness. For example, priming hostility-related words affects impressions of others (one of the earliest demonstrations being Bargh and Pietromonaco, 1982).

The neural mechanisms of immediate emotional priming likely include the amygdala, an interior almond-shaped pair of brain regions implicated in detecting emotionally significant stimuli (Phelps, 2005). Faces with fearful expressions elicit amygdala responses even when presented subliminally, below conscious thresholds (Whalen et al., 1998). Emotionally arousing words presented rapidly are easier to detect than more neutral words, and the amygdala again is key because patients with amygdala lesions show a diminished ability to detect these same words (A. K. Anderson & Phelps, 2001). The amygdala may be more oriented to automatically detecting negative cues, whereas the basal ganglia may be more focused on automatic processes related to rewards (Lieberman, Gaunt, Gilbert, & Trope, 2002). Besides the amygdala and basal ganglia, the more reflex-like, relative automatic forms of social cognition implicate (a) the lateral temporal cortex (posterior superior temporal sulcus, pSTS, and temporal pole, TP), (b) the ventromedial prefrontal cortex (vmPFC), and (c) the dorsal anterior cingulate (dACC). Figure 2.1 shows the locations of these areas, for those inclined toward brain imaging. For those not so inclined, the point is that relatively automatic social cognitive-affective processes dissociate from relatively controlled ones in the neural areas typically activated (Lieberman, in 2007).

Subliminal priming is not limited to emotionally significant cues; emotionally neutral concepts also can be primed below awareness (for a review, see Dijksterhuis, Aarts, & Smith, 2005). Conceptual priming that is not primarily affective is likely to invoke brain systems particularly involved in pattern matching, categorizing, and identifying processes that implicate the inferior-temporal

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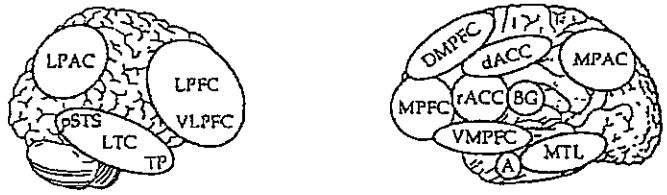

A

X-System (Automaticity)

Ventromedial PFC (VPFC) [BA11]
Basal Ganglia (BG)
Amygdala (A)
Lateral Temporal Cortex (LTC)
Posterior Superior Temporal Sulcus (pSTS)
Temporal Pole (TP)
Dorsal Anterior Cingulate (dACC)

B

C-System (Control)

Lateral PFC (LPFC)
Medial Temporal Lobe (MTL)
Medial Parietal Cortex (MPAC)
Lateral Parietal Cortex (LPAC)
Rostral ACC (rACC)
Medial PFC (MPFC) [BA10]
Dorsomedial PFC (DMPFC) [BA8/9]

FIGURE 2.1. Hypothesized neural correlates of the C-system supporting reflective social cognition (analogous to controlled processing) and the X-system supporting reflexive social cognition (analogous to automatic processing) displayed on a canonical brain rendering from (*a*) lateral and (*b*) medial views.
Source: Adapted from "Social cognitive neuroscience: A review of core processess" by M. D. Lieberman, p. 262. Reprinted, with permission, from the Annual Review of Psychology, Volume 58, © 2007, by Annual Reviews, www.annualreviews.org

cortex, the lower, outside region, just above one's ears, on the surface of the brain (Lieberman et al., 2002). Categorical pattern matching of a prime influences perceptions of related subsequent stimuli, especially ambiguous ones; the neural accounts are consistent with the cognitive activation data.

In addition to priming emotions and neutral cognitions, subliminal priming can affect behavior (see Ferguson & Bargh, 2004, for a recent review). In the Bargh, Chen, and Burrows (1996) study that opened this section, after participants' subliminal exposure to different race faces and subsequent provocation, the experimenter privately rated the participant's behavior on irritability, hostility, anger, and uncooperativeness, based on their interaction. Non-Black participants primed with Black faces behaved in reliably more hostile ways when provoked.

Subliminal priming studies are not easy to run; they require that the prime be displayed precisely and reliably for exceedingly brief times, and often that the prime be masked immediately afterward by perceptually related but conceptually neutral stimuli. For example, a subliminally primed word might be immediately followed by a scrambled letter-string of the same length; a subliminally primed face might be immediately masked by a random pattern of color-matched clusters covering the same visual area. A *subliminal* prime has to pass the objective standard of registering on the senses but not exceed the subjective standard of registering on awareness. The delicate threshold between perceptual but not conscious impact depends on the prime, participant, current goals, context, and technical features of the presentation screen (Dijksterhuis et al., 2005). Each factor can change a prime's tendency to be activated above or below perception, and, if so, above or below consciousness. All this means that it

is not so easy as one might think for advertisers to convey subliminal messages, although in theory they could do it (Cooper & Cooper, 2002).

So far, the illustrative experiments all exemplify the most *subliminal, preconscious form* of automatic processing, in which people are not aware of the priming cue, nor of its effects on their reaction to a relevant stimulus. Although this is the most dramatic form of automatic response, fully automatic processes are likely to be rare. This kind of empirical demonstration is most useful to make the theoretical point that even unconsciously activated concepts prime related concepts, which then shape the interpretation of subsequent stimuli, still outside awareness. This form fits the most stringent definition of *pure automaticity*, which, as noted earlier, is unintentional, uncontrollable, efficient, autonomous, and outside awareness (Bargh, 1997)

Conscious Priming

Less dramatic but probably more impactful on a daily basis, *postconscious automaticity* entails conscious perception of the prime but no awareness of its effects on subsequent reactions (see Table 2.1). In one study, participants first imagined a day in the life of a typical professor, listing activities and lifestyle. Then they played Trivial Pursuit, the knowledge quiz game. Primed participants actually outscored other participants who had skipped that task (Dijksterhuis & van Knippenberg, 1998). Although the mechanism remains unclear, they may have been prompted to try harder, use better strategies, or trust their hunches. Priming a soccer hooligan or the trait of stupidity was not helpful to the knowledge test, but priming the trait of intelligence was. As another example, students unscrambled word lists to make sentences that primed the category "elderly" (and thus, slowness); they walked to the elevator more slowly after the experiment (Bargh, Chen, & Burrows 1996). In still another study in that series, students covertly but consciously primed with the trait "rudeness" were faster to interrupt another person.

Many of these priming studies replicate with either postconscious or preconscious priming, as in the Bargh, Chen, and Burrows (1996) series. As another example, students primed either consciously or preconsciously with words related to the elderly then expressed more conservative attitudes; others primed with the skinhead category expressed more prejudiced attitudes (Kawakami, Dovidio, & Dijksterhuis, 2003). Both pre- and postconscious effects operate similarly, in part because people are unacquainted with priming effects, so even conscious primes—if subtle and covert—do not typically prompt efforts to counteract them.

Chronic Accessibility

Somewhere between preconscious and postconscious automaticity are individual differences in chronically accessible concepts. People may or may not be aware that they habitually code other people in terms of, say, their friendliness, intelligence, or independence (Higgins, King, & Maven, 1982). Nevertheless, particular trait dimensions tend to capture different people's attention and repeatedly surface in their descriptions and impressions of others. One can measure this simply by counting the frequency of traits used to describe a series of familiar others. The chronically used traits ease people's impression formation processes

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along familiar, well-established grooves, for better or worse, but certainly more efficiently than would be the case without these habitual sources of influence.

How do people develop certain favorite trait dimensions? Certain traits might be family favorites ("this is my smart one; this is my nice one") or cultural favorites (Americans tend to focus on honesty and friendliness) or reflect survival skills (in certain neighborhoods, for example, aggressiveness) or job requirements (probation officers judging trustworthiness). If a person (e.g., a probation officer) over time judges hundreds of instances of behavior as honest or dishonest, some of those repeated inferences (e.g., shoplifting is dishonest) will show "specific" practice effects, becoming faster and easier to invoke over time. The development of automaticity occurs through practice, a process termed *proceduralization*. Becoming a procedure can happen relatively quickly, within a few dozen trials, and can last over at least a day's delay.

Procedural processes constitute one theoretical account of some priming effects (E. R. Smith & Branscombe, 1987, 1988; E. R. Smith, Branscombe, & Bormann, 1988). People may start with the effortful use of general rules that are independent of the particular setting (behavior reflects a trait), but with practice they can make automatic inferences about certain frequently encountered stimuli (E. R. Smith, 1984). Proceduralization involves two kinds of practice effects. With practice, any judgment of honesty, regardless of the particular behavior, will also speed up, showing a trait-specific practice effect. A second kind of practice effect speeds judgments of traits even in general (E. R. Smith, 1990; E. R. Smith et al., 1988). That is, proceduralization requires repeated execution of the same process, for example, making trait inferences; it can entail judging identical content such as judging only honesty (E. R. Smith & Lerner, 1986). But it can also entail more general processes, such as rapidly judging any trait. With consistent practice, both kinds of judgments (specific and general) become proceduralized so that exposure to an appropriate stimulus (e.g., either honesty or any trait) automatically speeds the inference. In Chapter 4, we discuss different memory systems that may account for these two effects (E. R. Smith, 1984), but the point here is that practice can automate the judgment process.

Procedural (automatic) judgments speed up people's responses, but how much does that matter to social interactions? It does matter because a well-practiced judgment will preempt an equally reasonable but less-practiced judgment (E. R. Smith, 1990). For example, if a teacher is used to judging intelligence, a person who is intelligent but unsociable would be viewed positively, primarily in terms of the intelligence; in contrast, a sales supervisor might emphasize the unsociability over the intelligence and make a negative judgment. The speed-up of proceduralized judgments may also have implications for stereotyping: People are members of several social categories; well-practiced reliance on, say, race might cause perceivers to emphasize that dimension over others, such as age, gender, social class, or individual traits (Zárate & Smith, 1990). Another way in which the proceduralization of judgment may matter is in accounting for the speed and unconscious quality of some affective responses (Branscombe, 1988).

Conclusion

So far, we have seen various kinds of automated responses that differ in degree. Various kinds of encoding may occur in an automated fashion, below

consciousness, in subliminal or preconscious perception. Postconscious processes are cued by a conscious prime and can proceed rapidly, without effort, intent, or awareness. Practice seems to be the crucial element in developing automatic responses, as research on proceduralized processes suggests.

Certain types of judgments seem especially likely to be automated: Trait inferences seem to be necessary first steps in encoding information about others (see Chapter 6). This makes sense in that trait inferences allow people to predict what others will do in future encounters. Moreover, much of the time, people's behavior probably does reflect what they will do again later, at least in the situations in which we habitually encounter them. Other types of encoding are likely to be automatic as well, although there is less accumulated evidence on these points: Self-relevant knowledge is likely to be encoded automatically (see Chapter 5). Certain people (e.g., the depressed) automatically encode certain content (e.g., negative traits) about themselves (Bargh & Tota, 1988). For people in general, stimuli related to threat would be likely candidates for automatic encoding; for example, an angry face in a crowd of happy faces stands out (more than vice versa), suggesting a preattentive search for threatening cues (Hansen & Hansen, 1988a), and negative cues may carry particular weight preconsciously (Erdley & D'Agostino, 1988). Stimuli relevant to our current needs and goals may be encoded automatically (Bruner, 1957). Finally, stimuli likely to be relevant to our interests are noticed, so that people especially notice others their own age, and males especially notice attractive females (M. Rodin, 1987), a process that may represent automatic encoding. Research on all kinds of automaticity, especially automatic behavior, led us to coin the term *activated actors* in Chapter 1. Much social reaction is relatively automatic.

Why might so many of people's social cognitive responses be automatic? The main reason, of course, is sheer efficiency. To the extent that people are much of the time cognitive misers, they simply have to take well-worn shortcuts because they cannot always deal with other people in all their complexity. Apart from sheer processing capacity, people can recruit similar previous decisions that worked well enough in the past in order to predict decent outcomes of similar decisions in the future. Finally, unconscious thought can manage more complex information more rapidly, leading to more coherent and clear choices (Dijksterhuis, 2004).

Automatic activation of mental representations subliminally (preconsciously) and supraliminally (consciously) have similar effects. Both can influence evaluations and emotions, associated cognitions and strategies, and behavior. The main difference is that activation above awareness can invoke controlled strategies, if one is aware that the prime might affect responses. That takes us to our next topic.

CONTROLLED PROCESSES

Just as automaticity comes in degrees, so does control. A *controlled* process is any process in which the perceiver's conscious intent substantially determines how the process operates. Along the range between relatively automatic processes of the last section and relatively controlled processes of this section lie

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goal-driven automatic processes They could have appeared at the end of the previous section because they occupy the boundary between the two extremes (see Table 2.1).

Goal-Driven Automatic Processes

As befits its location at the boundary, goal-dependent automaticity is automatic according to some of the criteria, such as lack of awareness of the process itself, not needing to monitor the process to completion, and lack of intending all the specific outcomes. For example, on a bleary Saturday morning, more than one distracted parent operating on autopilot has been known to feed the cereal to the dog and the kibbles to the kids (A. P. Fiske, Haslam, & Fiske, 1991). In this example, two goal-dependent automatic processes interfere with each other. A simpler example would be someone at a party asking about your research, whereupon you launch into a standardized automatic account more suited to your thesis committee than to a prospective romantic interest.

However, by definition, goal-dependent automaticity also varies by the perceiver's goals, so it is partially responsive to intentional control. Goal-dependent automaticity thus is not entirely automatic in that it requires intentional processing and depends on the task undertaken. Conscious intent launches preconscious automaticity.

One example is habits, behaviors that one repeats frequently. When relevant goals are activated, thoughts about habitual behaviors are cued along with the relevant behavior itself. When bike riders think about getting to the other side of town, bike-related thoughts are accessible (Aarts & Dijksterhuis, 2000). This is not the case for people who do not habitually ride their bikes. The goal–habit linkage likely drives more of our actions than we like to admit.

Other examples of goal-dependent automaticity are illustrated by what happens at a party when one approaches some people and avoids others. Attending the party presupposes the goal to socialize, and various relatively automatic processes support this goal: spontaneous trait inferences based on exposure to behavioral information (see Chapter 6) or facial cues (see Chapter 3). For example, people form first impressions at a party, deciding rapidly and superficially who looks entertaining and who looks boring. This process has both automatic and controlled components. Because spontaneous trait inferences occur more under certain goals (socializing) than others (distraction while memorizing a phone number), it is goal dependent and therefore not fully automatic. However, once launched, such trait inferences (who looks entertaining or boring) do seem to occur unintentionally and without much awareness, so they are automatic once the appropriate goal triggers the process.

Many social cognitive processes qualify as goal-driven automaticity. Forming impressions depends on one's goals, as a later section details, but the process itself otherwise can occur without much awareness or effort. Remembering someone's attributes likewise depends on one's goals, but otherwise occurs automatically (Chapter 4). Noticing relationships or covariation between social events (Chapter 7) may be another example. A variety of other goal-directed processes with substantial automatic components—such as typing, driving, or perhaps rehashing the same old issues in a relationship—also illustrate this category.

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Goal-Inconsistent Automaticity

Sometimes people's goals trigger automatic thoughts consistent with their conscious preferences, but people can't always think what they want, even if they try (Wenzlaff & Wegner, 2000). Try to spend the next 60 seconds *not* thinking about a white bear but noting the instances when you fail. (If you try it, you'll find it's harder than you think.) A pair of studies (Wegner, Schneider, Carter, & White, 1987) asked participants to think aloud for 5 minutes while suppressing thoughts of a white bear; however, they were asked to ring a bell whenever they did think about a white bear. They were unable to suppress white-bear thoughts. Moreover, when asked afterward to think about white bears, they showed a rebound effect, thinking about white bears quite a lot; most important, they thought about white bears even more than did people who had been explicitly thinking about them all along. Both parts of this phenomenon are familiar to dieters, unrequited lovers, and procrastinators. (The dieter in particular knows all too well the potential for a postdiet binge of food thoughts and compensatory eating.) The only way out, as successful dieters and practiced meditators know, is to find a substitute thought. Participants who thought about a red Volkswagen as a distracter were no more successful in suppressing white-bear thoughts, but they showed no rebound afterward, suggesting that the suppression had not created the same kind of mental logjam as it had without the distracting thought.

The process is ironic (Wegner, 1994): Because one has the goal to suppress a specific thought, one sets up an automatic detection-monitoring system, which keeps the forbidden thought active, making it come to mind more easily. This kind of goal-dependent automaticity shows how goals can prime automatic processes that defeat the very goals they were intended to serve. For example, people who care about suppressing their stereotypes can do so when they are self-focused (attending to their internal standards), but this spontaneous suppression of stereotypes nevertheless produces a rebound effect in which the associations return with a vengeance (Macrae, Bodenhausen, & Milne, 1998).

Future neuroscience may identify the neural correlates of this goal-driven automatic inconsistency. The anterior cingulate cortex, which monitors a variety of disruptions (Botvinick, Cohen, & Carter, 2004), also monitors attempts to suppress unwanted thoughts (Wyland, Kelley, Macrae, Gordon, & Heatherton, 2003). This may be the neural indicator of the ironic process, showing how deeply embedded it is in fundamental systems of goal maintenance.

The difficulty of thought suppression is implicated in the inability of depressed people to avoid negative thoughts, although they can suppress positive thoughts just as well as control subjects can (Wenzlaff, Wegner, & Roper, 1988). As you will see in Chapter 5, depression makes negative thoughts more accessible. For example, depressed people perseverate on (i.e., persist in ruminating about) failures longer than do nondepressed people (Carver, La Voie, Kuhl, & Ganellen, 1988). Providing depressed people with positive distracter thoughts seems to be helpful in the suppression of negative material (Wenzlaff et al., 1988).

When not successfully repressed, a single intrusive thought may lead the way to brooding and rumination; that is, unwanted thinking about a particular object for a long time. Repetitive, counterproductive thinking may stem both from cognitive associations cued by goal-directed thinking, as already noted,

and from the motivation to remember uncompleted tasks (Zeigarnik, 1927). Rumination is said to entail several stages, which can be illustrated by the problem of attempting not to dwell on an unrequited attraction: (a) initially intensified repetition of the interrupted behavior (despite rebuffs, one persists in attempts to contact the loved person), (b) problem solving at lower and lower levels (one tries to calculate details of the person's schedule and habits to maximize successful contact), (c) end-state thinking (one fantasizes about the desired outcome of being together), (d) trying to abandon the goal (one attempts to give up on the person), (e) channelized thinking (even after resolving to give up, one may persist in thinking along well-worn associative pathways that all lead to thoughts of the other), and (f) depression from continued powerlessness (if one cannot escape from the preoccupation, one must mourn the lost ideal) (Martin & Tesser, 1989). A demonstration of the interrupted-goal aspect of rumination was obtained in one study that asked newly arrived college women how much they thought about some close person they had left behind; ruminations were positively related to the number of shared activities that were interrupted by being apart from the person (Millar, Tesser, & Millar, 1988).

Although some of the most interesting research on goal-directed automaticity has emphasized people's failures, much of the time goals can aid the performance of habitual behavior. As creatures of habit, this result may be less surprising but still important because adaptive forms of automaticity run our days.

Intent

Having moved through preconscious, postconscious, chronic, and goal-dependent automaticity, as well as unintended consequences of automaticity, we land on intent, a crucial feature of control. When is it fair to say that we fully intend a particular train of thought? This matters because people are often held legally and morally responsible for intended consequences. Cognitive explanations are important for a range of social problems, such as prejudice, aggression, biased judgments, and the like. For example, consider prejudice (detailed in Chapters 11–12). If people's prejudice is not strictly intentional, then perhaps they are not responsible for its consequences. Similarly, aggression in self-defense or the heat of jealous passion is viewed as less bad than premeditated aggression, which is defined by intent.

How do laypeople, psychologists, and the law define intent? People may be said to intend their train of thought and resulting interpretation if they perceive themselves as *having options* to think about it in other ways (S. T. Fiske, 1989). Hence, if on reflection one understood that another interpretation were possible, then the way one does think may be considered intentional. For example, if one interprets a family member's "I hate you!" as a murder threat, reasonable people might claim one had options to think in other ways. Similarly, if one categorizes an African American in a three-piece suit as a potential mugger, reasonable people might note that one had options to make other interpretations.

When one does have options, a particular choice is likely to be easier, and others are likely to be harder. That is, if one's accustomed way of thinking is the easy way, then *making the hard choice* is likely to be seen as especially intentional, by ordinary observers, psychologists, and even legal experts. Thus a clinically

paranoid person who resists interpreting family hostility as a threat will be viewed as overcoming a predisposition to respond in the easier way, and this harder response will be viewed as especially controlled and intended. Similarly, if one overcomes a societal stereotype of a young street tough as necessarily a mugger, observers will judge this as an act of will more so than if one goes along with the prevailing stereotypes. Rejecting the default, making the harder choice, is seen as especially intentional. However, if one has the capability of thinking either way, then both the hard and easy choice are intentional by the first criterion.

Finally, people implement their intended way of thinking by *paying attention*. Hence if a person wanted to interpret an intimate's hostility as a provocation to violence and attended to details of revenge, observers would interpret this as intentional. Similarly, to overcome a habitual stereotype applied to another person, paying attention to nonstereotypic attributes is the most effective route (S. T. Fiske & Neuberg, 1990). Intentional thought is characterized by having options, most obviously by making the hard choice, and enacted by paying attention to implementing the intent.

From intent, society takes a short step to responsibility. For example, completely unintentional discrimination is not illegal, and accidentally killing someone (manslaughter) is viewed less negatively than killing someone on purpose (murder). Regardless, one is not held socially responsible for one's thoughts, only for one's actions. The intent problem matters especially when analyzing the thoughts that provoked a particular action, but this analysis presumes, as society often does, that people have free will.

Conscious Will

Some social psychologists question the extent of free will. Is the automaticity of social cognition the "cognitive monster" that cannot be stopped (Bargh, 1999)? Perhaps situations automatically cue certain motives, which Bargh (1997) calls "auto-motives." In this view, situations determine behavior fairly directly. Situations trigger goals, and goals trigger actions—all automatically and outside consciousness. Bargh provocatively aligns himself with Skinnerian stimulus-response behaviorism, which was overthrown by the cognitive revolution in the middle of the 20th century. Social cognition comes full circle in the activated actor metaphor of the social (non)thinker.

In a related vein, Wegner argues that conscious will is an illusion created by people thinking about an action before performing it (Wegner, 2003; Wegner & Wheately, 1999). If the thought precedes the action, fits the action, and explains the action, people infer that the thought caused it. People often think about an action before performing it, so they infer that the thought caused the action. But what if something else (e.g., the situation) cued the thought, and the action was independent?

To test this, experimenters first had to create the thought that allegedly caused the result. They subliminally primed the desired endpoint for a moving square on a grid displayed on a computer screen (Aarts, Custers, & Wegner, 2005). Both the participant and the computer controlled squares moving in opposite directions through the grid. When the participant pressed a key, both squares started moving, and when the participant stopped, the endpoint of one

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square was revealed, without making it clear whether it was the computer's square or the participant's own square. Participants rated whether they felt they had caused that outcome (i.e., whether it was their square or the computer's). Prior subliminal priming of the endpoint biased participants' beliefs that they had caused it, though it did not actually affect how they performed the action (i.e., the timing of their key-press). The participants were more likely to experience agency (personal authorship of the outcome) when they were subliminally primed beforehand to think of the effect. People can think erroneously that their actions caused outcomes that they demonstrably did not control.

In the extreme, people even think they can control other people's outcomes and behavior. In one experiment (Pronin, Wegner, McCarthy, & Rodriguez, 2006), people had the illusion that they had magically caused someone else's outcomes. Some participants were first induced to harbor evil thoughts about a confederate who was obnoxious (compared to neutral), and then participants role-played a "witch doctor" by sticking pins into a "voodoo doll" allegedly representing the other person. When the victim indeed reported feeling a slight headache, participants indicated that they felt causally responsible. Similar effects occurred for spectators who silently rooted for a peer shooting basketballs into a hoop when the shooter subsequently succeeded. They felt that their silent wishes had helped the person to succeed.

These demonstrations make the crucial point that in addition to not controlling our thoughts we do not control our own (or other people's) actions as much as we think we do. Is this a reversion to behaviorism? Do situations entirely control behavior, and people's intentions merely correlate as irrelevant epiphenomena? Recent work draws on cognitive concepts that were forbidden to behaviorists, but social psychology need not pit the conscious person against the deterministic situation (Mischel, 1997). Both are important, but the automaticity of everyday life and the illusion of conscious control remind us that many processes do not operate through conscious intent.

Consciousness

If our conscious control does not serve to influence our actions as much as we might think and prefer, what does pass through our minds and why? What occupies our minds? What do we think about? What is in consciousness and why? Social psychologists have not concentrated on consciousness, which has traditionally been the topic of philosophers, psychoanalysts, and (recently) cognitive scientists. Accordingly, we will not attempt a comprehensive review but merely note some interesting points that potentially inform social cognition research and that increasingly matter as more social cognition researchers tackle these issues.

William James (1890/1983) described consciousness eloquently as the stream of thought:

> Consciousness, then, does not appear to itself chopped up in bits. Such words as "chain" or "train" do not describe it as fitly as it presents itself in the first instance. It is nothing jointed; it flows. A "river" or a "stream" are the metaphors by which it is most naturally described. (p. 233)

Consciousness was not only a stream to James, it was a stream "teeming with objects and relations" (p. 219) private and perpetually separate from the nearby streams belonging to other people.

Consciousness subsequently received a bad name from introspectionist experiments (recall from Chapter 1 that specially trained investigators reflected on their own mental processes in an effort to uncover basic processes such as memory retrieval). However, given the inherent inability to reproduce such introspective data publicly, and given the rise of antimentalistic behaviorism, consciousness went into hiding. With early work in cognitive psychology, it crept back in as "attention," then interpreted as what was being held in current awareness (see Chapter 3). Subsequently, some cognitive psychologists narrowly defined consciousness as either (a) simply being aware of (able to talk about) something or, alternatively, (b) being aware of something only in the sense that it reflects one's behavior even though one might not be able to report on it (Bower, 1990). In the first case, one might report feeling hungry and thinking about food; in the second case, one might find oneself snacking without conscious awareness of feeling hungry or intending to eat.

Consciousness has been viewed more broadly by various cognitive psychologists (Mandler & Nakamura, 1987). However, these views are not well integrated with each other because they usually represent particular attempts to solve theoretical problems using the concept of consciousness. One view represents consciousness as an epiphenomenon irrelevant to ongoing mental processes. As noted, it is reminiscent of behaviorist views, although distinct because, at least as used in the research just described, both the research methods and the presumed processes draw heavily on cognitive mechanisms.

Another idea is that consciousness is an executive that directs mental structures. When memory contents are activated sufficiently above a threshold, they are conscious, coming into short-term or working memory (see Chapters 3 and 4; D. A. Norman & Shallice, 1986; Shallice, 1972, 1978). At that point, the mental representations can be utilized under conscious control. As an executive, consciousness can inhibit and therefore control automatic associations, so it makes them responsive to one's current intents (Posner & Rothbart, 1989). A parallel social cognition account similarly labels consciousness simply as an "Executor" (Wyer & Srull, 1986).

Another perspective views consciousness as a necessary condition for human understanding and intent, as noted earlier. Consciousness as a possible condition for intent comes into discussions of how people assign blame (K. G. Shaver, 1985) and intent (S. T. Fiske, 1989; Uleman, 1989). That is, one cannot discuss what people intend to do unless one assumes that they are conscious of at least some aspects of their intent.

Finally, a novel and provocative viewpoint represents consciousness as a constructed device. Consciousness as a construction requires a bit of explanation, for it would seem less obvious than the other views. In this view, consciousness is a state that makes sense of currently activated unconscious contents using a number of applicable concepts. Consciousness is constructed from the accessible concepts. It operates within the constraints of a limited-capacity system and for the purpose of furthering the needs and goals of the moment (Mandler & Nakamura, 1987; Marcel, 1983a, 1983b).

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Consciousness is involved in learning, as one often proceeds from the conscious to the automatic and unconscious (as in learning to drive a car). In learning, consciousness allows the formation of new associations in which previously separate things come together into awareness. Should an otherwise overlearned and automatic sequence later fail, consciousness again is implicated in troubleshooting. And consciousness is necessary for choice, which compares two alternatives held in awareness at the same time. In this view, constructive consciousness serves a variety of important functions in ongoing goal-directed behavior. Cognitive psychologists generally have been concerned with such functions of consciousness.

Contents of Consciousness

Closer to home, social-personality psychologists have focused on the contents of consciousness just for its own sake. They describe ongoing consciousness as the stimulus field composed of thoughts, emotional experiences, and body sensations (i.e., daydreaming) that can compete successfully with the external world (Singer, 1978, 1984). Such internal landscapes (Csikszentmihalyi, 1978; Csikszentmihalyi & Larson, 1984) are often made up of unfinished business or current concerns (Klinger, 1978; Klinger, Barta, & Maxeiner, 1980; see also Srull & Wyer, 1986). These include any unmet goals, whether trivial low-level projects (getting to the gym), problems in significant relationships (Will my true love marry me?), or value dilemmas (Should I cooperate in my friend's tax evasion?). One study sampled college students' thoughts, finding them mostly specific, detailed, visual, unfanciful, controllable, and related to the immediate situation; only about a fifth of the reported thoughts were strange and distorted (Klinger, 1978)

Kinds of Thought

Ongoing thought may be stimulus dependent or stimulus independent (Antrobus, Singer, Goldstein, & Fortgang, 1970; Klinger, 1978; Singer, 1966). That is, we sometimes think *stimulus-dependent thoughts* about environmental cues. However, even when we are highly motivated to attend to the environment, we are constantly experiencing *stimulus-independent thoughts* (that is, our mind wanders a lot). In some research demonstrating this principle, the investigators motivated subjects by paying them for correctly monitoring external signals, penalizing them for errors, and forcing them to maintain rapid responding; even then, distracting thoughts occurred 55% of the time (Antrobus et al., 1970; Antrobus, Fein, Goldstein, & Singer, 1989). However, the nature of the task at the time probably influences the relative amounts of stimulus-dependent and stimulus-independent thought.

Relation to the outside world is not the only way to carve up the contents of consciousness. A separate set of dimensions differentiates between operant and respondent thought processes (Klinger, 1977a, 1977b, 1978). As its name implies, *operant thought* is instrumental and problem solving in nature; it is volitional, it monitors progress toward a goal, and one tries to protect it against external and internal distractions. *Respondent thought* is neither volitional nor effortful but receptive; it constitutes all the ordinary distractions of unbidden images (Horowitz, 1970) or preemptory thoughts (Klein, 1967) that seem to arise of

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their own accord. Most daily thought is operant, with respondent components, according to one study (Klinger, 1978). That is, while you are reading this book, your thought is operant; when you stop to think about how you will choose a term paper topic, that thought also is operant. But when you daydream about the party last night, that is respondent thought. Doubtless, people's tasks and their stage of implementation influence the proportion of operant thoughts (e.g., Heckhausen & Gollwitzer, 1987). There are also individual differences in task (operant) focus (e.g., Jolly & Reardon, 1985).

Although it might seem that these two dimensions of thought—stimulus dependent versus stimulus independent, operant versus respondent—are completely redundant, they are not. A person may have operant (goal-directed) thoughts that depend on external stimuli or thoughts that are stimulus independent and wholly internal (as when one concentrates on making a decision). Similarly, one may have respondent (spontaneous) thoughts that do or do not depend on external stimuli (funny how the computer keyboard can suddenly demand cleaning just when one is trying write the first sentence of a paper).[1]

Sampling People's Thoughts

How often have we wished to read another person's thoughts? Indeed, strangers often think newly introduced psychologists or psychology students can read (or at least analyze) people's minds. Fortunately or unfortunately, psychologists have only indirect access to people's inner worlds. Some thought-sampling studies have examined people's inner worlds while they are attempting to concentrate on a perceptual task (Antrobus et al., 1970); others have attached people to electronic pagers that beep at random moments during the day, prompting participants to write down their thoughts just before the signal (Klinger, 1978). Experience-sampling methods that allow researchers to query participants about their current states at random moments have explored conscious experiences regarding cooperative learning, parenthood, mood, well-being, loneliness, and everyday psychotic perceptions (respectively: Delle Fave & Massimini, 2004; Peterson & Miller, 2004; Oishi, Diener, Napa Scollon, & Biswas-Diener, 2004; Updegraff, Gable, & Taylor, 2004; Hawkley, Burleson, Berntson, & Cacioppo, 2003; Verdoux, Husky, Tournier, Sorbara, & Swendsen, 2003).

Other techniques of thought sampling ask subjects to think aloud as they are receiving information about other people (Erber & Fiske, 1984; S. T. Fiske, Neuberg, Beattie, & Milberg, 1987; Ruscher & Fiske, 1990). As participants read verbal materials describing someone, they talk into a tape recorder, providing their spontaneous and relatively unfiltered reactions, which enables researchers to observe the encoding process in detail. Although a number of methodological cautions are in order, the technique has proved useful in social cognition (S. T. Fiske & Ruscher, 1989; S. E. Taylor & Fiske, 1981). For example, one can trace the gradual development of suspicion about another person's ulterior motives and the evolving negative impressions (Marchand & Vonk, 2005).

A related series of studies has attempted the challenge of examining people's thoughts during ongoing social interaction. In these studies of naturalistic social

[1]Other dimensions too numerous to cover here distinguish among conscious thoughts: well-integrated or degenerative, probable or fanciful, self-involving or observation oriented, vivid or pallid, primarily verbal or sensory, and involving particular senses (J. L. Singer, 1984, see also Klinger, 1978)

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cognition (Ickes, Robertson, Tooke, & Teng, 1986; Ickes & Tooke, 1988; Ickes, Tooke, Stinson, Baker, & Bissonnette, 1988), strangers are unobtrusively videotaped as they pass the time awaiting the experimenter's return. After being informed that they have been recorded on a candid camera and giving permission for use of the tapes, participants separately replay the tape, stopping it each time they recall having a particular thought or feeling. This research examines such dimensions of the interaction partners' thoughts and feelings as their object (self, partner, others, environment), their valence (positive or negative), and their perspective (own or other's). It finds, for example, that people's positive thoughts about their partners are related to their involvement in the interaction (as measured by both their verbal and nonverbal behavior). Moreover, in same-sex dyads, male strangers show greater convergence in their thought/feeling content than do female strangers, perhaps because they operate within a more narrow range of interactional involvement and thus have to monitor their interaction more closely. That is, in Anglo American culture, male strangers carefully regulate the degree of intimacy they display, and this results in their thinking and feeling similarly because their options are relatively limited. In contrast, the interactional involvement of female strangers is less constrained, but their thought/feeling content shows more convergence in taking each other's perspective and in focusing on third parties (Ickes et al., 1988). This paradigm can explore empathic accuracy by comparing what people think their partners are experiencing and what the partners actually experience. In married couples, empathic accuracy helps emotional intimacy except when one person's thoughts are relationship threatening, in which case empathic accuracy naturally reduces the perceiver's felt closeness (Simpson, Oriña, & Ickes, 2003).

A related paradigm also samples people's thoughts within relatively realistic social settings. Participants role-play participation in one part of an audiotaped interpersonal encounter; that is, the tape portrays half the interaction and the participant mentally supplies the remainder. Alternatively, the tape depicts an overheard conversation in which two people discuss a third party, and the participant then role-plays the third party as the self. At predetermined points the tape is stopped, and participants articulate their thoughts. People report more irrational thoughts (i.e., rigid absolute demands) in stressful, evaluative social situations, and this is especially true for people who are socially anxious (Davison, Feldman, & Osborn, 1984; Davison, Robins, & Johnson, 1983; Davison & Zighelboim, 1987; Kashima & Davison, 1989). The inventiveness of these various paradigms illustrates the challenge of obtaining people's thoughts online, during social interactions.

Conclusions About Consciousness

Studies that attempt to access people's thoughts must do so with their cooperation and, more important, within their ability to comply. As you will see (Chapter 8), there is some controversy about people's ability to access their own thought processes. People often cannot report accurately on what affects their behavior (Nisbett & Wilson, 1977), suggesting that they have imperfect access to at least some of their own thought processes. Nevertheless, within certain limits people can report usefully on the content of their thoughts under certain conditions: if they do so simultaneously with their thoughts, if the relevant thoughts are already in verbal form, and if they are asked to report content and not process (Ericsson & Simon, 1980; S. T. Fiske & Ruscher, 1989; S. E. Taylor & Fiske, 1981).

Cognition and social cognition researchers are thinking about consciousness in ways that go beyond the teeming stream of William James. Consciousness may be considered an executive, a necessary condition for intent, or a construction inferred from material activated unconsciously. It tends to be occupied by unfinished business, but it may be more or less instrumental and more or less dependent on external stimuli. Studies sampling thought during interaction are currently inventing a number of techniques to cope with this particular challenge. However, all studies of consciousness must be wary of the introspective-access problem.

MOTIVATIONS INFLUENCE WHICH MODES OPERATE

If the primary modes of social cognition are automatic and unconscious thoughts versus controlled and conscious thoughts, with gradations between them, it matters how people move between modes. As the motivated tactician metaphor implies, people's tactics (the modes they use) depend on their motives. In social cognition, a variety of motives have mattered over the past decades. They go by various names, but the following five terms capture the most frequent motives (Fiske, 2004): belonging, understanding, controlling, enhancing self, and trusting ingroup. As a mnemonic device, consider them a buc(k)et of motives (Table 2.2).

Belonging

Social cognition is importantly *social*, as noted in Chapter 1. Social cognition preoccupies people because our social survival depends on it. People do not do well unless they are motivated to get along with at least a few other people. The age-adjusted mortality risk of social isolation is comparable to cigarette smoking; both cardiovascular and immune responses are damaged by isolation (House, Landis, & Umberson, 1988). People respond poorly to being ostracized, feeling bad, reporting less control, and losing a sense of belonging (Williams, Cheung, & Choi, 2000). The neural signature of social pain mimics the neural signature of physical pain in that both activate the anterior cingulate cortex (Eisenberger et al., 2003), which more generally responds to disruptions and inconsistencies

TABLE 2.2. Motivations That Influence Modes of Social Cognition

Motive	Goal
Belonging	Being accepted by other people, one's group
Understanding	Socially shared cognition; belief that one's views correspond to those of one's group
Controlling	Influencing one's own outcomes that depend on other people
Enhancing self	Viewing self positively or at least sympathetically
Trusting ingroup	Viewing people, at least in one's own group, positively

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(Botvinick et al., 2004). Clearly, the need to belong is central to people's health and well-being (Baumeister & Leary, 1995; Leary, 1990).

Not surprisingly then, people's social cognition is shaped by their motives to be accepted by other people. This is most evident in the belonging-related motives of socially shared understanding and social control (covered next), but belonging by itself also changes how and what people think. First, the focus of people's thoughts is importantly social. As noted in discussing consciousness, people spend a lot of time thinking about current concerns in relationships, and as Chapter 1 noted, people's resting state may be social thought.

People's need to belong can motivate relatively automatic modes of impression formation designed to ease the social interaction; people automatically categorize stimuli as related to "us" and "them," for instance (Perdue, Dovidio, Gurtman, & Tyler, 1990). More generally, people readily see themselves as part of a group (e.g., Tajfel, 1981; Turner, 1985), automatically attuned to its beliefs, norms, and roles. This feeling of belonging affects people's interpretation of social stimuli. In a classic study, students from Princeton and Dartmouth watched a football game between their schools and rated the number of infractions; school membership biased how many infractions students saw for their own versus the other team (Hastorf & Cantril, 1954). Belonging probably operated fairly automatically in this case. Belonging is also illustrated by the fact that people conform to the majority in relatively automatic ways (Wood, 2000).

The overall need to belong provides an orienting framework for studying social cognition in that belonging underlies more specific cognitive motives, including social understanding and social control.

Understanding

The social motive that most obviously drives social cognition is understanding, the need for socially shared cognition. People think about other people in order to interact with them; one of the founders of American psychology, William James, noted that "my thinking is first and last and always for my doing" (1890/1983, p. 960), and much of people's thinking and doing is social (S. T. Fiske, 1992, 1993). Socially shared understanding is the need to believe that one's views correspond to those of one's group (Turner, 1991, ch. 10). Understanding is the dominant motive driving most social cognition.

Automaticity often serves socially shared understanding well enough, as we have seen. However, people are sometimes socially motivated to be especially accurate or accountable to others (e.g., respectively, Fiske & Neuberg, 1990; Tetlock, 1992). Sometimes, also, people's level of information falls below acceptable levels (Kelley, 1972a), and this leads them to gather information. Sometimes, too, people arrive in a new place (e.g., the first week of college) or a new culture (due to travel or immigration), and they cannot assume their perceptions fit the general outlook (Guinote, 2001). When the necessity of socially shared understanding is uppermost, people switch to relatively deliberate processes, seeking and using a lot of information until their judgments become automated again. Socially shared understanding seeks to make the world more predictable, and when this need falls short, people deliberately engage in information seeking and analysis until understanding is restored.

Controlling

In social relationships people are interdependent; that is, their outcomes depend on each other (Thibaut & Kelley, 1959). When another person controls significant desired resources, people attend carefully to that person in an attempt to influence the contingencies between actions (what they do) and outcomes (what they get) (S. T. Fiske & Neuberg, 1990). Being outcome dependent often shifts people to more controlled, deliberate processes in an effort to feel in control. Control needs also appear in nonsocial circumstances, such as when one receives arbitrary feedback on one's performance from a machine, and this impaired sense of control carries over to social circumstances in which people seek additional information about other people (Pittman, 1998) In general, heightened control needs make people deliberately seek additional information to avoid error and feel effective. Threatened control can increase the apparent costs of being wrong, so people switch to deliberate modes as flexible motivated tacticians.

Control threats do sometimes occur in circumstances of scarce resources (time pressure, mental fatigue), in which case pressures for a decision, any decision, will increase. Pressures for urgency (quick decisions) and permanence (lasting decisions) come from a variety of situational factors (Kruglanski & Webster, 1996) and individual differences (Neuberg & Newsom, 1993). All of these processes probably operate automatically to a greater degree than the information-seeking processes cued by a special need to feel accurate. Note that most of the preceding remarks about thoughtful processing concern threatened control in which the motive becomes most evident. In circumstances of satisfied control, decisive thinking is the norm.

This motive for controlling and the previous one for understanding overlap somewhat but differ in that people want to predict (understand) even when they cannot influence (control) because it aids in adjustment even if they can only anticipate but not change an outcome. Both understanding and controlling motives appear relatively cognitive and information oriented. The next two motives are more affective and feelings oriented but also are traceable to the core social motive of belonging.

Enhancing Self

People's tendency to see themselves in a positive light is well documented, particularly in American and European settings (Chapter 5). Both automatic and controlled processes operate here, but people's immediate, automatic first reactions favor positive self-esteem. For example, people's relatively automatic reactions favor positive feedback (Swann, Hixon, Stein-Seroussi, & Gilbert, 1990). On subsequent reflection (more controlled), however, people prefer feedback that fits their self view, even if it is negative.

More generally, much social cognition automatically orients toward viewing the self positively. In particular, people have enhanced senses of self: overly optimistic for the future, exaggerated sense of personal control, and more positive self-concept than is perhaps realistic. Nevertheless, these illusions are adaptive, benefiting both mental and physical health (Taylor, Kemeny, Reed, Bower, & Gruenewald, 2000; Taylor, Lerner, Sherman, Sage, & McDowell, 2003a, 2003b). Moderately high self views encourage people to participate in social life, so (within

reasonable bounds) self-enhancement helps people to adapt to their groups. Thus the self-enhancement motive shapes social cognition (see Chapter 5).

Trusting Ingroup

Social cognition more generally operates under a clear and persistent positivity bias for most social stimuli, all else being equal (Matlin & Stang, 1978; Rothbart & Park, 1986; Sears, 1983). That is, people essentially expect good things from other people (not just themselves). For example, people routinely use only the top half of rating scales, only rarely rating other people below the numerical midpoint. Thus the psychological midpoint is positive for both expectations and reactions, and negativity stands out (S. T. Fiske, 1980). When negative events do occur, people mobilize rapidly (and automatically), seeking to minimize the damage (often a more controlled response) and returning to a positive baseline (S. E. Taylor, 1991). Negativity jumps out incredibly early, within milliseconds (Ito, Larsen, Smith, & Cacioppo, 1998), precisely because it stands out against a relatively positive baseline (Skowronski & Carlston, 1989).

You may doubt this motive because trust shows individual differences, as do all these social motives. People's intention to trust others and people's receipt of trusting behavior both correlate with the neuroactive hormone oxytocin (Zak, Kurzban, & Matzner, 2005). Oxytocin, particularly active in women, is implicated in caretaking and befriending, especially under threat (S. E. Taylor, 2006). Trusting ingroup others links to the pervasive positivity bias observed throughout social cognition. This baseline positivity extends mainly to people's own group members; in this sense, people trust ingroup others to do and be good.

Conclusion

Social cognition is animated by a variety of social motives traceable to belonging, including understanding, controlling, enhancing self, and trusting others. This framework fits the history of motivations in psychology (S. T. Fiske, in press) as well as current work in social psychology generally (S. T. Fiske, 2004) and social cognition in particular (S. T. Fiske, 2002). Although this framework originates with one of the authors (and other frameworks are possible), it does serve to highlight some of the motives that determine when and how people operate in more automatic or more controlled modes.

The distinction between relatively automatic and controlled processes is well established as a social cognitive principle. The motivated tactician metaphor captures the flexible use of different modes. What are the directions for future research? Social neuroscience, at one end of the spectrum, surely will matter increasingly. The social neuroscience of automaticity and control is in its infancy (Lieberman, 2007). Earlier, we noted areas implicated in automatic processing (see Figure 2.1): Controlled processing of the kinds just described implicate large portions of the prefrontal cortex toward the front (lateral PFC, medial PFC) and upper back (lateral and medial parietal cortex). The point here is that the spectrum is reflected in neural patterns just now emerging; we note this social neuroscience in later chapters where specifically relevant as it is likely one wave of the future. At the other end of the spectrum, cultural variations in the core motives and their effects on social cognition also will matter increasingly.

MODELS OF BOTH AUTOMATIC AND CONTROLLED PROCESSES

Throughout social cognition in all its varieties, people make sense of themselves and each other in more and less thoughtful ways, depending on the circumstances. *When* they do *what*—that is, the circumstances that guide more automatic or more controlled processing—concerns dozens of theories in social cognition (Chaiken & Trope, 1999). We sample some here, from person perception to attribution, to attitudes, and more.

Examples in Person Perception

Some models focus on when people perceive other people in more and less automatic ways. One way of conceptualizing people's use of automatic expectancies versus more deliberate attention to individuals is to view the two modes as branching off into different strategies as the situation demands. According to this "dual-process" perspective (M. B. Brewer, 1988, M. M. Brewer & Harasty Feinstein, 1999), people initially identify a person automatically, and they stop there if the person is not relevant to their goals. Identifying the gas station attendant as a youngish man in the right uniform illustrates this relatively automatic process.

If the person is relevant, and if the perceiver is sufficiently involved, people personalize the other using individually tailored concepts in a memory network. If not sufficiently involved, perceivers first categorize using images (holistic, nonverbal patterns) that fit the perceived person, unless the category fit is poor. In that case, they individuate, using subtypes (more specific categories such as local versus highway attendant) or exemplars (familiar examples such as the guy at one's neighborhood station). Chapter 4 details these distinct forms of mental representation, but the point here is that one way to view dual-mode models is as a series of choice points and branching processes that channel people into various relatively automatic and controlled forms of thinking about others.

An alternative viewpoint views impression formation not as a series of branches into distinct types of processing but as an evolving continuum. In this view, people engage in a continuum of processes ranging from the most automatic, category-based processes (relying, for example, on age, sex, race) to the most deliberate, piecemeal impression formation processes (relying on the available data about each individual). Along this "continuum of impression formation," one can specify both information configurations and motivations that move people from one end of the continuum to another (e.g., S. T. Fiske et al., 1987; for reviews, see S. T. Fiske & Neuberg, 1990; S. T. Fiske, Lin, & Neuberg, 1999).

People start at the automatic end and may (or may not) proceed in stages along the continuum. In this view, they initially categorize each other automatically on the basis of noticeable physical cues and verbal labels. For example, the person approaching on the sidewalk is a White, college-aged woman. People automatically use these initial categories, especially when that is all they have. If sufficiently motivated to attend to the other person, people attempt to confirm these initial categories in a slightly more deliberate fashion. On closer inspection, her face confirms her apparent age. Category confirmation is generally successful if the data fit well enough.

If category confirmation fails (e.g., the data contradict the category, as when the woman has a moustache), people recategorize. They generate new, better-fitting categories ("she" is a feminine "he"), subcategories (she is wearing stage makeup and a tie), exemplars (like your cousin, she has facial hair that shows in daylight), or self-reference (well, maybe you yourself are androgynous). Finally, when it is not easy to recategorize, people proceed piecemeal, attribute by attribute, through the data. As you sit across from her on the subway, you try to figure her out by covert but closer inspection. As the continuum model indicates, people are not fools. We often rely on automatic processes when they are good enough, but we also know when to quit and move to more controlled processes.

There are some important differences between dual-process and continuum models approaches. For example, the dual-process model proposes distinct types of cognitive representations (images, categories, exemplars) in distinct branches of impression formation. In contrast, the continuum model posits stable kinds of information across its evolving stages, with the prior stage carrying over to the subsequent one. In addition, the dual-process model posits specific rules for passing along each processing branch, whereas the continuum model proposes constant rules; namely, that ease of categorization depends on information and motivation. There are other differences (Bodenhausen, Macrae, & Sherman, 1999; M. B. Brewer, 1988; S. T. Fiske, 1988), but both approaches integrate relatively automatic and relatively controlled processes within plausible unified frameworks.

Given current knowledge, moving between automatic and controlled impression formation could be cued by relatively automatic neural systems that respond to external features, cuing emotional vigilance (e.g., amygdala, basal ganglia), familiar others (the lateral temporal cortex's temporal pole, TP), and biological movement (the lateral temporal cortex's superior temporal sulcus, STS). Discrepancies register on the anterior cingulate cortex (ACC), thereby engaging more controlled processing about the other as a human being with mental states (medial prefrontal cortex, mPFC) and intentions (Amodio & Frith, 2006; Botvinick et al., 2004; Lieberman, 2007). As social neuroscience research develops, these patterns will doubtless clarify with new data.

Examples in Attribution

People engage in a variety of more and less automatic forms of causal reasoning (see Chapter 6). For example, suppose people observe a person chewing her fingernails, speaking hesitantly, and avoiding eye contact; they might decide this is a nervous person, or they might decide that the person is describing the most embarrassing moment of a lifetime on national television. In one integration model (Trope, 1986; Trope & Gaunt, 1999), people first identify behavior, aided by context (nail-biting could indicate nerves or frustration, but on national TV it's probably nerves). Because much behavior is ambiguous, identification is a necessary first step. Next people explain the nervous behavior, now subtracting the situation (everyone's nervous on national television) and the person's disposition (maybe not such an anxious type). The first process, identification, is relatively automatic and effortless, whereas the second, explanation, is more deliberate and controlled.

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A related model splits the first process into categorization of behavior and its characterization in dispositional terms, both automatic, followed by a controlled correction for situational factors if the perceiver has the capacity and the motivation (Gilbert, 1991; Gilbert, Pelham, & Krull, 1988). The relative automaticity and control in these processes are illustrated by studies in which participants have to remember a phone number for the experimenter (a subtle imposition of cognitive load) while simultaneously making a causal attribution about another person. Cognitive load does not interfere with the initial, relatively automatic dispositional inference (categorization and characterization), but it does interfere with the subsequent controlled correction for situational pressures.

A third model contrasts spontaneous trait inferences, guided by concepts that come easily to mind, linked to the person, whether appropriate or not, with more intentional, goal-driven processes (Uleman, 1999; Winter & Uleman, 1984). Again, these models have important differences (Gilbert, 1998), but all three contrast relatively automatic and controlled causal attributions for behavior. We will return to them in a closer examination of causal attributions in Chapter 6.

Examples in Attitudes

Some of the best-known two-mode models occur in the realm of attitudes—people's evaluations of objects in their world. The elaboration likelihood model (Petty & Cacioppo, 1981; Petty & Wegener, 1999) describes two routes to persuasion: peripheral (more automatic and superficial) and central (more deliberate and controlled). Low-effort processes use peripheral cues, such as noting that the message has a lot of arguments or comes from an ingroup source (so it must be right), and people perhaps read this message only superficially. In a high-effort process people carefully scrutinize all the arguments and elaborate on them; that is, they add some kind of personal reaction, pro or con. Most variables can serve as both peripheral cues or information for more central processing, depending on circumstances.

In a related vein, the heuristic-systematic model (Chaiken, 1980; Chen & Chaiken, 1999) contrasts the systematic mode (relatively analytic and comprehensive) with the heuristic mode (previously stored rules of thumb). The two modes can operate in parallel, adding to each other's impact, although the heuristic one is likely to be faster. Perceivers stop when their confidence is sufficient for present purposes, so the balance of the two modes' influence depends on when people make a decision.

Not only persuasion processes but also processes linking attitudes to behavior can come in more spontaneous, rapid ways (Fazio, Powell, & Herr, 1983; Fazio & Towles-Schwen, 1999) or in more deliberate, cost-benefit ways (Ajzen & Fishbein, 1980; Ajzen & Sexton, 1999). These models are detailed in Chapters 10 and 15, but for now we focus on their integration of relatively automatic and controlled modes in the processing of persuasive communications.

Other Areas: Self, Prejudice, Inference

In the domain of thinking about the self (Chapter 5), people sometimes react rapidly, on the basis of self-schemas (automatic self-concepts), and at other times

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review self-relevant evidence more carefully (Markus, 1977). And we saw earlier that people sometimes react immediately and positively to positive feedback but may react more deliberately to its consistency (Swann et al., 1990).

In thinking about outsiders, too, people swing between two extremes: relatively automatic, culturally conditioned prejudices and more controlled, personally endorsed viewpoints (Chapters 11–12; Devine, 1989; Devine & Monteith, 1999; Dovidio & Gaertner, 1986; Greenwald et al., 2002).

Indeed, in every kind of inference a kind of System 1 intuition versus System 2 reasoning contrast may be drawn (Epstein, 1990a; Kahneman, 2003; Smith & DeCoster, 2000). The intuitive side is holistic, rapid, effortless, parallel, affective, associative, crude, and slow-learning. The rational reasoning side is analytic, slow, effortful, serial, neutral, logical, differentiated, and flexible. The intuitive, associative mode relies on the slow-learning but rapidly responding form of memory, which concentrates on consistencies; whereas the rational, fast-binding, rule-based system acquires detailed new memories quickly, focusing on novel and inconsistent cues for subsequent consideration in deliberate processes. The two-system contrast suggests that each is suited to distinct forms of learning and reacting (see Table 2.3 for a summary). This powerful theme drives much social cognition work as psychological scientists of every stripe document the ways people make sense of their social worlds.

The Dissent: Single-Mode Alternatives

Lest you think this understanding of social cognition represents an uncontested dual-mode supremacy, some alternatives do appear. A unimode model builds on a lay epistemic theory of ordinary knowledge (Kruglanski, 1980; Kruglanski, Thompson, & Spiegel, 1999). This proposes that people's subjective understanding

TABLE 2.3. Characteristics of Automatic Versus Controlled Processing

Automatic	Controlled
intuitive	rational
categorical	individuated
holistic	analytic
rapid	slow
effortless	effortful
parallel	serial
affective	neutral
associative	logical
crude	differentiated
reflexive	reflective
slow-learning	fast-learning
rigid	flexible
consistency	novelty

essentially tests their everyday hypotheses. Because all types of lay hypothesis-testing processes draw on evidence, capability, and motivation, in this view various processes are more similar than different. All these processes theoretically follow "if-then" rules of relevance according to the unimode approach. Regardless of whether the evidence presented under the "if" condition is simple or complex, certain reactions follow from it, assuming the evidence is relevant. That is, the overarching if-then structure is similar regardless of domain (if fatigued, drink coffee; if in love, get married). Capability and motivation operate in a similar manner, in this view, regardless of mode.

Another single-mode alternative argues that impression formation processes all operate in parallel, blending many attributes that are simultaneously activated (Kunda, 1999; Kunda & Thagard, 1996). It treats all types of information as equivalent, not privileging certain types of information (e.g., race, gender) over others (e.g., personality traits). In this view, a person's race, gender, and age are weighted equivalently to the person's personality, abilities, and preferences. This blending operates by combining and resolving every cue simultaneously, in parallel. Impressions develop from all sources of information at once, combining them into a coherent impression immediately and continuously constrained to be internally consistent. This model differs from dual-process models primarily in cases of unmotivated processing in which most such models assume superficial use of information, relying on only a few cues. In motivated processing, both this model and the dual-process models assume people will use more information.

These single-mode models provide an important counterpoint, but as often occurs in debates, they tend to caricature the opposition. Indeed, all dual-mode theorists take pains to point out that their processes represent endpoints of a continuum and that most processes take place somewhere in between.

Summary

This chapter previews one of the main themes in social cognition over the past 25 years, in particular, but anticipated even earlier: People's thought processes can operate in relatively automatic or relatively controlled manners, or at locations between the two. The most automatic processes occur without effort, awareness, control, intent, or capacity use. Subliminal, preconscious processing of social cues (faces, concepts) affects cognitive associations, affective reactions, and behavior. Conscious priming of (exposure to) concepts can trigger unconscious, automatic processes. Some cues may be chronically accessible to some people, but situations also prime particular concepts and even motives.

People control some types of automatic processing by deliberately instigating a goal, which then triggers automatic processes. Habits serve as one example. People also consciously attend to certain actions, plan for them, and execute them. However, people do tend to overestimate the extent to which their thoughts control their actions, or even the extent to which they can control their thoughts. Consciousness serves multiple functions, both internally and externally driven, often taken up by unfinished business and social concerns.

A variety of motivations determines whether people engage in more or less automatic and controlled processes. Each motive can push toward either automaticity or control, depending on circumstances. Belonging with other people powerfully motivates people to go along with others and look to others. Socially shared understanding motivates much of social cognition, both relying on consensus and seeking information in the

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service of prediction. Controlling the contingencies between what one does and what happens to oneself is important to well-being. On the affective side, people enhance the self and optimistically trust ingroup others. The interplay of these motives and available information determines when people rely on well-worn, relatively automatic processes and when on more deliberate, controlled processes.

Examples of dual-processing models appear in person perception, attribution, attitudes, self, inference, and prejudice, to name a few. They are countered by single-mode alternatives that argue for similar processes, regardless of information and motivation. Social cognition researchers continue to debate these points, as you shall see.