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### Permalink

<https://escholarship.org/uc/item/7sb722b1>

### Journal

Journal of Personality and Social Psychology, 80(6)

### ISSN

0022-3514

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### Publication Date

2001-06-01

### DOI

10.1037/0022-3514.80.6.876

Peer reviewed

## Person Theories and Attention Allocation: Preferences for Stereotypic Versus Counterstereotypic Information

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How do people respond to information that counters a stereotype? Do they approach it or avoid it? Four experiments showed that attention to stereotype-consistent vs. -inconsistent information depends on people's implicit theories about human traits. Those holding an entity theory (the belief that traits are fixed) consistently displayed greater attention to (Experiments 1 and 4) and recognition of (Experiments 2 and 3) consistent information, whereas those holding an incremental (dynamic) theory tended to display greater attention to (Experiment 1) and recognition of (Experiment 3) inconsistent information. This was true whether implicit theories were measured as chronic structures (Experiments 1, 2, and 4) or were experimentally manipulated (Experiment 3). Thus, different a priori assumptions about human traits and behavior lead to processing that supports versus limits stereotype maintenance.

Each of us literally chooses, by his way of attending to things, what sort of universe he shall appear to himself to inhabit (James, 1890/1983, p. 416).

We often encounter people acting in ways that are contrary to what we stereotypically expect of them (e.g., a woman who plays baseball, a trucker who quotes Byron). On the surface, stereotype-inconsistent information appears to pose a direct challenge to the veracity of our stereotypes. However, we know both from everyday experience and from social cognition research (e.g., L. Johnston, Hewstone, Pendry, & Frankish, 1994; Maass, Salvi, Arcuri, & Semin, 1989; Weber & Crocker, 1983) that stereotypes are remarkably resistant to such challenges. This is troublesome for researchers and policy makers interested in reducing stereotyping and prejudice, because it suggests that merely exposing people to stereotype-inconsistent information may not necessarily lead to a decrease in stereotyping.

A number of researchers have examined social-cognitive processes that may contribute to the persistence of stereotypes. In typical studies, the researcher presents participants with both stereotype-consistent and stereotype-inconsistent information and then observes whether participants process the two types of information in different ways (e.g., Belmore, 1987; Hastie & Kumar, 1979; Hemsley & Marmurek, 1982; Hilton, Klein, & von Hippel, 1991; Sherman, Lee, Bessenoff, & Frost, 1998; Srull, 1981; see Stangor & McMillan, 1992). Perceivers routinely process consis-

tent and inconsistent information differently, and this differential processing often appears to contribute to the preservation of perceivers' stereotypes (e.g., Crocker, Hannah, & Weber, 1983; Hilton et al., 1991).

This line of research has led investigators to propose that perceivers might follow one of several processing strategies after identifying information as consistent or inconsistent with a stereotype. These strategies can be grouped into three broad categories, two of which lead to stereotype preservation. First, perceivers may decrease their engagement with the stereotype-inconsistent information and instead focus on stereotype-consistent information, thereby accumulating in memory more confirming evidence than disconfirming evidence (e.g., Bodenhausen, 1988; Macrae, Hewstone, & Griffiths, 1993; D. T. Miller & Turnbull, 1986; Snyder & Swann, 1978). Second, perceivers may increase their engagement with stereotype-inconsistent information to debunk it or otherwise reinterpret it in a manner that leaves the stereotype intact (e.g., Crocker et al., 1983; Devine & Baker, 1991; Lui & Brewer, 1983; Maass et al., 1989). Presumably, these two strategies are directed toward and contribute to stereotype persistence. Third, perceivers may increase their cognitive engagement with stereotype-inconsistent information because they consider such nonredundant information to possess greater informational value than consistent information (e.g., Bassok & Trope, 1984; Skov & Sherman, 1986). Presumably, such openness to stereotype-inconsistent information undermines the persistence of stereotypes.

Because such processes have clear and important implications for stereotyping, researchers have attempted to uncover general rules about when people focus on inconsistent versus consistent target information (e.g., Sherman et al., 1998; Stangor & McMillan, 1992; Vonk, 1994). To this end, a good deal of research has been devoted to isolating the inherent properties of consistent and inconsistent information that may lead perceivers to focus on one at the expense of the other. For example, several researchers have proposed that inconsistent information is by its very nature more

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novel and attention grabbing than consistent information is (e.g., W. A. Johnston, Hawley, Plewe, Elliott, & DeWitt, 1990; Nosofsky, Palmeri, & McKinley, 1994; Sherry & Schacter, 1987; Stroessner, 1996; Tulving, Markowitsch, Kapur, Habib, & Houle, 1994). Other researchers have suggested that inconsistent information possesses more explanatory power than consistent information does (e.g., Bassok & Trope, 1984; Sherman et al., 1998; Wason & Johnson-Laird, 1972). Stimulus qualities such as these are proposed to explain diverse phenomena, including the robust *incongruity effect* in person memory (e.g., Hastie & Kumar, 1979; Macrae, Bodenhausen, Schloerscheidt, & Milne, 1999; Srull, 1981; Stangor & McMillan, 1992) and perceivers' greater emphasis on inconsistent information under conditions of heightened accuracy motivation (e.g., Erber & Fiske, 1984; Stangor & Ruble, 1989).

### Differences in Perceivers' A Priori Models of Personality

Although research on the inherent properties of consistent and inconsistent information has yielded important insights, there has been a relative neglect of the perceiver end of the equation (for exceptions, see Förster, Higgins, & Strack, 2000; Sherman, Stroessner, & Azam, 2000). Yet perceivers may enter situations systematically varying in the extent to which they consider consistent and inconsistent information worthy of attention. Such perceiver differences may, in turn, play a large role in determining how incoming consistent and inconsistent information is processed. If so, this would have important implications for our understanding of the mechanisms involved in stereotype maintenance.

One critical source of variation among perceivers may lie in their a priori mental models of personality. Whereas most person perception models are silent about perceivers' a priori models, we suggest that people possess widely varying assumptions about human personality. These different assumptions may underlie different subjective criteria for what qualifies as useful social information, which, in turn, may lead to notable differences in processing and judgment. The notion that a priori assumptions or implicit theories help to guide social perception has been developed by a number of social psychologists (e.g., Dweck, Chiu, & Hong, 1995; Epstein, 1989; Heider, 1958; Kelly, 1955; Rhodewalt, 1994; Sternberg, 1985). The possible relationship, however, between implicit theories and the processing of stereotype-relevant information has only recently begun to receive serious attention (e.g., Levy & Dweck, 1998; Levy, Stroessner, & Dweck, 1998; Wittenbrink, Hilton, & Gist, 1998; Yzerbyt, Leyens, & Corneille, 1998).

The present studies test the hypothesis that people with different a priori assumptions about the nature of personality are likely to possess different criteria for the usefulness of incoming social information. On the basis of previous theorizing and research, we argue that perceivers' implicit theories about the *fixedness* or *malleability* of human attributes underlie different processing orientations with different attentional emphases on stereotype-confirming versus stereotype-disconfirming target information. We propose that previous research may have masked the difference between these two distinct processing patterns. In other words, whereas earlier studies primarily addressed the question of which type of information people prefer, the present studies, rather than assuming that all social perceivers follow the same cognitive route, instead address the question of who tends to focus on

stereotype-confirming information and who tends to focus on stereotype-disconfirming information.

### Implicit Theories and a Trait Focus Versus a Psychological Process Focus

Research by Dweck and colleagues (e.g., Dweck et al., 1995; Dweck & Leggett, 1988) has found that most people possess clear, implicit theories about the fixedness or malleability of human attributes such as intelligence and moral character. From this research, two important classes of implicit theories have been identified: an *entity theory*, which posits that personal characteristics are fixed entities, and an *incremental theory*, which holds that personal characteristics are malleable and can be developed over time. For example, an individual with an entity theory regarding intelligence might believe that although people can learn new things, their underlying intelligence remains the same. In contrast, an individual with an incremental theory of intelligence believes that a person's intellect is dynamic and cultivatable.<sup>1</sup>

There is good theoretical and empirical support for the notion that these two perspectives (entity vs. incremental) underlie two distinct approaches to understanding individuals and groups. Across a number of studies, it has been found that when entity theorists attempt to understand people and their behavior, they show a greater tendency than do incremental theorists to use trait terms and to make trait attributions, whereas incremental theorists show a comparatively greater tendency to invoke psychological processes occurring within the target or situational forces acting on the target (e.g., Chiu, Hong, & Dweck, 1997; Erdley & Dweck, 1993; Gervy, Chiu, Hong, & Dweck, 1999; Hong, 1994; Levy & Dweck, 1999; Levy et al., 1998; Sorich & Dweck, 1996). In other words, entity theorists appear to be more trait-focused, and incremental theorists appear to be more process-focused (Levy & Dweck, 1998). Moreover, the relationship between these two implicit theories and their corresponding processing patterns appears to be a causal one. In several studies, participants' theories have been directly manipulated, yielding effects similar to those in which chronic theories were simply measured (Chiu et al., 1997, Study 5; Hong, Chiu, Dweck, Lin, & Wan, 1999; Levy, 1998; Levy et al., 1998, Experiment 4).

Why should the different content of entity and incremental theories lead to differential emphases on traits or processes? On the one hand, when people believe that human attributes are fixed traits, they are likely to try to understand people in terms of these traits (Hong, 1994; Levy & Dweck, 1999). For example, if Eleanor (an entity theorist) believes that moral character is a fixed quality, then she is likely to view a target's trait goodness or badness as a compelling, underlying cause for the target's behavior (e.g., the boy helped the old woman across the street because he is a good person).

On the other hand, when people believe that human attributes are malleable, they are likely to seek other ways of understanding a target's behavior. For example, if Irene (an incremental theorist)

<sup>1</sup> It should be noted that our conceptualization holds that implicit theories can be domain specific. For example, a person may be an entity theorist of intelligence but an incremental theorist of moral character. In addition, as shown in Experiment 3, an individual's chronic theory may be overridden by compelling situational information (Bergen, 1992; Chiu et al., 1997; Levy et al., 1998; see Higgins, Bargh, & Lombardi, 1985).

believes that moral character is a dynamic quality, she is not as likely as Eleanor is to invoke a target's underlying kindness or meanness as a primary cause of behavior. Instead, to capture this more dynamic quality, Irene is more likely than Eleanor is to seek information about the situation or about the target's psychological processes (e.g., motivation, emotional state, construal of the situation). To Irene, these other processes and variables have a direct and noteworthy effect on behavior and therefore offer a compelling explanation for the target's behavior (e.g., the boy helped the old woman across the street because he felt sorry for her; Hong, 1994; Levy & Dweck, 1999).

As we discuss below, we propose that entity theorists' focus on inferring essential traits leads them to allocate greater attention to stereotype-consistent information than to stereotype-inconsistent information. In contrast, incremental theorists' greater acknowledgment of the role of contextual and psychological variables in determining someone's behavior leads them to allocate at least equal if not greater attention to stereotype-inconsistent information. Thus, our research addresses directly the role implicit theories may play in the early stages of stereotype maintenance.

### Different Patterns of Attention Allocation

Prior research has provided indirect evidence that entity and incremental theorists exhibit important differences at the early stages of information processing. For example, one study (Hong, Chiu, Dweck, & Sacks, 1997) demonstrated that entity theorists encode incoming person information in a more evaluative manner (i.e., with positive or negative tags) than do incremental theorists. This presumably occurs because entity theorists prefer to traffic in the currency of traits: The act of tagging incoming person information as positive or negative information can facilitate later ascription of evaluative traits like "good," "bad," "smart," and "dumb." This finding of differences between entity and incremental theorists in the encoding of incoming social information provides a glimpse into the early processes associated with each theory and suggests that early processes may contribute to the expression and perpetuation of each theory.

Consistent with this notion, we propose that the two groups' differential emphasis on traits versus process yields different criteria for determining what information is most worthy of the attentional spotlight.<sup>2</sup> Because entity theorists believe that underlying traits largely account for a target's behavior, once they have formed a trait expectancy, they should be especially receptive to information identified as expectancy confirming. Why? Expectancy-confirming information indicates consistency and predictability in a target's behavior, and such behavioral consistency may be taken as evidence supporting a trait-based understanding of the target. Thus, entity theorists' attention should gravitate toward expectancy-confirming information.

Consider, for example, the information that John, who Eleanor thinks is mean, made a nasty comment to a bystander. This confirmatory information (the nasty comment) provides clear supporting evidence that John possesses the trait *mean* and suggests to Eleanor that this is John's true nature. Because she considers expectancy-confirming information to be a truer reflection of John's underlying nature, she considers, at least on some level, such information more worthy of her finite processing resources.

Expectancy-disconfirming information may be thought to reflect uninformative random variation ("noise") that only distracts a

perceiver from apprehending the target's true nature. Continuing our example, because Eleanor considers expectancy-disconfirming information (e.g., kind words from John) to be a poor reflection of John's underlying mean nature (e.g., the kind gesture was a fluke), she should be less inclined to dwell on such information. Thus, entity theorists would not be expected to allocate as much attention to expectancy-disconfirming information as to expectancy-confirming information.<sup>3</sup>

In contrast, we propose that incremental theorists exhibit less of a preference for expectancy-confirming information. Indeed, they may even seek out expectancy-disconfirming information, precisely the kind of information that entity theorists find uninformative. Why might this be? Previous research has shown that an incremental theory is usually associated with the belief that human attributes are potentialities that can express themselves in different situations and over time (Chiu et al., 1997; Erdley & Dweck, 1993). Thus, incremental theorists may view variation in behavior as normal, meaningful, and diagnostic. Attending to contextual variations in behavior allows a perceiver to learn the conditions under which a target will act in certain ways (e.g., Shoda & Mischel, 1993). For example, rather than labeling John as globally "mean," Irene, by attending to inconsistent target behavior, may discover that when John feels threatened, he acts aggressively toward others, but when he is not feeling threatened, he acts kindly toward others.

### A Complementary Motivational Component

As we have described, entity and incremental theorists may differ in their attention allocation to stereotype-consistent and -inconsistent information because of their differential understanding of what kind of target information is most informative. In addition, such differences in attention allocation may contain a motivational component. As Sherman et al. (1998) suggested, certain processing goals (e.g., dissonance reduction; Frey, 1986; need for specific closure; Kruglanski, 1990) may elicit a defensive preference for consistent rather than inconsistent information. Turning to the present case, not only might entity theorists find inconsistent information less informative, they might also find it aversive (cf. Förster et al., 2000).

More specifically, trait-inconsistent target information may call into question entity theorists' belief that traits are the fixed building blocks of personality and that traits are reliably expressed

<sup>2</sup> The importance of information-gathering processes has been increasingly underscored within the social cognition literature (e.g., Fazio, Roskos-Ewoldsen, & Powell, 1994; Fiske & Neuberg, 1987; Sherman et al., 1998; Trope, 1986; von Hippel, Jonides, Hilton, & Narayan, 1993), with some theorists explicitly arguing that many stereotyping phenomena are largely attributable to early processes such as selective attention and perception (e.g., von Hippel, Sekaquaptewa, & Vargas, 1995).

<sup>3</sup> Another possibility is that entity theorists, rather than allocating less attention to inconsistent information, may actually allocate more attention to such information, with the intention of discounting or debunking it, as in the second strategy listed above (Förster et al., 2000; Sherman et al., 2000). Although entity theorists may attempt to debunk stereotype-inconsistent information under some conditions (such as when abundant cognitive resources are available, when the inconsistent information is easily refutable), we predict that in the present studies they will express selectivity through attention allocation rather than debunking for the reasons described.

through behavior. To the extent that their theory is a fundamental component of their world view, entity theorists may actually be motivated to flee (or in some cases debunk) this information, because it suggests that their basic understanding of people and personality may be incorrect. Indeed, an ample literature demonstrates the ill psychological effects of having one's basic assumptions about the world violated (Dweck & Reppucci, 1973; Higgins & Silberman, 1998; Janoff-Bulman, 1992; Seligman, 1975). Therefore, it is reasonable to suppose that an episode in which one's assumptions are temporarily called into question may initiate some form of defensive processing. On the other hand, a mix of consistent and inconsistent information, as presented in the present studies, does not violate—and, if anything, supports—the assumptions of an incremental theory (i.e., that people display variability in their behavior). Therefore, incremental theorists have no compelling reason to avoid such information.

In other words, our predicted patterns of attention allocation may stem from both information-based and motivational sources. This notion of complementary cognitive and motivational components is consistent with prior research in our laboratory on the effects of implicit theories in the achievement domain (e.g., Dweck et al., 1995; Dweck & Leggett, 1988). The present studies allow us to test for the presence of both components.

### Reconciling the “Incongruity Effect” and the “Congruency Effect”

Several models of stereotyping have posited that using a stereotype frees cognitive resources that can then be allocated toward other stimuli (e.g., Macrae, Milne, & Bodenhausen, 1994; Sherman et al., 1998). Recent findings suggest that these surplus resources are often diverted toward stereotype-inconsistent information (Sherman & Frost, 2000; Sherman et al., 1998), which, by being nonredundant, may contribute additional insight into the target.

We suggest, however, that not all people allocate surplus resources in the same way. Although both incremental and entity theorists may direct their surplus resources toward the information they consider most informative, each group, as we have mentioned, may consider different information more informative or desirable. Incremental theorists, because their understanding of people emphasizes dynamic, context-sensitive processes and variability in behavior, may consider inconsistent information more attention worthy. In contrast, entity theorists, because their understanding of people emphasizes underlying traits and consistency in behavior, may consider consistent information more attention worthy. Therefore, in the present studies, we predicted that incremental theorists would attend more to stereotype-inconsistent than -consistent information (corresponding to the third processing strategy identified above) and entity theorists would attend more to stereotype-consistent than -inconsistent information (corresponding to the first processing strategy).

In other words, incremental theorists should exhibit the typical incongruity effect found in the person memory literature (as exemplified by the encoding flexibility model; Sherman et al., 1998; see also Hastie & Kumar, 1979; Stangor & McMillan, 1992). In contrast, because consistent information supports their “fixed trait” model of people, we predicted that entity theorists would exhibit a congruency effect (as exemplified by “filter” models of stereotyping; e.g., Bodenhausen, 1988; Macrae, Milne,

& Bodenhausen, 1994). In sum, one of the goals of the present research is to reconcile and apportion territory to each of these two types of models.

### Overview of the Present Studies

As we have noted, the present studies test the hypothesis that a perceiver's implicit theory about the fixedness or malleability of the attribute in question (e.g., moral character or intelligence) is an important predictor of how he or she will process stereotype-consistent and stereotype-inconsistent information. Four studies were conducted to test this hypothesis. In each of the studies, participants were provided with stereotypes (Experiments 1–3) or expectancies (Experiment 4) about targets. In Experiment 1, participants read consistent and inconsistent sentences about a target, presented serially. Participants' attention to each sentence was measured using an on-line, concurrent task method. With this technique, we could compare participants' degree of engagement with consistent versus inconsistent sentences. In Experiment 2, participants read consistent and inconsistent target information, presented in pairs. By presenting the consistent and inconsistent information simultaneously, we were able to observe which type of information participants would preferentially choose. In Experiment 3, we investigated whether distinct patterns of attention allocation would extend to group (rather than individual) targets. Furthermore, by using novel groups (about which participants could have no prior information), we could rule out an explanation for differential patterns of attention allocation based on preexisting differences in stereotype strength. In addition, in Experiment 3 we manipulated participants' implicit theories to test whether the proposed relationship between implicit theories and attention allocation is a causal one. In Experiment 4, we used a dichotic listening paradigm to observe participants' attention to inconsistent target information over time. In addition, rather than presenting an equal amount of consistent and inconsistent target behavior, in Experiment 4 we manipulated the amount of inconsistent target behavior. We did this to observe whether the attention allocation of entity and incremental theorists would vary lawfully with the proportion of inconsistent information presented.

In sum, by using several different paradigms that tap early stages of information processing, we test with this set of studies the hypothesis that different implicit theories about human attributes are associated with systematic differences in early social information processing. By doing so, we seek to illuminate how different starting assumptions can lead to differences in attention allocation that may, in turn, underlie the perpetuation of stereotypes.

### Experiment 1

In Experiment 1, we used a dual-task paradigm to measure participants' attention to stereotype-consistent versus stereotype-inconsistent target information. With this technique, it is possible to measure on-line attention to each type of information without the participants' awareness (Hashtroudi, Mutter, Cole, & Green, 1984; Sherman et al., 1998, Experiment 2). As in Sherman et al. (1998, Experiment 2), participants read a series of sentences, one at a time, describing the behavior of someone labeled as either a priest or a neo-Nazi skinhead. One third of the behaviors were consistent with stereotypic expectations, one third were inconsistent, and one third were irrelevant to the stereotype.

During the presentation of nine of the sentences (three from each of the three types of sentences: consistent, inconsistent, and irrelevant) the computer emitted a tone, and participants were instructed to press the space bar as quickly as possible after hearing the tone. Prior studies have demonstrated that when people are highly engaged with the stimulus that is currently on the screen, their reaction time to a concurrent tone is retarded compared with that of people who are not as engaged (Hashtroudi et al., 1984; Sherman et al., 1998). Presumably, when perceivers are highly engaged with a stimulus, it requires effort to disengage from that stimulus and then redirect cognitive resources toward another stimulus. When perceivers are not highly engaged with a stimulus, it requires less effort and time to disengage and redirect. Thus, highly engaged perceivers should respond more slowly to the tone than should less engaged perceivers.

In addition, prior research suggests that perceivers' preferences for consistent or inconsistent information might be especially apparent under conditions of diminished processing capacity (Macrae et al., 1999; Sherman et al., 1998). Studies such as these indicate that perceivers under high cognitive load tend to resort to less resource-intensive responses. Because thoughtful, "piece-meal" weighing of each piece of incoming information appears to be a resource-intensive process (Fiske & Neuberg, 1987), perceivers under conditions of low load may be better able to weigh each piece of incoming information in an evenhanded manner. Under conditions of high load, however, perceivers may exhibit more top-down, schematic processing, thereby magnifying any potential differences between entity and incremental theorists. Thus, we predicted that any preferential processing would be especially apparent under high load conditions.

Using this paradigm, Sherman et al. (1998, Experiment 2) found that, over all, participants under cognitive load tended to pay more attention to stereotype-inconsistent information than to stereotype-consistent information. The encoding flexibility model proposed by these researchers states that stereotype-inconsistent information provokes greater engagement because perceivers attempt to integrate this novel information with their existing expectancy. It should be noted, however, that although Sherman et al.'s (1998) findings indicate that people often direct their resources toward inconsistent information under high load, these authors "do not wish to claim that this will always be the case" (p. 603). Indeed, the encoding flexibility model states that certain assumptions or processing goals may lead people to dwell instead on consistent rather than inconsistent information (in accord with filter models of stereotyping; e.g., Bodenhausen, 1988; Macrae, Stangor, & Milne, 1994). With this possibility in mind, we suspected that distinguishing between the entity and incremental theorists might yield two distinct patterns. If incremental theorists find inconsistent information highly informative, then they would be expected to pay at least equal, if not more, attention to inconsistent sentences compared with consistent sentences. Thus, we predicted that incremental theorists would display at least equal, if not slower, reaction times to the tone during the inconsistent sentences than during the consistent sentences. In contrast, if entity theorists find inconsistent information less informative, then they would be expected to allocate fewer attentional resources to inconsistent information than to consistent information. Consequently, they would produce faster reaction times to the tone during inconsistent items than during consistent items.

## Method

### Participants

A total of 121 undergraduates participated in the experiment in exchange for \$4.

### Procedure

Participants were individually seated at computers. Following Sherman et al. (1998, Experiment 2), the instructions indicated that in this experiment, participants were to read descriptions of behaviors performed by a man named Robert, who was identified either as a neo-Nazi skinhead or as a priest. The behavioral descriptions were ostensibly taken from an old *New York Times Magazine* article entitled either "A Week in the Life of a Skinhead" or "A Week in the Life of a Priest." Thirty descriptions of prosocial behaviors (e.g., "Robert gave up a taxi to a stranger"), antisocial behaviors (e.g., "Robert shoved to the front of the line at the movies"), and behaviors irrelevant to the social domain (e.g., "Robert took the bus downtown") served as stimuli.<sup>4</sup> Thus, 10 sentences were consistent with the priest stereotype and inconsistent with the skinhead stereotype (i.e., the prosocial behaviors), and 10 were consistent with the skinhead stereotype and inconsistent with the priest stereotype (i.e., the antisocial behaviors). Behavioral descriptions were all constructed to be close to the same length.

Participants were told that when the behavioral descriptions were on the screen, the computer would occasionally emit a tone. They were further told that their job was to press the space bar as quickly as possible after hearing the tone. Each behavioral description appeared on the screen for 3.5 s, and the tone was emitted exactly 2.0 s into the presentation of 9 of the 30 behaviors. The tone was emitted during 3 prosocial, 3 antisocial, and 3 irrelevant sentences. The computer randomly selected which 3 sentences out of each group of 10 would be paired with a tone, and the order of sentence presentation was also randomized.

Cognitive load was also manipulated in the experiment. Before receiving the behavioral information, participants in the high cognitive load condition were asked to count aloud backward by sevens as they read the sentences, beginning with the number 938. The experimenter pointed out a microphone resting on the monitor, and participants were led to believe that the computer was recording their counting progress.

After completing the computer task, participants completed an Implicit Person Theory Measure (Levy et al., 1998). Consistent with Kelly's (1955) direct approach to examining people's underlying theories of their social world, this measure directly assesses participants' theories about the malleability of human characteristics. (Although the theories are termed *implicit* because they are usually poorly articulated, it is presumed that people are able to agree or disagree with the simple, straightforward items on our measure.) Although there are several forms of this measure corresponding to particular domains (e.g., intelligence, morality), we used a domain-general form of the measure in this experiment, because stereotypes of priests and skinheads differ on a number of dimensions (see Dweck et al., 1995; Levy et al., 1998). The measure contains eight items, such as "People can do things differently, but the important parts of who they are can't really be changed," and "People can substantially change the kind of

<sup>4</sup> In a pretest, participants rated a list of 100 behaviors on prosocial and antisocial dimensions. The prosocial behaviors used in this study were the consensually agreed on 10 most prosocial behaviors from the pretest, and the antisocial behaviors were the 10 most antisocial behaviors from the pretest. The 10 irrelevant items were the 10 items that clustered nearest to the midpoint of the scale. It is interesting to note that, as in prior studies (Chiu et al., 1997; Levy & Dweck, 1998), entity and incremental theorists did not differ in their ratings of the disembodied behaviors themselves. Entity-incremental differences emerged only when participants were asked to make ratings about targets.

person they are" (reverse scored).<sup>5</sup> Each item is accompanied by a scale ranging from 1 (*strongly agree*) to 6 (*strongly disagree*). Responses to the items are used to identify entity and incremental theorists (typically 40–45% per theory group) and a small set of individuals (typically 10–20%) who do not have a well-defined or consistent theory. Further discussion of issues regarding the measure, including reliability and validity data, can be found elsewhere (Levy et al., 1998).

The Implicit Theory Measure was presented with two filler questionnaires, and participants were told that the three measures were part of a study by another researcher and were unrelated to the computer task they had just performed. The filler questionnaires were included to further obfuscate the link between the implicit theory questionnaire and the rest of the experiment. After completing the questionnaires, participants were paid and thoroughly debriefed.

## Results and Discussion

### Responses to the Implicit Theory Measure

Participants' responses to the implicit person theory items were highly reliable (Cronbach's  $\alpha = .94$ ). Accordingly, we averaged responses to the eight items, after reverse scoring where appropriate, to create an implicit person theory index for each participant. As in previous research, participants with a mean theory score of 3.0 or below (indicating overall agreement) were classified as entity theorists ( $n = 56$ ), and participants with mean scores of 4.0 and above (indicating overall disagreement) were classified as incremental theorists ( $n = 45$ ). Because predictions could be made only for participants with clear implicit theories, participants with mean theory scores that fell between 3.0 and 4.0 were unclassified ( $n = 20$ ) and were excluded.

### Response Latency Data

After outliers greater than three standard deviations from the mean were removed, response times to the tones during the presentation of the three stereotype-consistent and three stereotype-inconsistent items were averaged for each participant. These means were then analyzed using a 2 (theory: entity vs. incremental)  $\times$  2 (cognitive load: low vs. high)  $\times$  3 (consistency: stereotype-consistent vs. -inconsistent vs. -irrelevant) analysis of variance (ANOVA) with repeated measures on the last factor.<sup>6</sup> This analysis yielded a cognitive load main effect,  $F(1, 96) = 10.34, p < .001$ , indicating the effectiveness of the load manipulation. Participants under a high cognitive load responded more slowly to the tones ( $M = 752$  ms) than did participants under a low cognitive load ( $M = 504$  ms). The analysis also revealed a significant Consistency  $\times$  Theory interaction,  $F(1, 96) = 8.28, p < .001$ , which was qualified by the theoretically significant three-way interaction,  $F(1, 96) = 6.85, p < .01$ . Means for this interaction are displayed in Figure 1.

To better understand this interaction, we performed separate analyses for the two load conditions. The analysis of reaction times from the low cognitive load condition (left panel, Figure 1) yielded no significant effects. In contrast, the analysis of the data from the high cognitive load condition (right panel, Figure 1) yielded a Consistency  $\times$  Theory interaction,  $F(1, 47) = 8.28, p < .001$ . Separate analyses based on implicit theory revealed that entity theorists responded more slowly to the tone when reading stereotype-consistent ( $M = 816$  ms) information than when reading stereotype-inconsistent information ( $M = 645$  ms),  $t(26) = 3.35, p < .01$ . Comparisons with the baseline, stereotype-

irrelevant items ( $M = 714$  ms) showed that entity theorists responded more slowly to the tone while processing consistent items,  $t(26) = 2.27, p < .05$ , and more quickly while processing inconsistent items,  $t(26) = 2.63, p < .05$ , than when processing the irrelevant items. Incremental theorists, in contrast, responded more slowly during the presentation of stereotype-inconsistent ( $M = 896$  ms) than stereotype-consistent ( $M = 736$  ms),  $t(23) = 2.49, p < .05$ , or stereotype-irrelevant ( $M = 704$  ms) items,  $t(23) = 2.17, p < .05$ . For incremental theorists, there was no significant difference in reaction times during the presentation of consistent and irrelevant items,  $t < 1$ .

Thus, as we predicted, entity theorists allocated more attention to consistent information than to inconsistent information, and incremental theorists allocated more attention to inconsistent information than to consistent information.<sup>7</sup> It should be added that these results emerged only when participants' cognitive capacity was restricted, suggesting that perceivers with ample capacity had sufficient resources to attend to all types of available information and to respond promptly to the tone.

As we have noted, comparisons including participants' reaction time to the stereotype-irrelevant sentences (e.g., "Robert took the bus across town") indicated that entity theorists allocated more attention to consistent items than to irrelevant items and at the same time allocated less attention to inconsistent items than to irrelevant items. Incremental theorists, in contrast, simply paid more attention to inconsistent items than to either consistent or irrelevant items. These comparisons with irrelevant items are noteworthy because they are suggestive of a possible motivational component to the phenomenon that may complement the informativeness model, as described above. A strict informativeness-based account holds that entity theorists minimize their exposure to any information that is not consistent with the stereotype, because they see it as uninformative. According to such an account, there is no

<sup>5</sup> The other six items are as follows: "The kind of person someone is is something very basic about them that can't be changed very much"; "Everyone, no matter who they are, can significantly change their basic characteristics"; "As much as I hate to admit it, you can't teach an old dog new tricks. People can't really change their deepest attributes"; "Everyone is a certain type of person, and there is not much that can be done to really change that"; "No matter what kind of person someone is, they can always change very much"; and "People can change even their most basic qualities."

<sup>6</sup> Preliminary analyses were conducted in this study including the replication variable of target type (skinhead vs. priest) and in subsequent studies including item order. These replication variables produced no significant effects in any of the experiments and are excluded from reported analyses.

<sup>7</sup> It should be noted that when entity theorists, incremental theorists, and "unclassifieds" were pooled together, we did not obtain a significant Consistency  $\times$  Cognitive Load interaction. This may appear to be in conflict with Sherman et al.'s (1998) finding of greater attention overall to inconsistent information under high cognitive load. We believe, however, that this discrepancy is due to the unusually high number of entity theorists ( $n = 56$ ) relative to incremental theorists ( $n = 45$ ) that was found in the present sample. Given that entity theorists are proposed to display a congruency effect, a disproportionate number of entity theorists in a given sample should work against an overall incongruency effect. Subsequent attempts at replicating the overall incongruency effect, using samples that had equal numbers of entity and incremental theorists, have been successful (Plaks, Grant, & Dweck, 2000).



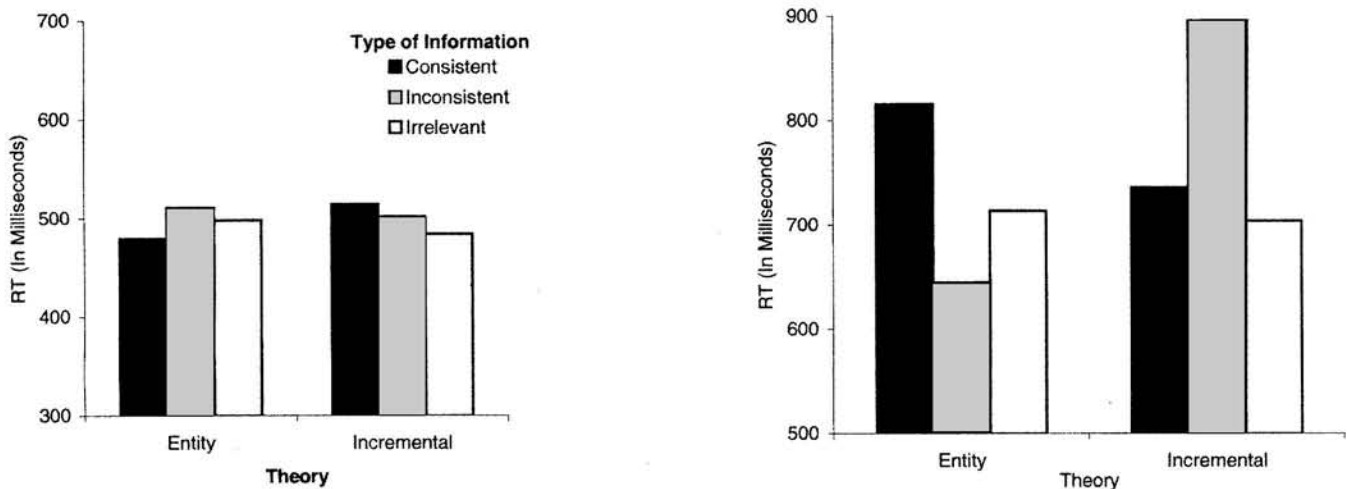


Figure 1. Reaction times (RTs) to tone in low (left panel) and high (right panel) cognitive load conditions as a function of implicit theories, Experiment 1.

reason to distinguish between information that is inconsistent and information that is merely irrelevant, as both types are not consistent and are thus considered equally uninformative. In Experiment 1, however, there is evidence that entity theorists distinguished between inconsistent and irrelevant sentences by devoting less attention to the inconsistent sentences. This pattern raises the possibility that inconsistent sentences aroused a motivated avoidance response in entity theorists.

According to Sherman et al.'s (1998) encoding flexibility model, stereotypes free resources that perceivers may then allocate toward stereotype-inconsistent information. However, Sherman et al. (1998) also stated that people do not necessarily allocate surplus resources toward inconsistent information. Certain assumptions or processing goals may lead to a preference for consistent information (as predicted by filter models; e.g., Bodenhausen, 1988; Macrae, Stangor, & Milne, 1994). Consistent with this notion, Experiment 1 indicates that a large subset of people—entity theorists—opt not to allocate their free resources toward inconsistent information and instead focus on consistent information. These findings suggest that the magnitude of the typical, overall incongruity effect should vary with the relative proportions of entity theorists, incremental theorists, and unclassified people in the sample. In conclusion, Experiment 1 provides initial evidence that implicit theories about the fixedness or malleability of human attributes play an important role in determining who will focus on what information.

## Experiment 2

Experiment 2 was intended to provide an additional, convergent test of whether entity theorists and incremental theorists preferentially process stereotype-consistent or stereotype-inconsistent information. Whereas participants in Experiment 1 read the sentences describing Robert one at a time, participants in Experiment 2 were presented with the same sentences in pairs, followed by a recognition memory test. With such a technique, consistent information may share the computer screen at any time with inconsistent or irrelevant information. Therefore, at any given moment, if one sentence contains uninformative or undesirable

information, a second sentence is also available for processing, allowing participants a potential alternative piece of information on which to dwell. Thus, (as in Sherman et al., 1998) this paradigm allows for a strong test of the predictions, because participants are forced to choose between consistent or inconsistent information.

We expected that entity theorists would be especially likely to take advantage of such an opportunity. If entity theorists, compared with incremental theorists, truly consider consistent information to be more attention worthy than inconsistent information is, then on trials when one of the sentences is a consistent sentence, they should seize the opportunity to dwell on that consistent sentence. If they do, then entity theorists should display better recognition sensitivity for consistent items than for inconsistent items on a subsequent recognition memory test. In addition, a comparison with the recognition sensitivity of baseline irrelevant items would reveal whether entity theorists were actively avoiding or simply not dwelling on stereotype-inconsistent information. We expected that incremental theorists, in contrast, would pay at least equal, if not greater, attention to inconsistent information. Therefore, they should display at least equal, if not greater, recognition sensitivity for inconsistent items, compared with consistent items.

We chose to use a recognition memory test as the primary dependent measure in this experiment for two reasons. First, the dual-task paradigm used in Experiment 1 would have been problematic, because it would have been impossible to determine the perceivers' attentional focus at any given moment. Because two items always appeared on the screen simultaneously, participants might have been processing either item, increasing the difficulty of interpreting the response time measure. Testing for memory for each item allowed us to more clearly identify which items were more thoroughly processed. Second, recognition memory provides another, convergent measure for assessing engagement with the available information. There are numerous precedents in the social cognition literature for the notion that recognition memory reflects attention or extent of cognitive engagement (e.g., Graesser, 1981; Higgins, Roney, Crowe, & Hymes, 1994; Sherman & Frost, 2000; Sherman et al., 1998; Srull, 1981; Stangor & McMillan, 1992). Presumably, sentences that elicited greater attention and elaboration



tive processing at the time of presentation would be more accurately represented in memory and therefore would be better recognized.

Using the same reasoning as in Experiment 1, we predicted that entity theorists would allocate more attention to (and thus display greater recognition sensitivity for) consistent information, compared with inconsistent information, and incremental theorists would display no preference, if not more attention to inconsistent information.

### Method

#### Participants

The sample consisted of 100 students who participated in the experiment in exchange for \$4.

#### Procedure

Experiment 2 closely followed the procedure used in Experiment 1. Participants again read sentences, either under cognitive load or under no cognitive load, describing behaviors performed by Robert, who was identified either as a skinhead or as a priest. Unlike in Experiment 1, however, the 30 sentences were presented in 15 pairs of sentences. Five of these pairs consisted of a consistent and an inconsistent behavior, 5 consisted of a consistent and an irrelevant behavior, and 5 consisted of an inconsistent and an irrelevant behavior. Each pair of behaviors appeared on the screen for 4 s, and one behavior description was positioned 2 in. (5.08 cm) above the other. Thus, because the two sentences were concurrently present and only 4 s were provided to read them, participants had to select which sentence would receive more detailed processing than the other. We created two versions of the stimuli that counterbalanced the pairs of behaviors, so that one behavior was on top in one version and on the bottom in the second version.

After reading the behavioral descriptions, participants engaged in a 5-min filler task (a spatial recognition task) to clear the stimuli from short-term memory. An item recognition test was then administered in paper-and-pencil form. All 30 sentences about Robert, as well as 30 foil sentences (10 prosocial, 10 antisocial, 10 irrelevant) were presented to the participants in random order. Beside the presentation of each item, participants were to check in a column marked *yes* if they had seen it before and check in a column marked *no* if they had not. On completion of the recognition memory task, participants completed the same Implicit Person Theory Measure used in Experiment 1 and two filler questionnaires. Participants were paid and thoroughly debriefed at the end of the experiment.

### Results and Discussion

#### Responses to the Implicit Theory Measure

Participants' responses to the implicit person theory items again were highly reliable (Cronbach's  $\alpha = .94$ ). The same criteria detailed in Experiment 1 were used to classify participants as entity theorists ( $n = 43$ ) and incremental theorists ( $n = 40$ ). Participants without clear implicit theories ( $n = 17$ ) were excluded from analyses.

#### Recognition Data

For each participant, proportions of hits and false alarms were computed separately for stereotypically consistent, inconsistent, and irrelevant items. These data were used to compute  $A'$ , a nonparametric measure of memory discrimination appropriate

when some participants exhibit perfect memory (Grier, 1971). Like other measures of discrimination,  $A'$  reflects sensitivity in recognition while controlling for guessing strategies and response biases.

These  $A'$  data were entered into a 2 (theory: entity vs. incremental)  $\times$  2 (cognitive load: low load vs. high load)  $\times$  3 (consistency: consistent vs. inconsistent vs. irrelevant) ANOVA with repeated measures on the last factor. The analysis yielded a main effect of cognitive load,  $F(1, 79) = 45.18, p < .001$ , indicating that recognition discrimination was lower in the high cognitive load condition ( $M = 0.68$ ) than in the low load condition ( $M = 0.88$ ), and an effect for consistency,  $F(2, 158) = 9.81, p < .001$ , indicating that discrimination was higher for consistent and inconsistent than for irrelevant items (both  $ps < .01$ ).

Of greater relevance to the predictions was the significance of the predicted Consistency  $\times$  Theory interaction,  $F(1, 79) = 5.90, p < .05$ , which was not qualified by the three-way interaction,  $F < 1$ . The data for the significant two-way interaction are displayed in Figure 2. Separate analyses for the entity and incremental theory groups indicate that entity theorists showed greater discrimination for consistent ( $M = 0.83$ ) than for inconsistent ( $M = 0.77$ ) items or irrelevant ( $M = 0.75$ ) items,  $t(42) = 2.51, p < .05$ , and  $t(42) = 3.01, p < .01$ , respectively. In contrast, incremental theorists showed equivalent sensitivity for consistent and inconsistent items ( $M_s = 0.82$  and  $0.85$ , respectively) and higher sensitivity for both types of items than for irrelevant items ( $M = 0.76$ ),  $t(39) = 3.59, p < .01$ , and  $t(39) = 3.90, p < .001$ , respectively. These data are consistent with the notion that entity theorists attend more to stereotype-consistent information than to stereotype-inconsistent information, and this pattern emerged in both the high load and low load conditions (all interactions involving load,  $F < 1$ ). Unlike in Experiment 1, however, entity theorists did not show any differential engagement between inconsistent and irrelevant items. Nevertheless, the relative difference for entity theorists between their engagement with consistent and inconsistent sentences remained.

In sum, Experiment 2 corroborated the primary finding from Experiment 1, using a recognition memory paradigm to measure participants' degree of cognitive engagement with stereotype-consistent and stereotype-inconsistent information. As in Experiment 1, entity theorists exhibited greater attention to consistent sentences than to inconsistent sentences, whereas incremental theorists paid roughly equal attention to both types of information. It is interesting to note that unlike in Experiment 1, entity theorists in Experiment 2 exhibited their preference for consistent information in both high and low load conditions. There are two possible reasons for this. First, by presenting inconsistent information simultaneously with either consistent or irrelevant information, we may have made the distinction between preferred and nonpreferred information especially salient. Secondly, in trials when inconsistent information was presented, an alternative sentence was easily available for participants' attention. Entity theorists may have strongly seized the alternative.

The results of Experiments 1 and 2 have several possible implications for our understanding of stereotyping processes. Entity theorists' selective emphasis on stereotype-confirming information may mean that for them, stereotypes are more resistant to the potential impact of counterstereotypic information. Because they spend less time and effort processing counterstereotypic information when judging someone, they are likely to remember predom-

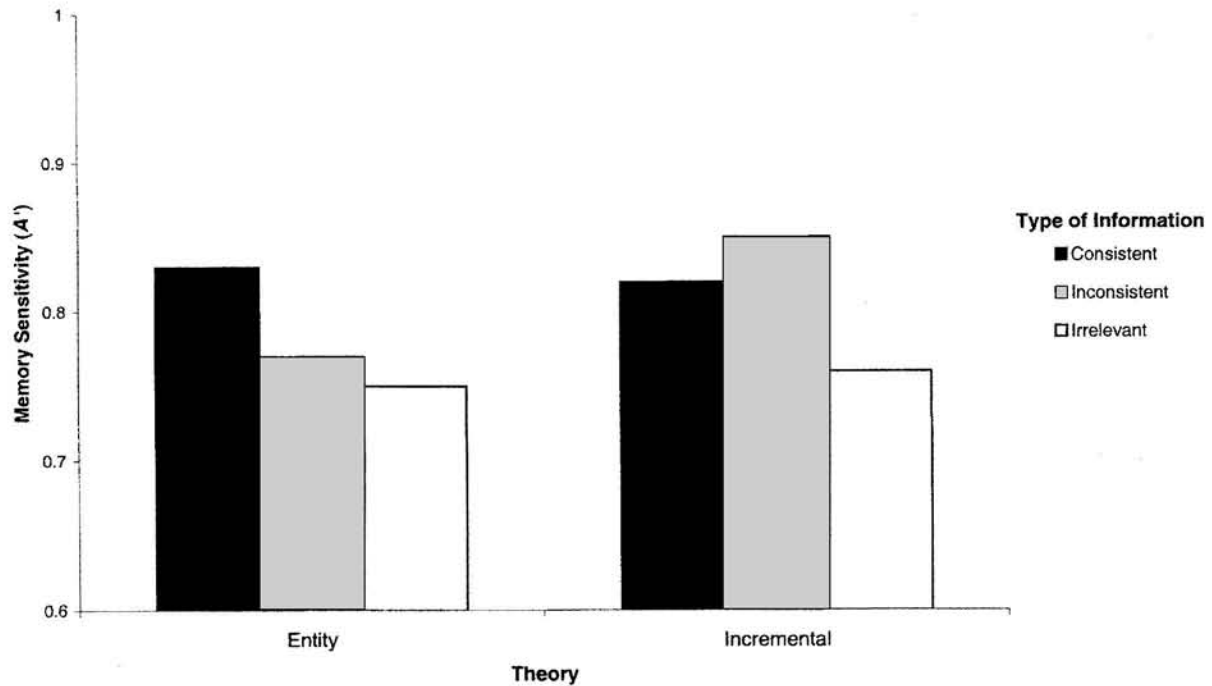


Figure 2. Memory sensitivity ( $A'$ ) for stereotype-consistent and stereotype-inconsistent information as a function of implicit theories, Experiment 2.

inantly stereotype-confirming information. This may, in turn, support the belief that stereotypes are, by and large, valid and useful for explaining someone's behavior and may be one reason why entity theorists are more likely than incremental theorists to endorse and use stereotypes (Levy et al., 1998). Thus, different a priori assumptions about the fixedness and malleability of human attributes may engender different processing strategies that ultimately underlie differences in the tendency to use and believe in stereotypes.

### Experiment 3

In Experiments 1 and 2, entity and incremental theorists exhibited different patterns of engagement with expectancy-relevant information when the target was an individual member of a stereotyped group. The primary aim of Experiment 3 is to test the robustness of this phenomenon by varying several of the parameters found in Experiments 1 and 2. First, we wish to test whether the pattern of selective processing found in Experiments 1 and 2 extends to situations in which the target is an entire group. Such a finding would be consistent with prior research showing that entity theorists (relative to incremental theorists) rate both individuals and groups as more homogenous and more extreme on relevant traits (Levy & Dweck, 1999; Levy et al., 1998).<sup>8</sup> If the same pattern of results found in Experiments 1 and 2 extends to group targets, this would underscore the phenomenon's potentially important implications for group stereotyping.

Second, we seek to test whether the pattern extends to situations in which the target is a novel group about which participants have no prior information. Earlier research has shown that individuals who ascribe to an entity view are more likely to form, use, and agree with social stereotypes (Gervey et al., 1999; Levy et al.,

1998). It is therefore possible that the results observed in the first two studies occurred not because of differing views about the meaning of behavioral information, per se, but because of longstanding differences between the two groups in stereotype strength (Stangor & Ruble, 1989), associations with particular social groups, or prejudice. If this is the case, then entity theorists might have avoided expectancy-inconsistent information simply because it contradicted their preexisting attitudes about skinheads or priests, not because the information was viewed as uninformative or theory threatening. Therefore, in Experiment 3, novel groups (about which participants could have no prior knowledge) were used as targets. A pattern of attention allocation similar to that found in Experiments 1 and 2 would bolster our claim that entity-incremental differences are independent of stereotype strength, especially given prior research showing that people tend to have weaker expectancies about groups than about individuals (Susskind, Maurer, Thakkar, Hamilton, & Sherman, 1999).

Third, we seek to test whether the pattern extends to when participants' implicit theories are temporarily manipulated rather than simply measured (Chiu et al., 1997, Experiment 5; Dweck, Tenney & Dinces, 1982, reported in Dweck & Leggett, 1988;

<sup>8</sup> These findings are interesting in light of prior research on the inherent entitativity of targets. This literature has demonstrated that, in general, people view individual targets as more monolithic, consistent, or entitative than they view group targets as being (e.g., Hamilton & Sherman, 1996). Indeed, both entity and incremental theorists most likely consider individuals to be more entitative than they consider groups. However, the Levy et al. (1998) findings suggest that, in addition, there may be important individual differences in the perception of entitativity within both individual targets and group targets.

Hong et al., 1999; Levy et al., 1998, Experiment 4). If so, this would suggest that implicit theories play a causal role in the allocation of attention to expectancy-relevant information. Moreover, such a finding would indicate that entity-incremental differences in processing of consistent and inconsistent information are largely driven by differences in beliefs about the fixedness or malleability of human qualities rather than by chronic levels of prejudice.

## Method

### Participants

The experiment involved 51 undergraduate participants who were enrolled in an introductory social psychology course and who volunteered to participate as part of a course exercise. Participants were randomly assigned to receive either an entity or an incremental theory induction.

### Procedure

The experiment was conducted in a lecture class setting. Participants were told that the study consisted of three phases. We suggested that the first and the third phases were of greatest interest to us and that the second phase was included only to clear short-term memory. Actually, the second phase involved the manipulation of implicit theories, and the third phase involved the presentation of behavioral information. In other words, the first phase was included to reduce the likelihood that participants would perceive an association between the theory induction and the subsequent task.

In the first phase, participants were shown an ambiguous inkblot design and were given 4 min to write down their thoughts and reactions to it. Once this phase was completed, the experimenter told participants that because we were interested in the relationship between the thoughts listed in response to the inkblot image and a later dependent measure, a second, interim phase was needed to "disrupt the cognitions you had in the first phase of the experiment."

In the second phase (the manipulation of implicit theories), the experimenter handed out an article that ostensibly had been published in a recent psychology journal (see Chiu et al., 1997, Study 5). Participants were randomly assigned to read one of two versions. Whereas one version, entitled "Personality Is Changeable and Can Be Developed," presented research suggesting that personality could be altered, the other version, entitled "Personality, Like Plaster, Is Pretty Stable Over Time," presented research suggesting that personality is stable. The same sources of evidence—case studies of individuals (including famous people), longitudinal studies, and intervention programs—were cited in both articles, although the findings were altered to consistently support either an entity position or an incremental position. Although these induction articles quite thoroughly addressed entity and incremental positions, they were in no way related to the dependent measures used. After reading the article, participants completed questions about the comprehensiveness and interest level of the article. Included with these items was a question designed to assess the effectiveness of the manipulation. Specifically, participants were asked to indicate, "To what extent do you believe that a person's traits or characteristics are stable?" (1 = *not at all stable*, 9 = *very stable*)

In the third phase, the experimenter provided participants with a brief, written description of the members of a group. Participants were told that although privacy concerns prevented the experimenter from naming the particular group, a brief description of the group's reputation would be provided. Although it was acknowledged that people vary somewhat in how they see the group, it was explained that most people tend to agree on the characterization given. The experimenter then handed out a piece of paper that contained this information. The group description was varied between participants, with half the participants told that "The members of this group are considered to be friendly, kind, and considerate. The mem-

bers of this group tend to behave in desirable ways toward others." The remaining participants read, "The members of this group are considered to be unfriendly, unkind, and inconsiderate. The members of this group tend to behave in undesirable ways toward others."

After reading these descriptions, participants were given a booklet containing the 30 behavioral descriptions, 1 per page. They were told that each behavior was performed by a different member of the group. As in the other studies, 10 items had been pretested as prosocial (e.g., "lent his neighbor some gardening tools"), 10 were antisocial (e.g., "ignored the old woman who asked for directions"), and 10 were irrelevant to sociability. All participants, regardless of condition, read the same behavioral descriptions. For the participants given the positive group characterization, however, the positive items were consistent and the negative items were inconsistent with their expectancy. In contrast, for participants given the negative group characterization, the positive items were inconsistent and the negative items were consistent with their expectancy. In each booklet, the behavioral descriptions appeared in a different random order. Participants were told to read each page at the pace indicated by the experimenter, and the experimenter instructed them aloud to turn the page every 4 s. After reading the behavioral descriptions, participants were asked to rate the group on several trait dimensions. The experimenter then collected the materials, presumably indicating that the study was over.

Approximately 90 min later (at the end of the class), participants were given a surprise recognition memory test. As in Experiment 2, the 30 behaviors performed by the group members were presented with 30 foil behaviors, and participants were to indicate whether they had or had not previously seen each item. Following this task, the experimenter indicated that the study was finished, and participants were debriefed. The debriefing highlighted the fact that they had been randomly assigned to read an article endorsing the notion that personality is either fixed or malleable and that they had been provided with evidence advocating only one position. Evidence regarding the fixedness or malleability of attributes was briefly reviewed, and participants were encouraged to ask any questions they desired about the actual research on personality during the debriefing. In response to queries by the experimenter, participants also indicated during the debriefing that they did not suspect a connection between the second and third phases of the experiment and confirmed that the recognition task was unexpected. Finally, it should be noted that, given that cognitive load did not affect performance on the recognition memory task in Experiment 2, we did not manipulate cognitive load in the present study.

## Results and Discussion

### Manipulation Check

Analyses of participants' responses to the manipulation check item indicated that the induction articles successfully manipulated person theories, at least temporarily. A one-way ANOVA on responses to the manipulation check yielded a significant induction effect,  $F(1, 49) = 13.75, p < .01$ . Participants who received the entity induction were more likely to believe that traits and characteristics are stable ( $M = 6.0$ ) than were participants who received the incremental induction ( $M = 4.4$ ). Both means differed significantly from the scale midpoint of 5,  $t(24) = 2.96, p < .01$ , and  $t(25) = 2.21, p < .05$ , respectively. There were no differences in responses to questions about the comprehensibility, credibility, or persuasiveness of the entity-endorsing and incrementally endorsing articles, indicating that the articles were seen as equally understandable, credible, and persuasive.

### Recognition Data

As in Experiment 2, we used participants' hits and false alarms to compute separate  $A'$  measures for expectancy-consistent,

-inconsistent, and -irrelevant behaviors. We then entered these data in a 2 (theory induction: entity vs. incremental)  $\times$  3 (consistency: consistent vs. inconsistent vs. irrelevant) ANOVA with repeated measures on the second factor. This analysis yielded a consistency main effect,  $F(2, 48) = 6.54, p < .01$ , which was qualified by a predicted Theory  $\times$  Consistency interaction,  $F(2, 48) = 9.74, p < .001$  (see Figure 3). Separate one-way analyses within each of the theory conditions showed that the manipulation of beliefs about trait fixedness versus malleability produced differences in the information that was attended to and remembered. For those in whom an entity theory was induced, sensitivity was greater for consistent ( $M = 0.93$ ) and irrelevant ( $M = 0.93$ ) information than for inconsistent information ( $M = 0.85$ ),  $F(2, 23) = 5.76$ , both  $ps < .01$ . In contrast, for those who underwent the incremental induction, sensitivity was higher for inconsistent ( $M = 0.90$ ) and irrelevant ( $M = 0.93$ ) behaviors than for the consistent behaviors ( $M = 0.87$ ),  $F(2, 24) = 5.24$ , both  $ps < .05$ .

In Experiment 3, as in Experiment 2, recognition accuracy was taken to reflect participants' degree of cognitive engagement in the stimuli. The results corroborate the findings from Experiments 1 and 2 and extend them in several ways. First, rather than using one individual member of a stereotyped group who performed all 30 behaviors, in the present study, different members of the group performed the 30 behaviors. Despite this change, entity theorists still exhibited more engagement with consistent than inconsistent sentences. Moreover, as in Experiment 1, entity theorists exhibited less engagement with inconsistent sentences than with irrelevant sentences, suggesting that they may have been avoiding the inconsistent items. Also, as in Experiment 1, incremental theorists exhibited more engagement with inconsistent than consistent sentences.

The Experiment 3 findings suggest that although the inherent "entitativity" of individual and group targets may be an important

stimulus quality (Hamilton & Sherman, 1996), it appears that, in addition, participants' judgments about targets are influenced by their own a priori theories about the variability of human attributes. Although everyone may perceive individual targets as more entitative than group targets, within both individual targets and group targets, entity theorists perceive higher entitativity than do incremental theorists.

In addition, Experiment 3 demonstrated that temporarily induced implicit theories yield a pattern of attention allocation similar to that of chronic theories. Thus, this experiment provides evidence that implicit theories about the fixedness or malleability of human attributes can play a direct, causal role in determining who will prefer what information.

Finally, these results occurred even though there could be no group differences in preexisting knowledge, perceptions, or attitudes toward the target group. Thus, it is unlikely that the results obtained in the first two experiments arose only because entity and incremental theorists differed in their prior beliefs and attitudes toward the groups in question. Rather, the similar findings between Experiment 3 and Experiments 1 and 2 support the view that the data reflect differing beliefs regarding what type of information is more attention worthy.

#### Experiment 4

In Experiment 4, we used a dichotic listening paradigm (Cherry, 1953; Hilton et al., 1991; Moray, 1959) as the means of observing whether entity and incremental theorists would differ in their allocation of attention when simultaneously faced with expectancy-consistent and expectancy-inconsistent information. A dichotic listening task allows researchers to observe on-line how participants choose to allocate their attention. Our dichotic listening task involved the simultaneous presentation of information

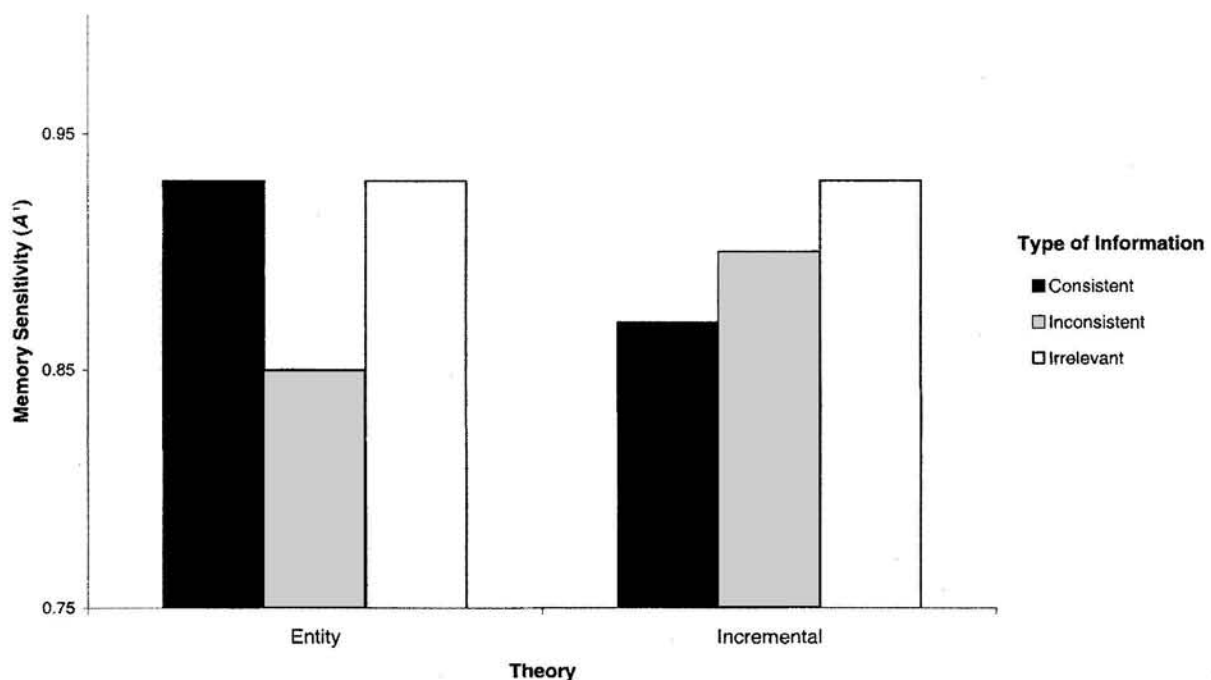


Figure 3. Memory sensitivity ( $A'$ ) for expectancy-consistent and expectancy-inconsistent information as a function of manipulated implicit theories, Experiment 3.

regarding two targets to separate ears using headphones. One reason for using this paradigm was to demonstrate that the results of the first three studies were not specific to the particular paradigms used. Whereas traditional person memory experiments typically require participants to read a sparse list of sentences describing a target, participants in Experiment 4 were exposed to actual target behavior (as opposed to secondhand characterizations).

A second purpose of Experiment 4 is to investigate the effect of different proportions of inconsistent information on participants' attention allocation. Unlike Experiments 1–3 (in which the amount of inconsistent information was constant), in Experiment 4, we manipulated the amount of inconsistent target information to which participants were exposed (from a moderate amount to a large amount). Doing so allowed us to investigate whether entity and incremental theorists continue to display their characteristic patterns of attention allocation even in the face of a large amount of counterexpectant information.

In keeping with Hilton et al. (1991), participants in this study heard two boys answering oral exam questions in separate ears. Before hearing this information, participants were led to believe that one of the boys would do moderately well in answering the questions (a neutral expectancy) and the other would have difficulty (a low expectancy).<sup>9</sup> Then, whereas the neutral boy's performance remained constant across conditions, the performance of the low-expectancy boy (i.e., the target) was manipulated so that his performance became increasingly inconsistent across the three conditions. Entity and incremental theorists' attention allocation pattern and ratings of the target boy were compared across the three target performance conditions (moderate, good, and outstanding).

Given entity theorists' proposed deemphasis on inconsistent information, we expected that they would pay decreasing attention to the target as the amount of inconsistent information increased. In contrast, we predicted that the attention of incremental theorists to the target should at least remain constant (if not increase) across the three performance conditions (moderate, good, and outstanding).

## Method

### Participants

A total of 122 undergraduates participated for \$5. Five participants' data were eliminated from the analyses, because they failed the manipulation check or professed suspicion of the cover story.

### Procedure

There were four parts to this study: an expectancy manipulation, a dichotic listening task, a target evaluation task, and the Implicit Theory Questionnaire (intelligence version).

*Expectancy manipulation.* Participants were seated in separate booths, each of which contained a writing desk and a computer with a set of headphones attached. As in Hilton et al. (1991), participants were told that they were helping graduate students in educational psychology to pilot test a new student evaluation form being developed by an outside educational assessment organization ("The National Educational Foundation"). To do so, they would have to "place themselves in the shoes of a fifth-grade teacher." Specifically, they were to read information about two children, listen to these children simultaneously performing on an oral exam, and then answer several questions about one of the children. To add realism to the cover story, we presented two letters (one ostensibly from the executive

director of the foundation and one ostensibly from a local representative) to participants that reiterated the oral instructions provided by the experimenter.

After reading the letters, participants were given background information about 2 fifth grade boys ("Brian" and "Matt") who were said to have been selected at random from a pool of public and private schools throughout the Washington, D.C., area. Background dossiers contained a standard class photo (both targets were Caucasian and approximately equal in attractiveness), a family information form that listed the occupation and address of the parents, a report card, and a handwritten teacher's evaluation. Aspects of these items (e.g., the boy's grades, the parents' professions) were manipulated to create either an expectation of poor academic performance (i.e., a low expectancy) or a neutral expectation about the boy. For example, the low-expectancy boy received Cs and Ds, had a negative teacher's report, and was being raised by a single mother who worked as a seamstress. The neutral-expectancy boy's grades were mostly Bs and B–s, his teacher's report was mildly positive, his father worked in a retail store, and his mother was a homemaker.

*Dichotic listening task.* Participants were informed that they would hear recordings of the boys taking an oral exam in geography. The recordings of a teacher's questions and the boys' responses would be played by the computer. Participants were told that both children would be heard simultaneously, one child in each ear, to "simulate the real-life attention demands that are placed on a teacher in a real classroom setting." Participants were led to believe they would hear the neutral-expectancy child (identified by the name Brian or Matt) in their left ear and the low-expectancy child (also named Brian or Matt) in their right ear.

After a trial run of 30 s, allowing participants to become acclimated to the task, the participants heard each child answer 20 questions about geography. Prior pilot testing had indicated that these questions were plausible for a fifth-grade exam and could be easily answerable by undergraduate participants (e.g., "Is Georgia in the north or south of United States?" "Which is farther from the U.S.: Taiwan or Cuba?"). Geography was chosen as the subject for the exam because it allows for straightforward, factual answers with little room for subjective interpretation.

Before listening to the boys answer the geography questions, participants were given a sheet of paper divided into four columns: left ear–correct, left ear–incorrect, right ear–correct, and right ear–incorrect. Participants were instructed to keep an on-line record of whether each boy in each ear answered each question correctly or incorrectly by placing a check mark in the appropriate column. Participants were told to skip questions that they did not hear and to put a question mark for items for which they themselves did not know the answer, but they were never to guess. They were told to concentrate at first on the boy in their right ear, ostensibly to "anchor" themselves and become oriented in this difficult task. In reality, the instruction to initially concentrate on this ear was to ensure that all participants heard at least a minimum amount of the target boy's performance.

The performance of the target child (heard in the right ear) was varied across conditions, so that for one third of the participants he answered 13 of 20 correct (moderate performance), for one third he answered 16 of 20 correct (good performance), and for one third he answered 19 of the 20 items correctly (outstanding performance). In the first two conditions, his incorrect responses were evenly distributed among the correct responses. In the third condition, he answered the first question incorrectly and then answered 19 correctly in a row. In all conditions, the neutral boy an-

<sup>9</sup> We did not include a high-expectancy target (a boy expected to do well) in the design because prior pilot testing indicated that entity and incremental theorists showed a greater difference in their readiness to revise a negative expectancy than a positive expectancy. This fact, plus the literature's greater emphasis on the impact of negative (vs. positive) stereotypes, led us to include only a negative expectancy target and a neutral control.

swered 14 of 20 items correct, and his incorrect responses were also evenly distributed among the correct responses. In other words, in the moderate and good conditions, participants heard the target provide a varying mix of expectancy-consistent and -inconsistent information. In the outstanding condition, however, they heard almost exclusively inconsistent information and almost no consistent information.

**Questions about the target.** After listening to and tracking the boys' performances on the oral exam, participants completed an evaluation form that was purportedly being pilot tested (the "NEF-96 Teachers' Evaluation Index"). Embedded among numerous questions that were irrelevant to the present hypotheses was a question asking participants to predict what grade that child would be likely to get in future classes in the subject (on a 1–12 scale, with 1 = *F* and 12 = *A*). In addition, a manipulation check question asked participants to indicate the student's socioeconomic status (low, mid, high). This second question was intended to assess whether the participants' background dossiers successfully induced the appropriate expectancies.

**Implicit theory questionnaire.** As part of an ostensibly unrelated task, participants completed two filler questionnaires and the Implicit Theory of Intelligence Questionnaire. We used the intelligence version of the Implicit Theory Questionnaire because, unlike the first three studies, in which the target's general personality or moral character was at issue, in this study the target's scholastic aptitude was at issue. On this questionnaire, participants had to indicate their extent of agreement or disagreement with statements such as "You can learn new things, but you really can't change your basic intelligence" (see Dweck et al., 1995, for information regarding scale reliability and validity).

Following the completion of the questionnaires, the experimenter led each participant into a separate room, where the participant was paid and thoroughly debriefed.

## Results and Discussion

### Responses to the Implicit Theory Measure

Responses to the implicit person theory items were highly reliable (Cronbach's  $\alpha = .91$ ). Participants were classified as

entity theorists ( $n = 49$ ) or incremental theorists ( $n = 47$ ), and participants with no clear implicit theory ( $n = 21$ ) were excluded from the analyses.

### Attention Data

Participants' attention was operationalized as the proportion of marks made in the column on the tracking sheet representing the right ear (the channel on which the target child was heard) compared with the overall number of marks. (A preliminary analysis revealed that the absolute number of marks made by entity,  $M = 13.6$ , and incremental theorists,  $M = 13.3$ , did not differ,  $t < 1$ , indicating that entity and incremental theorists did not differ in their overall degree of engagement with the task.) A higher proportion of marks in the right-ear column indicated greater attention to the target child. These proportions were submitted to a 2 (theory: entity vs. incremental)  $\times$  3 (performance: moderate vs. good vs. outstanding) ANOVA. This analysis yielded main effects for theory,  $F(1, 90) = 11.79, p < .001$ , and performance  $F(2, 90) = 5.03, p < .01$ , both of which were qualified by a significant interaction,  $F(2, 90) = 3.08, p = .05$ . The means for this interaction appear in Figure 4. We then performed separate analyses for entity and incremental theorists to understand the nature of the interaction. The analysis of incremental theorists' data yielded no significant difference,  $F < 1$ . In contrast, the analysis of entity theorists' data yielded a significant performance effect,  $F(2, 46) = 7.73, p < .01$ . It is clear from the pattern of the means that entity theorists paid decreasing attention to the target as his performance became increasingly counterexpectant. Indeed, a test of the linear trend was highly significant,  $F(1, 46) = 15.39, p < .001$ . (It should be added that the explicit task instructions to listen to the sound stream in both ears may have actually caused entity theorists to allocate more attention to the target than they otherwise would

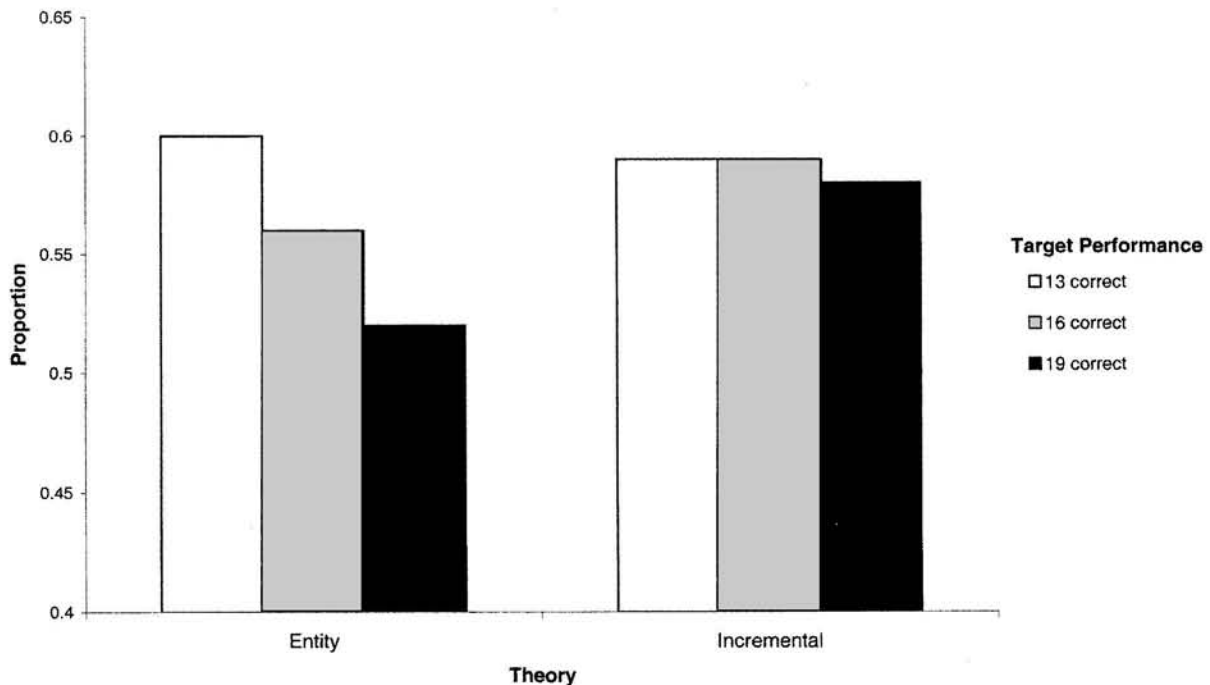


Figure 4. Proportion of target's responses attended to by participants as a function of implicit theories and target performance, Experiment 4.



have. Thus, this study may actually overestimate entity theorists' attention to inconsistent information, compared with nonlaboratory situations.)

In sum, we found that as the target's performance became increasingly expectancy inconsistent across the three performance conditions, entity theorists devoted less attention to him (whereas incremental theorists' attention remained constant). This appears to reflect the first strategy we described at the beginning of the article and is suggestive of a filter model of stereotyping.

An additional question of interest is "How did these differing patterns of attention allocation affect participants' opinion of the target?" Although we did not design this experiment with the explicit intention of assessing the relationship between attention and judgment, we asked participants to predict the target's future grade (on a 1–12 scale, with 12 = A and 1 = F), and supplementary analyses of these data reveal a potentially interesting pattern. Although this question is not a direct reflection of participants' current evaluation of the target's trait intelligence, nevertheless, we found that incremental theorists' predictions increased in a linear fashion across the three target performance conditions ( $M_{\text{moderate}} = 7.06$ ,  $M_{\text{good}} = 7.63$ ,  $M_{\text{outstanding}} = 8.53$ ). A test of the linear trend was significant,  $F(1, 43) = 5.65$ ,  $p < .05$ . That is, as the target performed better, incremental theorists expected him to do better in the future. In contrast, entity theorists did not exhibit a linear trend. Their prediction for the target remained static across the moderate and good conditions ( $M_s = 6.67$  and  $6.53$ , respectively), before increasing significantly in the outstanding condition ( $M = 9.28$ ),  $F(2, 44) = 13.76$ ,  $p < .001$ . This suggests that entity theorists may have "clung" to their initial expectancy of the target ("he is not intelligent") for longer than incremental theorists did. As we have discussed, one means of accomplishing such expectancy preservation may be by screening out inconsistent information.

It is of note, however, that the entity theorists did eventually revise their impression of the target. This suggests that they do not stubbornly cling to their preferred trait-based impressions of the target at all costs. Instead, like everyone, they are subject to reality constraints (Kunda, 1990). In other words, a small to moderate amount of inconsistent information may have appeared as easily ignorable "noise." However, when faced with an overwhelming amount of counterexpectant information, entity theorists appeared willing and able to revise their original impression. These data are thus consistent with previous research illustrating the nuanced relationship between attention and judgment (Bodenhausen & Wyer, 1985; Hastie & Park, 1986; Sherman et al., 2000).

### General Discussion

Previous research on perceivers' processing of consistent and inconsistent target information has identified three primary processing strategies: (a) decreasing engagement with inconsistent information to assemble a pool of largely consistent information in memory (as suggested by filter models of stereotyping; e.g., Bodenhausen, 1988; Macrae, Stangor, & Milne, 1994), (b) increasing engagement with inconsistent information to discount or debunk it, and (c) increasing engagement with inconsistent information to come to a coherent understanding of the target (as suggested by the encoding flexibility model; Sherman et al., 1998).

Whereas most person perception models assume relative uniformity in (or are silent about) perceivers' basic assumptions about

targets, the present research focuses on how different a priori assumptions may lead to different processing strategies. According to our account, different starting assumptions engender different frameworks for understanding how people function. This, in turn, causes different kinds of information to seem especially pertinent or welcome when forming an impression of an individual or group.

In these four studies, we have illustrated that one important class of a priori assumptions—namely, implicit theories about the fixedness or malleability of human attributes—precipitates different attentional emphases as expectancy-confirming and expectancy-disconfirming information are surveyed. In each study, entity theorists exhibited greater attentional engagement with stereotype-confirming information than with stereotype-disconfirming information. Incremental theorists exhibited either no preference (Studies 2 and 4) or a preference for stereotype-disconfirming information (Studies 1 and 3).

### *Different Assumptions, Different Meaning Systems*

Why should the belief that human qualities are fixed lead to a preference for confirmatory information? Why should the belief that human qualities are malleable lead, at least in some cases, to a preference for disconfirming information? The answer may lie in the different (trait-oriented vs. process-oriented) frameworks that seem to be associated with each core theory. The present studies as well as prior work from our laboratory (e.g., Chiu et al., 1997; Hong, 1994; Levy & Dweck, 1999; Sorich & Dweck, 1996) all point toward the notion that each theory creates a larger meaning system through which people construe their social environment (Levy, Plaks, & Dweck, 1999). In other words, people with different starting assumptions perceive the world through different lenses that lead them to assign different meanings to the same event.

For example, the assumption that people's attributes are fixed seems to be closely tied to a framework that understands people's behavior in terms of traits that are consistent over time and across situations (Hong, 1994; Levy & Dweck, 1999). Thus, when entity theorists observe an event such as a priest behaving nastily, they tend to understand this event from the standpoint of the priest's presumed kindness and, therefore, to represent the nasty behavior as an uninformative aberration (or as a threat, as we discuss below). Such an understanding of the behavior may, in turn, signal that it is unwise to devote extensive cognitive resources to this information. Alternatively, understanding the behavior as an aberration may initiate debunking or discounting processes—the second strategy of the three listed at the beginning of this article. In these studies, entity theorists may not have performed debunking processes for at least two reasons: (a) The individual pieces of information were too lean and unambiguous to allow for debunking, and (b) the burden of high cognitive load impeded potential debunking processes. Perhaps a combination of richer stimuli with greater built-in ambiguity and more available processing resources would have led to discounting or debunking, as opposed to ignoring.

The incremental theory may similarly underlie a distinct meaning system with its own network of assumptions and inference rules. The belief that human attributes are malleable seems closely tied to a framework that views people's behavior as mediated largely by dynamic psychological processes or situational forces (Hong, 1994; Levy & Dweck, 1999). Thus, when incremental



theorists view an event such as a priest behaving nastily, they may understand this event in terms of mediating processes (e.g., a foul mood, a stressful situation) and, therefore, represent the nasty behavior as reflecting such processes. Understanding Robert's behavior as a product of mediating processes suggests that closer scrutiny of inconsistent information might shed light on when he might act kindly and when he might act nastily, thus yielding a more finely tuned portrait of this particular priest.

### *Implications for Stereotype Maintenance*

The present research has potentially important implications for stereotype maintenance. For example, it appears that a trait orientation activates attention allocation patterns that encourage the preservation of stereotypes. Selectively seizing stereotype-confirming information and deflecting stereotype-disconfirming information may be a key mechanism that serves to accumulate mostly stereotype-confirming information in memory, thereby supporting the validity of the stereotype. If it is the case that the attention allocation pattern of entity theorists is aimed at preserving a clear, trait-based understanding of the target, then for them, stereotypes are likely to be more resistant to (at least small doses of) countervailing evidence. In contrast, the attention allocation of incremental theorists appears comparatively open to any kind of information (including inconsistent information) that may prove helpful in coming to a dynamic, context-sensitive understanding of the target. This is likely to mean that although incremental theorists may invoke stereotypes, they view stereotypes as provisional labels that are open to revision.

Not only might entity theorists be resistant to revising stereotypes, but when they do revise them, the nature of this revision may differ from that of incremental theorists. Whereas incremental theorists seem to revise in a continuous manner, in direct proportion to the amount of contrary evidence, entity theorists may revise in a more sweeping, "conversion" manner (Weber & Crocker, 1983). Because they are oriented toward understanding people in terms of traits, they may, on exposure to overwhelming evidence, substitute one trait for another. In other words, entity theorists may be more likely to preserve a stereotype by "fencing off" the inconsistent target as a subtype of the larger group (e.g., Hewstone, Macrae, Griffiths, & Milne, 1994; Plaks, 2001; Plaks, Grant, & Dweck, 2000). Current studies are investigating this possibility.

In sum, a true, generalizable change in stereotypic thinking may require a change in theory. Indeed, Levy et al. (1998) and Levy (1998) have shown that teaching an incremental theory reduces the incidence of stereotyping. The present research suggests that an incremental theory works because it may lead people to devote more attention to inconsistent information and evidence of group heterogeneity.

### *Trait Versus Process Orientations and Cultural Differences in Acceptance of Inconsistent Information*

The contrast between an orientation based on pansituational traits and an orientation based on situational mediation has also been made on the cultural level. For example, Choi and Nisbett (1998) have proposed that East Asian cultures tend to operate within a "holistic" framework that emphasizes the person-context interaction. In contrast, Western thought (both lay and intellectual) has tended to emphasize dispositional explanations (see Miller,

1984; Morris & Peng, 1994, for further discussion of cross-cultural differences in trait vs. contextual orientations). Moreover, other researchers have shown that whereas the Western dispositional orientation emphasizes the elimination of inconsistency, the East Asian interactionist orientation inherently anticipates and tolerates instances of inconsistency (Kashima, Siegel, Tanaka, & Kashima, 1992). East-West differences in dispositionism versus interactionism as well as tolerance versus intolerance of inconsistency raise many exciting questions. Do these parallel differences at the cultural level and at the individual level both stem from the same underlying principle of "traits versus process"? What are the differences (if any) in how each framework is represented at the cultural level compared with the individual level? How do the cultural and individual levels work together to inform the meaning we assign to observed behavior? Future research that explores questions such as these will enhance our understanding of the individual level and the cultural level as well as their interrelationship.

### *A Warmer Look?*

In this article, we have argued that the entity and incremental theories underlie different meaning systems that dictate what type of incoming information is considered most informative. In addition, we have suggested that there may be an additional, complementary explanation for the phenomenon, namely, a "warmer" model that addresses each group's epistemic motivations (e.g., Kruglanski, 1990, 1996; Kunda, 1990). As Sherman et al. (1998) suggested, though people may generally attend more to inconsistent information under load, certain processing goals (e.g., dissonance reduction; Frey, 1986; need for specific closure; Kruglanski, 1990) may elicit a defensive preference for consistent information. In other words, not only might entity theorists find inconsistent information less informative, they might also find it aversive (cf. Förster et al., 2000). As we have noted, the presence of inconsistent information may signal to entity theorists that their model of how people and personality function might not be correct, news that would understandably be experienced as unpleasant. On the other hand, inconsistent information, as presented in these studies, does not appear to violate the core assumption of an incremental theory. Therefore, incremental theorists would have no compelling reason to flee such information. Thus, different assumptions about informativeness and different processing motives may both contribute to the differential patterns of attention allocation described here.

The present studies provide suggestive evidence that the motivation to avoid undesirable (i.e., theory-inconsistent) information does indeed play a partial role in entity theorists' pattern of attention allocation. In two of the three studies that provided irrelevant information, entity theorists exhibited significant decrements in their attention to inconsistent information relative to irrelevant information. An explanation based on informativeness alone has trouble accounting for evidence of active avoidance of inconsistent information relative to irrelevant information. After all, according to a strict informativeness-based view, both inconsistent and irrelevant information are not consistent; there should be no reason to distinguish between the two. But according to a motivational account, this distinction should be made; inconsistent information contradicts and undermines an entity theory, whereas irrelevant information does not pose a direct contradiction. Thus,

inconsistent information may be viewed as something aversive that must be shunned, whereas irrelevant information may not provoke as strong an avoidance response.

It is interesting to note that in Experiment 2, such a pattern of avoidance was not found. Rather than avoiding inconsistent information, entity theorists appeared to approach consistent information. Such a pattern supports the informativeness-based account. This raises the interesting question of when (and for whom) theory-protection concerns or informativeness concerns are more salient. Current research in our laboratory is investigating this issue (e.g., Plaks, 2001; Plaks, Grant, & Dweck, 2000).

#### *When Are Incremental Theorists More Selective? When Are Entity Theorists More Evenhanded?*

An implication of such a motivational account is that any time the presence of certain information is interpreted as negative feedback (e.g., a threat to a deeply held belief), defensive processing may follow (e.g., Förster et al., 2000; Pittman & D'Agostino, 1989; see also Steele & Liu, 1983; Tesser, 1986). In other words, incremental theorists should also be motivated to avoid or debunk information that threatens their theory (e.g., information about someone who is incapable of change, despite real opportunities and effort). Typical person perception paradigms such as those in this article generally do not present information that may challenge an incremental theory, because they tend not to depict targets as incapable of change. However, it is possible to imagine real-life scenarios that may violate an incremental theory (e.g., a convict who is a model graduate in a well-reputed rehabilitation program but who still returns to crime). If incremental theorists are truly invested in believing that their theory is accurate, then such information may be experienced as threatening and may initiate defensive processing. If so, this would suggest that everyone shares basic motivations and cognitive processes but that different starting assumptions may lead perceivers to label different types of information as threatening. In sum, the different patterns of attention allocation exhibited by entity and incremental theorists may be due to a combination of different a priori assumptions and different conceptions of what kinds of information are threatening.

In addition, heightened accuracy concerns induced, for example, by outcome dependency (Fiske & Neuberg, 1987), accountability (Tetlock, 1983), or anticipated interaction (e.g., Devine, Sedikides, & Fuhrman, 1989) may lead entity theorists to allocate more attention than usual to inconsistent information. The possibility that in certain cases entity theorists may pay considerable attention to inconsistent information and that in other cases incremental theorists may avoid or debunk information that violates their theory underscores our contention that incremental theorists are not simply more generally evenhanded than are entity theorists. Rather, each group travels along a cognitive and motivational path that is consistent with its different starting assumptions.

#### *Conclusion*

The results of the present studies provide evidence that our fundamental assumptions, or implicit theories, are involved in constraining our attentional and encoding processes. As William James (1890/1983) stated in the quotation found at the beginning of this article, our prior knowledge and experiences lead us to "literally choose" what information is allowed into our cognitive

system. In the present studies, different core assumptions about the nature of human attributes seem to underlie systematically different choices about what social information should be dwelled on or screened out.

As social beings, we continually find ourselves in settings that require us to form judgments about someone. These include both formal settings (e.g., a juror deciding a defendant's fate; a personnel director deciding between job candidates) and informal settings (e.g., appraising a potential love interest on a date; characterizing an auto salesman's integrity). In all such settings, our stereotypic expectancies about the target can color the way we view the target's behavior. By focusing on how implicit theories influence attentional processes, we can gain a better understanding of how stereotypes are preserved in the face of inconsistent information.

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Received April 17, 2000

Revision received May 22, 2000

Accepted May 22, 2000 ■