

Static Versus Dynamic Theories and the Perception of Groups: Different Routes to Different Destinations

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Research on lay theories suggests that people who begin the task of social perception with different starting assumptions follow different cognitive paths and reach different social endpoints. In this article, we show how laypeople's fixed (entity) versus dynamic (incremental) theories of human nature foster different meaning systems for interpreting and responding to the same group information. Using research with adults and children, in the United States and East Asia, and concerning familiar and novel groups, we document how these theories influence susceptibility to stereotyping, perceptions of group homogeneity, the ultimate attribution error, intergroup bias, and discriminatory behavior. Further, we discuss social-cultural factors that produce and perpetuate these theories as well as why and when these theories are maintained and changed. The implications of this work for reducing stereotyping and intergroup conflict are considered.

The long and rich literatures on person perception and group perception have yielded a number of basic principles that illuminate how people interpret and integrate different types of information when judging a single actor (e.g., Gilbert, Pelham, & Krull, 1988; Jones & Harris, 1967; Kelley, 1967; Trope, 1986; for a recent review, see Gilbert, 1998) or members of a group (e.g., Devine, 1989; Fiske & Neuberg, 1990; Hamilton & Sherman, 1994; Thagard & Kunda, 1998; for a recent review, see Fiske, 1998). In this article, we propose that, as important and influential as many of the models of person and group

perception have been, they can be enriched still further. In particular, we suggest that an understanding of perceivers' lay theories of human nature lends important insight into many of the phenomena in these literatures.

Most models of person perception have either been silent about the potential moderating influence of perceivers' underlying lay theories or have implied that all perceivers travel a single cognitive path. Jones (1990), for example, boldly stated that the correspondence bias, the tendency to attribute behavior to stable personal dispositions of the actor over situational forces, is a "candidate for the most robust and repeatable finding in social psychology" (p. 138). An analogous notion has been put forth in formulations of group perception, that is, that perceivers often strive to diagnose the underlying dispositions of groups with insufficient regard for situational forces (e.g., Allison & Messick, 1985;

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Hewstone, 1990), a practice Pettigrew (1979) termed “the ultimate attribution error.”

In this article, we present evidence that, on the contrary, not all perceivers march in step to the same destination. As Pettigrew (1979) noted, perceivers may actually differ significantly in the degree to which they commit the ultimate attribution error. We suggest that one critical variable that may influence this systematic variation is people’s a priori lay theories of human nature. We propose that by adopting a lay theory analysis, one may resolve inconsistencies in the literature and generate clearer predictions about *who* will do *what* and *when*.

Lay Theories as Essential Interpretive Frameworks

Psychologists (e.g., Heider, 1958; Kelly, 1955; Piaget & Garcia, 1983/1989) have long noted that lay people, like scientists, develop theories to help them interpret, predict, and control their social world. Over the past 2 decades, much work has focused on identifying particular lay theories within circumscribed content domains and on spelling out their influence on, for example, perception of categories (e.g., Wright & Murphy, 1984), self-perception (e.g., Dweck & Leggett, 1988), and most recently on perception of groups (e.g., Chiu & Hong, 1999; Katz & Hass, 1988; Levy, Stroessner, & Dweck, 1998; Pratto, Sidanius, Stallworth, & Malle, 1994; Wittenbrink, Hilton, & Gist, 1998; Yzerbyt, Leyens, & Corneille, 1998). These approaches have illustrated that not all people begin the task of social perception from the same starting point. Using their lay theories, people may create different *meaning systems* that impose psychologically meaningful constraints on the infinite variety of interpretations available for a particular stimulus or event. Although no theory likely provides a “correct” social reality, theories do offer different sets of positive and negative consequences for the perceiver and his or her social targets. Some theories, as our work illustrates, promote greater stereotyping and prejudice than other theories. Despite the pivotal role lay theories can play in social perception and interaction, lay theories need not be as rigorous as scientific theories, and people may not be aware of their theories or the impact of their theories on their social understanding (see Wegener & Petty, 1998).

To be clear from the outset, our lay theories approach, although it can involve stable individual differences, is not intended to be a description of personality types. Lay theories are seen as core assumptions but not as rigidly determining people’s perception and behaviors. In fact, we will show that lay theories about human nature are malleable.

Static Versus Dynamic Dimension

Our research has focused on the “static” versus “dynamic” dimension of lay theories. Indeed, both philosophers (e.g., Pepper, 1942; Whitehead, 1929, 1938) and psychologists (e.g., Johnson, Gerner, Efran, & Overton, 1988; Unger, Draper, & Pendergrass, 1986) have described how theories about the static versus dynamic nature of the world can lead to notably different sets of expectations, perceptions, and inferences.

One advantage of considering lay theories along the static versus dynamic dimension is that such theories are applicable across numerous content domains. Dweck and colleagues (see Dweck, 1999; Dweck, Chiu, & Hong, 1995), for example, have shown that fixed (*entity*) versus dynamic (*incremental*) views may refer to a specific attribute (e.g., intelligence, morality), to personal attributes as a whole (i.e., “person” theory), or to one’s social world. Entity and incremental beliefs about intelligence, for example, tend to differentially predict self-judgments and reactions to achievement feedback (e.g., Dweck, 1999; Dweck & Leggett, 1988). Given that stereotypes associated with groups include a wide variety of personal attributes, entity and incremental person theories tend to relate to differences in person as well as group perception and judgment. Entity and incremental beliefs about society and its social institutions tend to predict how people differentially think about social justice (Chiu, Dweck, Tong, & Fu, 1997). Because entity and incremental theories are domain specific, they do not reflect generalized cognitive styles. Some people, for example, believe that morality is fixed, but that their intelligence is malleable, or vice versa (for a fuller discussion, see Dweck, 1999; Dweck et al., 1995). Thus, in our work we use the theory that is most applicable to the particular research question at hand.

In each content domain, people’s theories are measured using the same format and scoring method (see Dweck, 1999; Dweck et al., 1995). For example, an entity person theory refers to the belief that personal characteristics are fixed entities despite a person’s efforts or motivation to change them; that is, they are not under personal control. This notion is captured in the statement from our measure: “Everyone is a certain kind of person, and there is not much that can be done to really change that.” In contrast, an incremental person theory refers to the belief that personal characteristics are malleable and can be developed with time and effort, as reflected in the statement from our measure: “Anyone can change even their most basic qualities.” Participants’ responses to these types of items are used to gauge their most chronically accessible theory. Categorization of participants as entity or incremental theorists is based on an index of agreement or disagreement with the items. Across studies, approximately 85% of the respondents

are categorized clearly (and fairly equally) into entity and incremental theorists. The remaining 15%, who show no clear pattern of agreement or disagreement, are typically excluded. In our work, we also have situationally primed each theory (e.g., Chiu, Hong, & Dweck, 1997, Study 5; Levy et al., 1998, Study 4; Plaks, Stroessner, Dweck, & Sherman, in press, Study 3), and, as discussed later, our findings are similar whether we measure or induce theories.

In this article, we illustrate how entity and incremental beliefs about human nature relate to important differences in key aspects of group perception and behavior. According to our findings, the entity view is often more likely than the incremental view to elicit greater stereotype endorsement, greater perceived outgroup homogeneity effects, more susceptibility to the ultimate attribution error, greater intergroup bias, and more biased behavior toward outgroup members. In the latter half of the article, we show how social and cultural forces can elicit these entity and incremental theories to influence group judgment and behavior. Further, we discuss how these theories themselves are maintained and how and when they are amenable to change. To foreshadow, an important implication of the malleability of the two theories is that they can potentially be used in stereotype reduction and intergroup conflict resolution interventions.

Group Judgment and Behavior

How do the core assumptions of entity and incremental theories create different frameworks for understanding, judging, and reacting to groups and their members? An entity person theory is about fixed traits and, as such, is strongly associated with expecting a high degree of consistency in people's behavior over time and across contexts (Chiu, Hong, & Dweck, 1997; Erdley & Dweck, 1993). When traits are believed to possess considerable meaning and predictive utility, then the task of social perception is to identify and measure people's fixed traits. In other words, traits become the primary unit of analysis in understanding others (Chiu, Hong, & Dweck, 1997; Levy & Dweck, 1999; Molden, Plaks, & Dweck, 2000). Trait inferences can be drawn from limited or ambiguous behavioral information and can be used to predict subsequent behavior (Chiu, Hong, & Dweck, 1997; Erdley & Dweck, 1993; Hong, 1994). In contrast, the incremental person theory (the belief that human attributes are malleable) is associated (to a greater degree than the entity theory) with the belief that behavior and personality are dynamic and can vary across time and contexts. This means that, to an incremental person theorist, social understanding is not limited to diagnosing people's underlying fixed traits. To capture this

more dynamic understanding of people, incremental theorists seem to pay more attention than entity theorists to the mediating psychological and situational forces acting on the target (Chiu, 1994; Erdley & Dweck, 1993; Hong, 1994).

Differences in Stereotyping

Given that people holding an entity person theory invest traits with considerable meaning, and given, as Pettigrew (1979) and others have argued (e.g., Allison & Messick, 1985; Hewstone, 1990), that stereotyping is essentially attributing a set of fixed traits to groups, Levy et al. (1998) predicted that entity person theorists would express greater belief in societal stereotypes than would incremental person theorists. Utilizing methods adapted from prior research (cf. Devine, 1989), Levy et al. (1998) asked U.S. college students to list all the stereotypes they knew of several ethnic groups (e.g., African Americans, Latinos) and then to evaluate how true they personally thought each one was. Both theory groups revealed similar knowledge of the content of prevalent societal stereotypes, suggesting that they are exposed to roughly the same information about these groups. Yet, as predicted, entity person theorists endorsed the stereotypes more strongly than did incremental person theorists. In subsequent studies, we corroborated these findings and found that an entity view is causally related to stronger stereotype endorsement than an incremental view (Levy et al., 1998). It is important to note that in these studies entity theorists more strongly endorsed both positive and negative stereotypes. This suggests that entity person theorists do not have a general tendency to think negatively about others, although as discussed in the section on differences in intergroup bias, they can be more negative toward outgroups than incremental theorists are when intergroup conflict is salient (Chiu & Hong, 1999; Chow, 1996; Hong & Yeung, 1997).

Next, we consider whether entity person theorists may have had different experiences with outgroups and *that* is what influenced their level of stereotype endorsement. By employing a novel group paradigm (e.g., Ford & Stangor, 1992), Levy et al. (1998) were able to control for prior knowledge and experience with the target group by creating new, fictitious groups (also see Levy & Dweck, 1999). Levy et al. found that even with these novel groups, entity person theorists, when providing a group description, generated significantly more traits and rated the group as more extreme on self-generated and experimenter-provided trait dimensions. In addition, participants' response times were measured and entity theorists' judgments were made more rapidly than those of incremental theorists. Thus, entity person theorists seem to judge even unfa-

miliar groups more readily and rapidly on traits than do incremental person theorists.

Differences in Perceptions of Group Homogeneity

Stereotyping not only refers to perceptions of the central tendency of a group on a given attribute, but also to perceptions of group homogeneity on those attributes (see Ford & Stangor, 1992; Sedikides & Ostrom, 1993). Beginning with Lippmann (1922), stereotypes have been characterized as overgeneralized, that is, as being applied to too many group members. Indeed, simply categorizing people into arbitrary groups can promote the belief that group members are highly similar to one another on a given dimension (see Tajfel, 1978). We suggest that to people holding an entity view, a stereotype represents a group trait that applies to the great majority of members across a great majority of situations. Accordingly, we expect that if they know how some members behaved in one situation, they will likely make broad generalizations about the group. Because incremental theorists do not strongly endorse group traits, they likely expect greater variability among group members. Thus, incremental theorists' judgments of an entire group should be less colored by their impression of individual group members. As described next, our research supports these notions.

Perceiving intragroup homogeneity. In a study in Hong Kong, Chow (1996) asked Hong Kong college students to list stereotypes of Mainland Chinese, and, as a measure of perceived outgroup homogeneity, asked them to indicate how many out of 100 Mainland Chinese possessed the attributes they listed. Revealing their tendency to see outgroups as more homogeneous, entity person theorists saw a greater percentage of Mainland Chinese as possessing both positive and negative stereotypical traits than did incremental person theorists. This finding was corroborated by Levy et al. (1998, Study 3) in the United States. In this study, college students learned about a novel (fictitious) group of students from another university who performed either some positive behaviors (i.e., 18) and a few neutral behaviors (i.e., 6) or some negative behaviors (i.e., 18) and a few neutral behaviors (i.e., 6). They then were asked to provide their perceptions of the similarity of group members to each other. Despite variability in the group's behavior, entity person theorists judged the group to be significantly more internally similar than incremental person theorists, suggesting they believe the behavior of some group members reflects on the

group as a whole (see Levy & Dweck, 1999, for a similar finding).

Perceiving intergroup differences. Social categorization, the process of categorizing people into groups, not only promotes exaggerated perceptions of within-group homogeneity, but also exaggerated perceptions of between-group differentiation (e.g., see Tajfel, 1978). Thus, when forming impressions about more than one group at a time, people tend to see members of each group as similar to one another and quite different from members of each other group (e.g., Ford & Stangor, 1992). Because entity person theorists tend to understand groups in terms of traits, they were expected to be more likely to differentiate groups in these terms than incremental person theorists.

To address this, Levy and Dweck (1999) had children learn about students about their age from two fictitious schools. At one school, the students performed six positive behaviors and three neutral behaviors, whereas at the other school, the students performed six negative behaviors and three neutral behaviors. Using a procedure established by Bigler (e.g., Bigler, 1995; Bigler, Jones, & Lobliner, 1997), between-group differentiation scores were calculated as the proportion of one group seen as possessing a trait minus the proportion of the other group seen as possessing the same trait. As predicted, students holding entity person theories saw the novel schools as differing more strongly on the traits (e.g., nice, honest, friendly). Additionally in this study, children were asked to compare the groups on characteristics further removed from the behavioral information provided. Children were asked to decide whether *none*, *some*, *most*, or *all* of the children from the two schools like to do the same kinds of things (games, movies) and have the same concerns (worries, wishes). Entity person theorists reported that they thought that the children from the two schools would share *none* to *some* of the same concerns and likes and dislikes, whereas incremental person theorists, on average, reported that the students would share *some* of these characteristics. This finding indicates that entity person theorists thought of these novel groups as quite different. This finding was corroborated by Hong, Chiu, Yeung, and Tong (1999), who showed that Hong Kong college students with an entity view were more likely than those with an incremental view to exaggerate trait differences between their group and outgroups.

Moreover, these findings were replicated and extended in another study. Begue and Apostolidis (in press) had college students in France rate the importance of values (e.g., wealth, respect of traditions, exciting life, social power) for themselves and for presumably an outgroup—homosexuals. As a measure of perceived value dissimilarity, they then calculated

the discrepancy between each student's self-report and report for homosexuals. Results indicated that entity theorists, relative to incremental theorists, saw more of a discrepancy between their own values and the values they attributed to homosexuals. Consistent with the Levy and Dweck (1999) results, this finding suggests that people holding entity person theories see less of an overlap between different groups.

Findings, then, with both known and novel groups indicate that entity and incremental person theorists differ in their judgments of intragroup and intergroup homogeneity. Could these differences be due to differences in retention of the provided behavioral information, with entity person theorists drawing more extreme valenced judgments because they forgot the neutral behaviors of the group members? This issue was addressed in two studies. First, in the study of novel groups with college students, Levy et al. (1998, Study 3) asked participants to recall the group members' behaviors. Entity person and incremental person theorists did not differ in their recall of positive, neutral, and negative behaviors. Second, in the studies of novel groups with children, Levy and Dweck (1999, Study 2) used a behavioral recognition task. Children were presented the behaviors comprising the schools as well as several filler behaviors and asked to decide whether they had read each behavior earlier in the experimental session. Entity and incremental person theorists did not differ in their recognition of the actual or filler behaviors. Thus, in these studies of novel groups, entity and incremental person theorists seem to have retained the same basic information, but interpreted it differently.

In short, it seems that the trait focus associated with the entity person view precipitates a perception of high group homogeneity and high between-group differences, whereas the dynamic focus associated with the incremental person view precipitates a perception of greater within-group variance and between-group commonalities. This finding held whether judging outgroups or both ingroups and outgroups and within different countries (United States, Hong Kong, and France). We suggest that to entity person theorists, stereotypes are overgeneralizations. This is why knowing how some members behaved in one situation can lead to generalizations to the group. To incremental person theorists, on the other hand, a group category label contains greater built-in variability in the behavior and attributes of group members.

Are entity theorists, then, just extremists? An entity theory is logically independent of extremity. It is simply a belief about the fixedness or malleability of human nature and contains nothing that directly implies more extreme trait views. It should be noted that when asked to rate the positivity or negativity of diverse behaviors (not attached to people), entity and incremental person theorists do not differ, indicating that entity per-

son theorists are not simply more extreme in their judgments (e.g., Chiu, Hong, & Dweck, 1997; Levy & Dweck, 1999; Levy et al., 1998).

Differences in the Ultimate Attribution Error

In the previous sections, we provided evidence that those who believe that people's qualities are fixed tend to register more agreement with stereotypes and to generalize them to a greater degree to group members than those who believe these same qualities are malleable. To better understand these differences, we consider further whether entity and incremental views promote differences in the ultimate attribution error—the tendency to overemphasize the underlying disposition of groups and deemphasize situational forces acting on those groups. Beyond differences in the trait ascriptions already considered, we next trace through entity and incremental person theorists' explanations for traits and behaviors.

First, we have found that entity and incremental person theorists generate different kinds of explanations for group traits. In line with their emphasis on fixed traits, not only do entity theorists endorse traits more strongly, but also they have been shown to attribute the presence of group traits more to innate factors and less to shared environment and experiences than incremental theorists (Levy et al., 1998, Study 2). Participants in this study were asked to consider explanations for why stereotypical views might persist. Specifically, they were asked to rate the extent to which stereotypical views of African Americans existed or persisted because of "innate factors" and "past or present environmental or social causes within American society," as well as three filler explanations. Results indicated that not only do entity person theorists endorse stereotypes to a greater degree than do incremental person theorists, but they also seem to believe to a greater degree that these stereotypical traits are innate (i.e., fixed from birth). Incremental person theorists, relative to entity person theorists, saw the causes of group stereotype persistence more in terms of social or environmental factors.

Second, aside from differences in trait ascriptions, our work has revealed theory differences in causal attributions for behavior. Entity person theorists, in line with their greater trait endorsement, see both individual (Hong, 1994) and group behavior (Levy & Dweck, 1999) as, in a fundamental sense, caused by traits. In contrast, incremental person theorists tend to see behaviors as caused to a larger degree than entity person theorists by factors in the environment or psychological factors within the individual (Hong, 1994; Levy & Dweck, 1999). For example, Levy and Dweck (1999)

explored U.S. children's attributions for novel group members' behavior. Students were asked why they thought the kids from a school characterized by some negative and a few neutral behaviors acted the way they did. Their responses were coded into three categories: traits (e.g., "they are mean"), psychological processes (e.g., goals, needs, current mood states; e.g., "to get attention"), and external factors (e.g., situational and environmental-learning factors; "others were acting that way"). As expected, entity person theorists generated significantly more trait attributions for the group's behavior. When entity person theorists label a group as having a trait, they seem to also believe the group acted that way because of the trait. In contrast, students with incremental person views explained the groups' behaviors as determined mostly by dynamic factors (psychological processes and external factors).

Taken together, these studies suggest theory differences in the ultimate attribution error. By placing more emphasis on dynamic psychological and situational variables, incremental person theorists seem less susceptible to committing the ultimate attribution error than either entity person theorists or an undifferentiated sample containing both entity and incremental person theorists. In contrast, by placing greater emphasis on fixed traits, entity person theorists may actually commit the ultimate attribution error to a greater degree than an undifferentiated population mean. Thus, it appears that people with different lay theory starting points exhibit different emphases and different units of analysis in their processing of social information, which in turn may underlie different susceptibilities to committing the ultimate attribution error. As proposed at the outset, lay theories are useful tools for illustrating how seemingly fundamental or universal principles of social perception may actually involve multiple, equally fundamental, modes of social perception—one stemming from a static and the other from a dynamic view of human nature.

It is also important to note that prior research (e.g., Schaller, Asp, Rosell, & Heim, 1996; Schaller, Boyd, Yohannes, & O'Brien, 1995) has contributed the important insight that when people fail to account for the impact of the social environment in rendering group judgments, stereotypes can be wrongly perpetuated. The findings in this section, then, also suggest a means through which stereotyped views of entity theorists may be resistant to change. We return to this issue in more detail in the section *How Theories Can Be Changed*.

Differences in Intergroup Bias

Thus far, we have seen that people who subscribe to the entity meaning system, relative to the incremental meaning system, tend to more strongly endorse and

generalize group traits and to see these traits as causes of behavior. The next set of studies gives us further insight into entity–incremental theory differences in evaluating groups. These studies were conducted before and during the handover of Hong Kong to the People's Republic of China, which was a time of heightened intergroup tensions for the people of Hong Kong. Negative evaluations toward outgroups, if they exist, are likely to be salient.

Prejudice. In one study in Hong Kong before the handover in 1997, Chow (1996) examined Hong Kong college students' views of Mainland Chinese. Rather than asking participants to give their personal beliefs about stereotypes of Mainland Chinese (an outgroup), Chow asked them to list beliefs from the perspective of their ingroup (Hong Kongers). This way, participants' identity as a Hong Konger was salient, presumably influencing the set of traits they provided. Results indicated that entity and incremental person theorists listed the same raw number of stereotypes, suggesting that both theory groups were aware of traits associated with Mainland Chinese. However, entity person theorists listed significantly more negative attributes and fewer positive attributes of Mainland Chinese than did incremental person theorists. As such, entity theorists in this study exhibited a greater degree of prejudice (an overall more negative evaluation) of Mainland Chinese than did their incremental counterparts.

In another study conducted during the same time period, Hong and Yeung (1997) also found evidence for greater prejudice on the part of Hong Kong entity theorists toward Mainland Chinese. In this study, intergroup tensions were made salient by having participants contrast Hong Kongers and Mainland Chinese on their levels of morality. More specifically, participants were asked to judge whether a series of moral and immoral behaviors were performed by a Hong Konger or by a Mainlander and to rate how confident they were in each judgment. Because the behaviors concerned morality, Hong and Yeung assessed participants' entity and incremental theories specifically about morality (i.e., morality theory measure). Hong and Yeung found that those who believed that people's morality was a fixed entity felt more confident in assigning moral behaviors to Hong Kongers and assigning immoral behaviors to Mainlanders. Incremental theorists of morality, on the other hand, did not show this pattern. Consistent with Chow's (1996) findings, these findings paint a picture of entity theorists as more prejudiced than incremental theorists.

Shifting ingroup favoritism and outgroup devaluation during the handover. Chiu and Hong (1999) took this work a step further to see how Hong

Kong residents' social identities and allied prejudiced attitudes were shaped by the political transition. Because this research concerned social climate, Chiu and Hong assessed people's lay theories about their social world (see Chiu, Dweck, et al., 1997) rather than their person theories. (Past work indicates that world theories are independent of person theories; Dweck et al., 1995.) Entity world theorists believe that their world and its institutions have a fundamentally immutable, uncontrollable nature as reflected in the statement "Some societal trends may dominate for a while, but the fundamental nature of our world is something that cannot be changed much" (see Dweck et al., 1995). Incremental world theorists disagree. They believe that people, through their efforts, can shape society and its institutions.

In their study, Chiu and Hong (1999) considered how the return of Hong Kong's sovereignty to China represented a transition in which Hong Kong residents could try to resist the new world order by affirming and maintaining their Hong Kong identity or could try to accept their shared ethnic identity with Mainland Chinese (cf. optimal distinctiveness theory; Brewer, 1991, 1993). Chiu and Hong predicted that, as the handover approached, entity theorists of the world would more readily accept the new, unchangeable reality, would adjust their social identities to fit with it, and would thus show more positive judgments of Chinese Mainlanders as the transition grew closer. Incremental theorists, believing that despite the handover, people could still shape their social reality to preserve what they valued, might even strengthen their Hong Kong identity and their ingroup bias as the transition approached. Chiu and Hong (Study 2) collected two waves of data, one in September 1996 and one in March 1997, shortly before the July 1997 handover. One measure of intergroup bias will serve to illustrate the pattern of findings that ran consistently through their data. As an index of intergroup bias, Chiu and Hong assessed the age at which participants believed Hong Kong children should learn English (indicative of Hong Kong identity) versus Putonghua (the Chinese official language). They found that at Time 1, when the changeover was still relatively far off, entity theorists affirmed their Hong Kong identity by showing an ingroup bias: They favored children learning English at an earlier age than Putonghua. In contrast, incremental theorists did not show an ingroup bias. Yet at Time 2, as the transition became more imminent, entity theorists no longer showed this effect. Indeed, now it was incremental world theorists who exhibited an ingroup bias (a preference for English).

These findings are consistent with social identity theory (see Hogg & Abrams, 1988), which postulates that when the social reality is perceived as fixed, individuals in the low-status group will seek social mobil-

ity by assimilating into the high-status group (conformity). By contrast, when the social reality is perceived to be malleable, individuals in the low-status group are expected to try to alter the relative status of their group through collective action (dissent). Chiu and Hong's (1999) findings map onto this formulation. As the new social reality loomed larger, those who perceived this social reality to be unchangeable (entity world theorists) moved their identities closer into line with the dominant power. Those who instead perceived the social reality to be susceptible to influence (incremental world theorists) highlighted their distinct identities, and although the study did not examine collective action, the outgroup bias demonstrated by the incremental world theorists may be a step toward collective action.

It may be that during this transitional event, the entity worldview, not the incremental worldview, fostered more tolerant and harmonious relations. Much research has shown that an effective technique for reducing stereotyping between groups in conflict is for the groups to identify with a superordinate category (for a recent review, see Gaertner et al., 2000) much in the way that entity theorists did in Chiu and Hong's (1999) studies. On the other hand, this belief in a fixed social reality might only superficially facilitate harmonious intergroup relations because in too readily accepting a new identity, entity theorists may be in danger of accepting the status quo, thereby accepting injustice to the lower status group. In contrast, a belief in a malleable social reality might facilitate protection of the low-status group from injustice inflicted on them. Such actions may, in turn, bring about a more balanced power relationship between the two groups and hence a more harmonious intergroup relationship in the long run.

Differences in Behavior or Recommended Action Toward Group Members

In this section, we consider whether entity and incremental views of human nature promote different patterns of behavior toward group members. Because stereotypes are expectancies that guide information processing and behavior (e.g., Hamilton, Sherman, & Ruvolo, 1990), one would expect that stronger endorsement of stereotypes would be related to a greater likelihood of application of stereotypes in intergroup contexts. In a similar vein, one would expect negative evaluations or prejudice to precipitate discriminatory acts (e.g., Dovidio, Brigham, Johnson, & Gaertner, 1996). Thus, we hypothesized that people holding entity views of human nature would attach and act on

group stereotypes more than people holding incremental views.

Chow (1996), in a study reviewed earlier, also examined students' discriminatory actions toward an unfamiliar ingroup and outgroup member. (This study was conducted before Hong Kong became part of The People's Republic of China.) Hong Kong college students were given a news clipping of a murder case in which a 13-year-old suffered a fatal head injury when he hit his head on the ground during a quarrel with a 16-year-old (defendant). The clipping included group information about the defendant (he was either a Hong Konger or a Mainland Chinese) as well as situational information (defendant came from a poor family and received little attention from his parents). To assess whether theories and group membership would influence judgments, participants were asked to recommend punishment for the defendant (if found guilty). Results revealed that Hong Kong entity person theorists recommended significantly longer sentences for the Mainlander defendant (approximately 54 months) than for the Hong Konger defendant (about 39 months), whereas incremental person theorists did not differentially evaluate defendants based on group membership (28 months vs. 34 months).

In a study with college students, Freitas, Levy, and Dweck (1997) examined whether entity person theorists would be more likely than incremental person theorists to act on existing stereotypes when interacting with members of stereotyped groups. In a computer-generated experiment, participants were led to believe that they were playing a two-person prisoner's dilemma game (Schelling, 1960) against either a law student or an unidentified opponent who was in another location. Because a player's optimal choice against a competitive opponent is to also play competitively, perceived competitiveness of one's opponent may be acted on. Consistent with the stereotype that lawyers are competitive, students holding entity person theories, but not students holding incremental person theories, played more competitively against the law student. The provided social category information then influenced entity person theorists' game strategy, suggesting that entity person theorists see stereotypes as useful guides to behavior.

In addition to predicting biased practices toward individual group members, people's theories may guide their treatment of an entire group. In the novel group study reviewed previously (Levy & Dweck, 1999), children were asked to report the extent to which they were willing to socialize with (e.g., go to a party) the students from the school characterized by some negative and a few neutral behaviors. Although neither group wanted to socialize much with the students from the school, entity person theorists wanted to associate less with the children. Based on similar initial negative experience

with some members of a group, entity person theorists may be more likely than incremental person theorists to avoid members of that group in the future.

Summary

In summary, when people are operating within an entity theory, they seem to place greater weight on group traits and thus (a) make more extreme trait judgments of a group, (b) generate more trait causal attributions for group members' behaviors, (c) exaggerate within-group similarity around traits, and (d) exaggerate between-group differences around traits. Entity theorists' focus on traits is especially consequential as it leads to greater intergroup bias on traits and more biased patterns of behavior toward group members. In contrast, when people are operating within an incremental theory, they place greater weight on dynamic processes and (a) make weaker trait judgments of a group, (b) generate more dynamic (psychological process and situational) attributions for group members' behavior, (c) perceive greater variability within a group with respect to traits, and (d) perceive more commonalities between different groups on traits and concerns. Entity and incremental frameworks, then, foster very different meaning systems about behavior and groups. Rather than there being only one cognitive path of group perception, it appears that people with different starting assumptions follow different cognitive paths to different endpoints.

How Theories Can Be Changed

Recent research indicates that, although an entity and incremental theory can be measured as relatively stable, chronically accessible knowledge structures, they can also be altered in a number of ways.

Direct Manipulation of Theories

In several studies, theories were situationally induced, yielding the predicted results in information processing and providing evidence for the causal relation between theories and trait versus process inference patterns (Chiu, Hong, & Dweck, 1997; Levy, 1998; Levy et al., 1998). In one study, Chiu, Hong, and Dweck (1997, Study 5) had U.S. college students read short versions (either entity or incremental oriented) of a fictitious *Psychology Today* type article, which cited evidence from several sources—case studies of individuals (including famous people), longitudinal studies conducted over several decades, and large-scale intervention programs. Some time after reading the article, participants com-

pleted trait inference measures. Results indicated that those who read the article supporting an incremental theory made weaker trait judgments and predicted less cross-situational consistency than those who read the article supporting an entity theory.

Entity and incremental theories also were successfully induced in two other studies in the United States exploring the impact of theories on beliefs about existing groups and on newly formed beliefs about a novel group. In one study, Levy et al. (1998, Study 5) exposed college students to Chiu, Hong, and Dweck's (1997) entity and incremental scientific articles. After distractor measures, participants were asked, as part of another study, to evaluate occupational groups (e.g., lawyers, doctors) and ethnic groups (African Americans, Asians, and Latinos) on a number of attributes. We found that incremental-induced students agreed less with stereotypes of ethnic and occupational groups than did entity-induced students. In a study with fifth graders (Levy, 1998), children listened to a 10-min presentation that explained that psychologists have long debated whether personality can change and described some studies they have conducted on the topic. Children were told that these scientists had arrived at a conclusion—people can (or cannot) really change their personalities. Children then evaluated a group characterized by several negative and neutral behaviors—the same novel group that was described earlier. Incremental-induced students, relative to entity-induced students, made less extreme judgments of the groups' attributes, made more psychological process and situational attributions, did not minimize within-group trait variability, did not extend trait judgments to an unknown group member, and were more willing to befriend children from the school characterized by the negative behaviors of some of the students. (Participants were extensively debriefed at the end of the studies.)

The fact that either theory can be readily induced or primed suggests that people understand both theories. If these theories are internally accessible knowledge structures, then an outside source may not even be needed to activate a given theory. Using McGuire's persuasion-from-within model (e.g., McGuire & McGuire, 1996) as a springboard, Levy (2000) tested whether college students could persuade themselves to adopt an incremental theory. Specifically, Levy tested whether having participants write a brief persuasive essay supporting an incremental viewpoint (people can change) would (a) temporarily increase their belief in the malleability of human attributes and (b) foster greater perceived similarity among different people, as measured by Phillips and Ziller's (1997) Universal Orientation Scale. Before and after the essay was written, participants' theories were assessed. Then, ostensibly as part of another study, the Universal Ori-

entation Scale was given. Findings indicated that there was a significant change from pre-essay to post-essay theory scores in the incremental direction, suggesting that participants' theories changed after generating their own arguments. Importantly, the change in theory was meaningful: The correlation between post-essay theory scores and the Universal Orientation Scale was significant, even when partialing out pre-essay theory scores. These findings suggest that writing an essay supporting an incremental view highlighted an incremental theory (at least temporarily) and encouraged greater belief in the similarity among different groups.

Theories Induced by Culture

Beyond our brief theory inductions in the laboratory, different theories may be emphasized and fostered more generally by one's culture, as pointed out by Piaget and Garcia (1983/1989). Do cultures differ in their proportions of entity and incremental theorists? Some research has shown that entity and incremental theorists of personality appear in equal proportions in North America and Hong Kong (e.g., Chiu, Hong, & Dweck, 1997, Study 4). This would seem to indicate that the prevalence of entity and incremental theorists does not differ across cultures. Recently, however, important cultural differences have been isolated by examining lay theories of the world at large, that is, beliefs about whether society and its institutions are fixed or malleable (Chiu, Dweck, et al., 1997). These researchers found that whereas in the United States roughly the same proportion of entity and incremental theorists of the world are observed (see Dweck et al., 1995), in Hong Kong entity theorists of the world are over twice (Chiu & Hong, 1999, Study 1) or three times (Chiu & Hong, 1999, Study 2; Chiu, Dweck, et al., 1997, Study 5) as prevalent as incremental theorists of the world. This cross-cultural difference in beliefs might reflect two different cultural ideologies: Individuals can alter social organizations to meet their needs (a belief more prevalent in North American culture) versus individuals have to shape themselves to fit into social organizations (a belief more prevalent in East Asian culture; Su et al., 1999). As we saw earlier, these theories can have important effects on social identity, ingroup-outgroup perceptions, and social action.

Experiences That Highlight Traits

Large-scale sociopolitical changes also may influence people's theories. Research on the 1997 political transfer in Hong Kong suggests that this period of transition may have influenced people's lay theories. Specifically, the turnover may have made the entity view

of moral character more persuasive than the incremental view. In the Hong et al. (1999) study reviewed earlier, it was found that during the course of the 6-month study, many participants who were originally incremental theorists shifted to an entity view, whereas many fewer entity theorists shifted to an incremental view. Hong et al. (1999) postulated that people revised their theories because they were increasingly exposed in the mass media to conflicts between Hong Kongers and Chinese Mainlanders as the handover approached, the sum of which tended to stress the different characteristics of these two groups. Thus, more people from Hong Kong might have begun to see more stable, distinctive attributes among members of the two groups.

This is consistent with other work showing that when traits are made highly salient (as when they are directly praised), individuals are pushed toward an entity theory (Kamins & Dweck, 1999; Mueller & Dweck, 1998). In contrast, when malleable processes are highlighted, an incremental theory is strengthened.

Summary

The malleability of entity and incremental theories may be encouraging news for researchers interested in reducing stereotyping. Many prior intervention programs have attempted to overturn individual stereotypes by presenting participants with counter-stereotypic examples, and these programs have met with mixed results at best. The approach used here suggests that inducing an incremental theory may establish a way of thinking that discourages stereotyping across the board (i.e., not only in regard to one particular stereotype). It is important to note, however, that although we have shown that it is possible for people to readily adopt either theory, once people are operating within the framework of one theory, they tend to resist information that threatens that theory (e.g., Plaks, Grant, & Dweck, 2000; Plaks et al., in press). This suggests that theory change is best accomplished not by providing people with information that runs counter to their theory, such as examples of nonstereotypical group members for entity theorists, because these may readily be dismissed through a variety of theory-saving strategies. Indeed it may be entity theorists who predominantly account for the stereotype-preserving strategies in the literature, such as subtyping (e.g., Hewstone, Macrae, Griffiths, & Milne, 1994), selective attention (e.g., Hilton, Klein, & von Hippel, 1991; Plaks et al., in press), and selective memory (e.g., Bodenhausen & Wyer, 1985). Instead, our analysis suggests that theory change and stereotype reduction may be accomplished by direct manipulation of the theory itself.

The finding that the entity and incremental theories are themselves malleable is important because traditional work on individual differences hypothesized stable, dispositional personality differences (e.g., the authoritarian personality; Adorno, Frenkel-Brunswick, Levinson, & Sanford, 1950). Our work and some other recent work (see Levy, 1999, for a review), by contrast, suggests that lay theories as beliefs or cognitive structures are more amenable to change; that is, teaching or heightening the accessibility of people's own cognitions regarding the malleability of human nature may be a viable means of reducing stereotyping.

Maintenance of Theories and Needs Served by Theories

Despite encouraging results on highlighting an incremental theory as a means for reducing stereotyping, several crucial issues remain. We consider how needs served by these theories may create obstacles to making long-lasting changes in people's habitual use of a theory. In the following section, we describe two of the needs these theories may serve.

Need for a Stable Meaning System

A fundamental need that entity and incremental theories may serve is to understand or to give meaning to one's social world (cf. Herek, 1987). We have proposed that theories represent meaning systems (e.g., Chiu, Dweck, et al., 1997; Dweck & Leggett, 1988) or mental models (Levy, Plaks, & Dweck, 1999) that provide perceivers with a framework for perceiving, judging, and acting on social information. Our data suggest that these theories do provide meaning by directing perceivers to information that is relevant and then providing a framework of allied beliefs and inferences that help to interpret this information and predict new events. In this way, the meaning systems may generate a self-perpetuating cycle: The framework leads to a particular social understanding and that social understanding in turn bolsters the validity of the framework. Indeed, Unger et al. (1986) suggested and showed that people seek out experiences that confirm their theories by enrolling in courses or careers that support their world belief.

Pragmatic Information Processing Needs

Entity and incremental theories also may serve information processing needs. In terms of group perception, an entity theory appears to be a cognitively

streamlined view of processing information—attaching traits to groups and seeing more homogeneity in groups. Yet, according to several different indexes (e.g., school grades, achievement test scores), entity theorists are not less cognitively complex or competent overall (Dweck & Leggett, 1988; Levy & Dweck, 1999; Levy et al., 1998). Moreover, Levy et al. (1998, Study 5) tested whether entity and incremental theories differ in variables that might relate to cognitive complexity such as attributional complexity (Fletcher, Danilovics, Fernandez, Peterson, & Reeder, 1986) or, as noted earlier, need for cognition (Cacioppo & Petty, 1982). Hierarchical regression analyses revealed that entity and incremental theories made a substantial and unique contribution to stereotyping even when controlling for these variables.

If entity theorists are not merely cognitively simple, why do they seem to prefer a more streamlined style of information processing? Recent research on stereotypes has uncovered an important cognitive function of stereotyping. In this research, stereotypes are characterized as energy-saving devices that serve to simplify information processing and speed up response generation (Fiske & Neuberg, 1990; Macrae, Milne, & Bodenhausen, 1994; cf. Allport, 1954). Understanding group members' behavior in terms of the group's stereotypic characteristics instead of their individual qualities helps to release cognitive resources for other cognitive tasks (e.g., Bodenhausen & Lichtenstein, 1987; Macrae et al., 1994; Pratto & Bargh, 1991). In short, the simpler information style preferred by entity theorists may be quite adaptive in many contexts if it facilitates the processing of complex group information and hence releases resources for other simultaneous cognitive tasks (Tong & Chiu, 2000). This raises the question of whether incremental theorists might also strive for cognitive simplicity (albeit a different kind), which, when achieved, will free up cognitive resources. One possibility that awaits future research is that incremental theorists might use goals as the unit of analysis when understanding a group or individual's behavior (see Chiu, 1994; Hong, 1994). If so, once the target's goals have been extracted, this knowledge may function like any other categorical knowledge by containing built-in predictions about how the target is likely to act in the future, thereby conserving processing resources.

Conclusion

In this article, we have provided substantial evidence of two contrasting ways that people come to an understanding of groups and their members. We have illustrated that perceivers' a priori lay theories about the static or dynamic nature of human nature instigate

distinct, contrasting networks of allied beliefs and, in turn, notably different patterns of perception, inference, judgment, and behavior with respect to target groups. We have shown that the entity mode is primarily trait and stereotype oriented and the incremental mode is more concerned with dynamic processes that may provide context-based explanations for a group member's behavior. These differences indicate that lay theories are a useful tool for coming to a richer and more nuanced understanding of how people arrive at coherent impressions of individuals and groups. As we move toward a fuller understanding of the motivational and functional roots of these theories, we also may move closer to a fuller understanding of how to alter people's theories in ways that can reduce stereotyping and intergroup conflict.

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