Believing Is Seeing: The Effects of Racial Labels and Implicit Beliefs on Face Perception

Jennifer L. Eberhardt
Stanford University

Nilanjana Dasgupta
University of Massachusetts at Amherst

Tracy L. Banaszynski
Yale University

Two studies tested whether racial category labels and lay beliefs about human traits have a combined effect on people's perception of, and memory for, racially ambiguous faces. Participants saw a morphed target face accompanied by a racial label (Black or White). Later, they were asked to identify the face from a set of two new morphed faces, one more Black and the other more White than the target. As predicted, entity theorists, who believe traits are immutable, perceived and remembered the target face as consistent with the racial label, whereas incremental theorists, who believe traits are malleable, perceived and remembered the face as inconsistent with the racial label. In Study 2, participants also drew the target face more consistently (entity theorists) or less consistently (incremental theorists) with the racial label. Results of both studies confirm that social variables can affect how physical features are seen and remembered.

Keywords: racial labels; implicit beliefs; face perception

> Things are what they appear to be; they have just the qualities that they reveal to sight and touch. The surroundings open themselves to us directly and almost without deviation, as if we were face to face with objective reality.
>
> —Asch (1952, pp. 46-47)

What could be as simple as seeing? Seeing is a skill that most people rely on heavily, trust deeply, and scarcely recognize as a skill at all. As Solomon Asch notes, lay people understand seeing as the passive perception of objective reality. Yet, visual perception is considerably more complicated than this lay view suggests. Retinal images are inherently ambiguous and get resolved in ways most functional and meaningful to perceivers. Far from exposing perceivers to any one objective reality, perception researchers for decades have recognized the process of visual perception as inherently subjective, constructive, and interpretive (Goldstein, 1999).

Notwithstanding widespread scholarly recognition of the notion that visual perception is interpretive and subjective, contemporary social psychological research has failed to pursue the implications of that recognition. Social psychological research treats social perception as constructive and malleable yet accepts visual perception as an unquestioned given. Although person perception research has highlighted how individual and situational variables (e.g., attitudes, values, beliefs, and expectancies) shape how people are regarded and how their actions are interpreted (Allport & Postman, 1947; Darley & Gross, 1983; Kelley, 1950; Sagar & Schofield, 1980), the role of such variables in the perception of people's physical features has been largely overlooked. Instead of

being examined as a psychological phenomenon possibly influenced by situational and individual variables, the perception of people's physical appearance is seen simply as the uncontroversial starting point for social psychological outcomes. Research on race perception exemplifies this tendency. For the most part, social psychologists have not examined how individuals come to be seen as members of one racial group versus another (Eberhardt & Goff, in press). Instead, race is treated as an objective fact and racial categorization as a "primitive" step occurring so early in the perception process that it is thought to be beyond the influence of situational variables (Bruner, 1957).

We challenge these widely held assumptions. We contend that just as individual and situational variables shape social perception they may also shape visual perception. Specifically, perception of physical characteristics may be influenced by racial category labels and social beliefs. We argue that the simple act of assigning a racial label to a face can powerfully influence one's perception of, and memory for, that face. The direction of the effect will depend on people's pre-existing beliefs or implicit theories about human traits—whether traits are seen as immutable and having predictive validity or whether they are seen as malleable and less predictive. Understanding the constructive nature of visual perception can have important implications for research on social perception; it might highlight significant and as-yet-undiscovered factors that help create and maintain racial stereotypes.

The Effect of Social Labels on Perception, Judgment, and Evaluation

The present work draws on a long legacy of social psychological research that has demonstrated the different ways in which social labels are used by perceivers to disambiguate person perception. Social labels create expectancies or activate prior beliefs that, in turn, often lead people to assimilate their judgments to the label provided. For example, in a classic study Harold Kelley found that simply labeling an instructor as cold or warm led students to draw inferences about the instructor's behavior that were consistent with the label provided (Kelley, 1950). Since then, a number of studies have documented that social judgments assimilate to all sorts of social labels such as a target person's socioeconomic status (Darley & Gross, 1983), psychopathology (Rosenhan, 1973), personality traits (Higgins, Rhodes, & Jones, 1977), and racial group membership (Sagar & Schofield, 1980).

Sagar and Schofield (1980) showed that a target person's physical appearance can influence perceivers' inferences about the target's motivations and personality. Participants were presented with drawings of a target

person performing ambiguous actions. The same actions were judged to be more aggressive when performed by a Black target than a White target. These researchers concluded that the physical appearance of the targets alone activated a particular racial label and associated stereotypes (e.g., the person is Black and Blacks are aggressive). These activations influenced perceivers' interpretation of the behavior, producing an assimilation effect on judgments.

Although research on social labels has a long history in social psychology, almost all of the work has focused on how social labels lead to expectancy effects and influence the perception of personality traits and behaviors. It does not consider whether these labels can affect visual perception as well. We ask whether racial labels, in particular, can affect people's perception of, and memory for, human faces. Will labeling a racially ambiguous person as Black influence people's perception of, and memory for, that person's physical appearance? We believe the answer is "yes" and New Look researchers most likely would have agreed.

During the 1940s and 1950s, New Look researchers were interested in examining how social variables influence visual perception. They believed that "*all* perception has a social component" and is influenced by perceivers' desires and expectancies (Bruner & Postman, 1948a, p. 114). They predicted that stimuli that are meaningful to perceivers receive the most attention and are also subject to the most distortion. New Look studies found, for example, that people consistently overestimated the physical size of emotionally laden symbols from swastikas to dollar signs but more accurately judged the size of emotionally neutral symbols (Bruner & Postman, 1948b). Similarly, people's ability to differentiate Jewish from non-Jewish faces (Allport & Kramer, 1946; Elliot & Wittenberg, 1955; Lindzey & Rogolsky, 1950), their ability to recognize objects (Bruner & Potter, 1964), and their memory for visual scenes (Allport & Postman, 1947) were all influenced by prior expectancies and lay beliefs. The present research is an extension of this short-lived yet unconventional approach.

The Effect of Individual Differences in Implicit Theories on Perception, Judgment, and Evaluation

Our studies investigate the possibility that stable individual differences shape the effect of racial labels on face perception. One such moderating variable may be people's folk theories about the nature of human traits (even when those theories are implicit, i.e., poorly articulated). Dweck and colleagues have found that people differ greatly in the implicit theories they hold about the nature of human traits (Chiu, Hong, & Dweck, 1997; Dweck, Chiu, & Hong, 1995; Dweck & Leggett, 1988;

Erdley & Dweck, 1993; Levy, Plaks, & Dweck, 1999). Some people (entity theorists) are more likely to think of traits as immutable properties possessed by individuals. They view traits as having high predictive validity that can be used to draw inferences about the underlying, "essential" properties of people. Trait labels lead entity theorists to focus on trait-relevant and expectancy-consistent information (see Erdley & Dweck, 1993). They are unlikely to revise their judgments about people by taking into account new information that contradicts the trait labels that serve such an important function for them.

By comparison, other people (incremental theorists) are more likely to treat trait labels as tentative descriptions subject to revision. They are less likely to imbue trait information with high predictive validity and to draw inferences about people's essential properties based on traits. Incremental theorists find trait labels and trait-relevant information less useful and are more likely to be drawn to new, individuating information compared to entity theorists. As a result, incremental theorists are more open to revising their judgments about people by taking expectancy-inconsistent information into account.

Implicit theories about the nature of human traits have been shown to affect judgments about (a) the self (Dweck & Leggett, 1988), (b) other individuals (Chiu et al., 1997; Erdley & Dweck, 1993), and most recently (c) social groups (Hong, Levy, & Chiu, 2001; Levy, Stroessner, & Dweck, 1998). For example, Levy et al. (1998) found that entity theorists are more likely than incremental theorists to endorse racial stereotypes, attend to category-based information, and perceive within-group homogeneity. By contrast, incremental theorists focus more on individuating information. They are more interested in the factors that lead people of the same social group to differ rather than the factors that lead them to be similar.

Although Dweck and colleagues have focused entirely on the influence of implicit theories on judgments of personality traits, we argue that these folk theories also may play a role in perceptions of people's physical appearance. Recent research suggests that perceptions of physical appearance and personality traits are tightly linked (Blair, Judd, Sadler, & Jenkins, 2002; Eberhardt & Goff, in press; Livingston & Brewer, 2002; Maddox & Gray, 2002; Zebrowitz, 1996). Not only are people aware that faces vary in how prototypically Black or White they appear but, more important, perceived differences in face prototypicality lead to different inferences about the personality traits possessed by those individuals (Blair et al., 2002; Purdie & Eberhardt, 2002). In addition, how much people attend to race-related physical features (Livingston, 2001) and the meaning they attach to them (Williams & Eberhardt, 2002) vary across individuals. These recent findings can be synthesized with the findings on implicit theories. Entity theorists may be likely to attend to the race-relevant physical features of faces and to perceive them in a manner consistent with the prototype of what Black or White people are thought to look like. By contrast, incremental theorists may be less invested in matching race-related physical traits to racial prototypes and more likely to seek out individuating information in faces.

Overview of Current Research

We conducted two studies to examine whether racial labels and stable individual differences together shape people's perception of, and memory for, racially ambiguous faces. These faces were created by morphing an image of a White face with that of a Black face using morphing software. We manipulated the racial labels assigned to target faces and presented them to participants who were entity theorists or incremental theorists. The racial category information was embedded among other demographic information ostensibly belonging to the person whose face participants saw. In both studies, participants were later asked to identify the target face from a set of two new faces. Neither new face was identical to the target yet each was very similar to it. One of the morphed faces had more of the original Black face in it than the target (Black foil); the other morphed face had more of the original White face in it than the target (White foil). In addition to recognition memory, Study 2 also assessed face perception more directly by asking participants to draw the target face while looking at it.

We predicted that entity theorists would use the racial category label to form expectancies about what the target face might look like that would then guide their perception and memory of the target once seen. Given the racial ambiguity of the target face, we predicted that entity theorists would be surprised that the face they saw deviated from the prototype implied by the racial label. They should then pay attention to facial features to see how they might still fit the racial label. This process should lead them to perceive and remember the target face as being more consistent with the racial label than it actually was, producing an assimilation effect. Therefore, entity theorists who saw the Black racial label should later misremember the Black foil as the target and those who saw the White label should later misremember the White foil as the target. Entity theorists also should draw the target face more consistently with the racial label.

In contrast, two competing predictions can be proposed for incremental theorists. One possibility is that incremental theorists would be indifferent to the racial label. This possibility is supported by past research showing that trait labels in general are considered less mean-

ingful to these theorists (Levy et al., 1999). If correct, in our study, incremental theorists should choose the White and Black foil equally, regardless of racial label. They also should draw the face in the same manner, regardless of racial label.

Yet another possibility is that incremental theorists may use the racial category label to form expectancies about what the target might look like, just as entity theorists do. Incremental theorists may be as surprised as entity theorists by a target face that so clearly deviates from the prototype that the racial label implies. Racial labels, even for incremental theorists, may hold some predictive power because the sheer salience of race in American culture is likely to draw people's attention to racial labels in particular and to evoke prototypes consistent with those labels. Although attentive to racial labels, incremental theorists also may be attentive to expectancy-inconsistent information (more so than entity theorists) and on the basis of that information may revise their previous predictions. Incremental theorists might be more willing to abandon the racial label. In an attempt to perceive and remember the face accurately, they might examine facial features to see how they deviate from the racial label. For example, they might look at a face labeled "Black" to see why and how it looks more White than they had imagined. This process would lead them to perceive and remember a face as more inconsistent with the racial label than it actually was, producing a contrast effect. If this possibility is correct, incremental theorists who saw the Black label should later misremember the White foil as the target and those who saw the White label should later misremember the Black foil as the target. They should also draw the face consistently less with the label.

We believe that a contrast effect is more likely than a null effect for incremental theorists for two reasons. First, Erdley and Dweck (1993) have shown that when incremental theorists are confronted with new, expectancy-inconsistent information, they revise their judgments away from the original expectancy. Second, Wegener and Petty's (1995) flexible correction model proposes that when people hold a naïve theory that their perception or judgment of a target may become overly biased because of the context, they attempt to correct their judgment in a direction opposite to the perceived bias. Applying this theory to our research, once incremental theorists see the racially ambiguous face, they may become concerned that the racial label (i.e., the context) has interfered with their ability to accurately perceive and remember the uniqueness of the target face. In an attempt to overcome this perceived bias, they may focus on facial features for the purpose of understanding how these features are inconsistent with the racial label.

METHOD: STUDY 1 AND 2

Participants

For both studies, White undergraduates at Stanford University were recruited in exchange for $6 or course credit. For Study 1, 83 students were recruited. Of those recruited, 4 were eliminated because of computer malfunctions, 4 failed to follow instructions, 2 did not complete the implicit theories measure administered earlier in the quarter, and 5 did not self-identify as White American. This left us with a total of 68 participants (34 women, 32 men, 2 unspecified). For Study 2, 45 students were recruited. Of those recruited, 1 was eliminated for not following instructions and 2 did not self-identify as White American. This left us with 42 participants (26 women and 16 men).

Stimulus Materials

The stimuli used for both Studies 1 and 2 were created by morphing a colored photograph of a Black man's face with a White man's face using *Elastic Reality* (a computer morphing program). The faces were of clean-shaven, young adult men with neutral facial expressions. Each of two continua was created by morphing the face of a Black man together with the face of a White man in different proportions so as to create a series of 41 faces that appeared to move slowly from one race to another. From each continuum, we chose the face that 50% of pilot participants categorized as Black and the remaining 50% categorized as White. These two faces served as our racially ambiguous targets. From each continuum, the face that 80% of pilot participants categorized as Black served as our Black foil and the face that 80% of pilot participants categorized as White served as our White foil. Using this piloting procedure, we developed two sets of stimuli, each with one target and two foils (see Figure 1).

Design

Both studies took the form of a 2 (racial label: Black vs. White) × 2 (implicit theory: entity vs. incremental) factorial design where both factors were varied between subjects. The primary dependent measures were face recognition memory (as measured by a foil-choice task) and face perception (as measured by a drawing task).

Procedure

Participants' implicit theories of human traits were measured using an eight-item scale developed by Levy and Dweck (1997) and reported in Levy et al. (1998). The scale has high internal reliability (with alphas ranging from .93 to .95 across various studies). Some scale items are designed such that entity theorists are likely to agree (e.g., people can do things differently but the important parts of who they are can't really be changed),
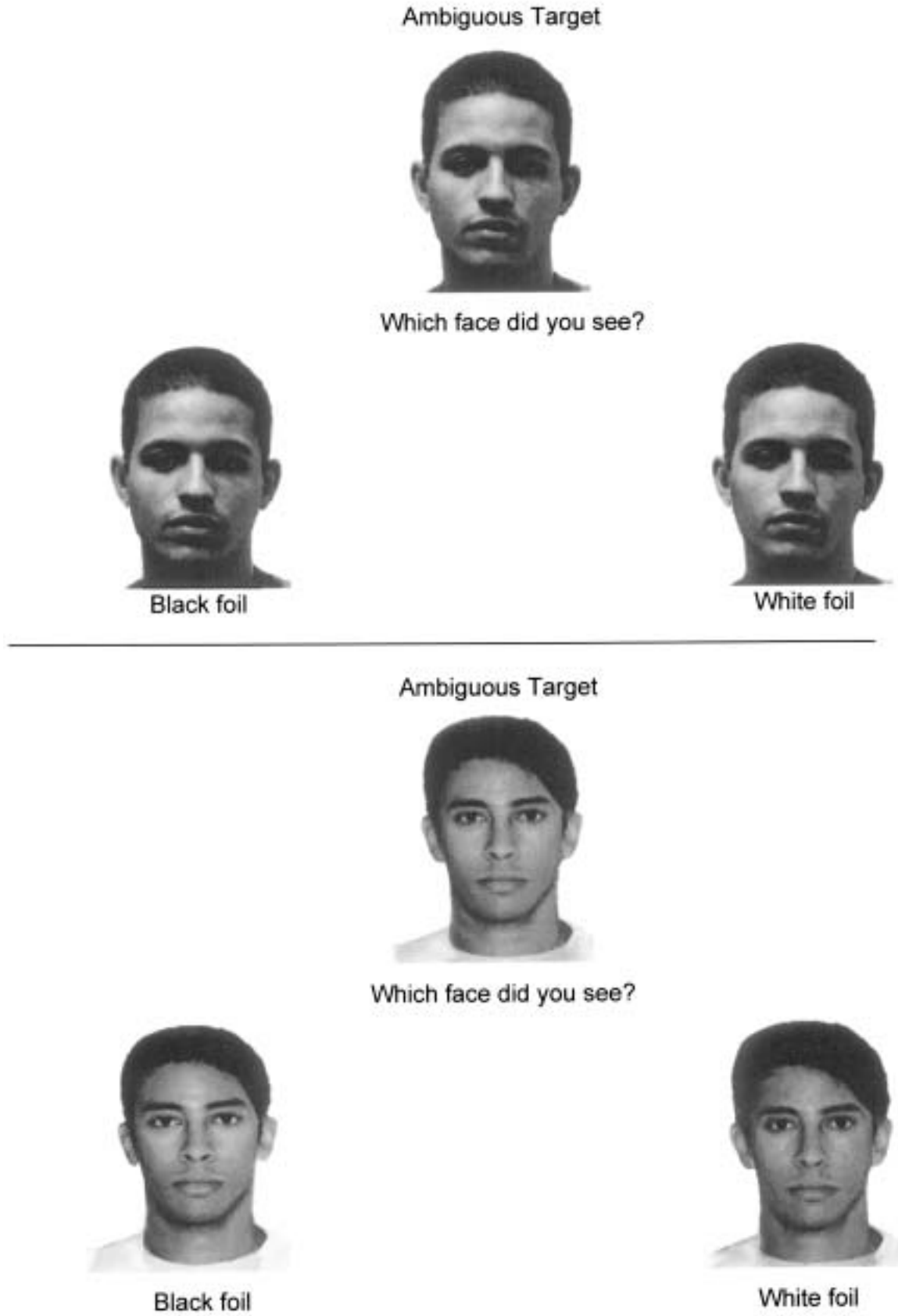
Ambiguous Target

Which face did you see?

Black foil

White foil

Ambiguous Target

Which face did you see?

Black foil

White foil

Figure 1   Face stimuli constructed and used for Studies 1 and 2.

whereas other items are designed such that incremental theorists are likely to agree (e.g., no matter what kind of person someone is, they can always change a lot). We administered this measure as part of a questionnaire packet given to undergraduates near the beginning of the academic quarter.

Later in the quarter, participants were tested individually in a small laboratory room in the Department of Psychology at Stanford University. One of two White experimenters (one male, one female) guided them through the procedure. Participants were asked to read a description of the "memory" study on the computer screen. They read about our interest in the various components of short-term memory and how those components interact. They read further that we were interested in whether memory for human faces interacts with memory for verbal and numerical information associated with those faces. They were informed that they would first see information about a person, which they would be asked to memorize. Next, the person's face would appear on the computer screen and remain there for 10 s. They were asked to pay attention to the face and to try to remember it as well as they could for a memory test to be given later in the study.

After completing the study description, the experimenter pressed the space bar so that the computer program would continue and left the room. At this time, demographic information about the target person appeared on the computer screen for 40 s as participants attempted to memorize it. The demographic information included the target person's sex, race, age, height, weight, hair color, eye color, date of birth, and social security number. All of the demographic information remained constant across conditions with the exception of race. Half of the participants were told that the person was Black (Black label condition), whereas the remaining participants were told that the person was White (White label condition). Half of the participants in each racial label condition were entity theorists and the other half were incremental theorists. Next, participants were shown one of the two racially ambiguous target faces used in the study. The target face remained on the screen for 10 s. Again, which target face they were shown was randomly determined with the exception that an equal number of entity and incremental theorists were shown each face.

The experimenter then gave participants a 2-min break during which time they were asked to play an electronic memory game called "Simon." After the break, they completed a demographic recall measure that asked them to recall all of the demographic information and to report recall difficulty, confidence, and any memory strategies employed. The demographic recall measure was a paper-and-pencil questionnaire that served as a manipulation check for the racial label presentation.

After completing the demographic recall measure, participants were informed that two faces were about to appear on the computer screen. Face A would appear on the left and Face B would appear on the right. They were told that one of these faces would be the face they saw earlier in the study and the other face might look similar but was actually a different face. Participants were instructed to press one of two keys on the computer keyboard (labeled A or B) as quickly as possible to indicate which face matched the original face. In fact, neither face was the target. One face was morphed so that it contained more of the original Black face than the target (Black foil) and the other was morphed so that it contained more of the original White face than the target (White foil). The foil label (Face A or Face B) and the side of the computer screen on which the foil appeared (left or right) were counterbalanced across participants. After choosing the face, participants completed a face recognition measure that asked them to report face recognition difficulty, confidence, any memory strategies employed, and any differences they noticed between the target face and the other face presented during the face recognition task. In Study 1, participants went on to complete a "surprise" measure (see below). In Study 2, participants took another 2-min break and then completed a drawing task before completing the surprise measure.

The drawing task required Study 2 participants to draw the (target) face as well as they could while the image remained onscreen. They were told that not every participant saw the same (target) face. They were told that their task was to draw the face well enough so that people in a future study could successfully match their drawing to the correct (target) face shown. To increase participants' motivation to draw as accurately as possible, they were told that those who did the best job on the drawing task would be eligible for a $20 cash prize. To draw the face, participants were given an erasable black-ink pen and a piece of blank paper with instructions at the top. Participants were given 4 min to complete the drawing task. The target face remained on the computer screen for the entire 4 min.

Next, participants in both studies were asked to complete a "surprise" measure. For Study 1, participants were asked how surprised they were that the person they were shown was Black (White), how much the person looked like what they expected him to based on the demographic information given, how similar the person looked to other Black (White) people they could think of, how likely they would have been to think the person was Black (White) without being told his race, and how difficult it was to tell the person's race from looking at his

face. For Study 2, participants completed a one-item surprise measure that asked how surprised they were that the person they were shown was Black (White). After completing this measure, participants were debriefed, thanked, and compensated for their time. The entire procedure took approximately 25 to 30 min. After testing all of the participants needed for Study 2, the experimenter randomly selected a winner of the $20 cash prize.

RESULTS

A primary prediction was that entity theorists would assimilate to the racial label in their choice of foil in the memory task, whereas incremental theorists would contrast. In the Black label condition, choosing a Black foil was recorded as an assimilation effect and choosing a White foil was recorded as a contrast effect. In the White label condition, choosing a White foil was recorded as an assimilation effect, whereas choosing a Black foil was recorded as a contrast effect.

Manipulation Check

We included the demographic recall measure in both studies as a manipulation check to be sure that participants had noticed the race of the target person they were shown. Examination of the race recall data revealed that participants were aware of the racial label; 96% (Study 1) and 98% (Study 2) of participants recalled the racial label correctly. The pattern of results did not change when we excluded from the analyses the 3 participants (Study 1) or the 1 participant (Study 2) who incorrectly recalled the racial label. Even though almost all participants recalled the label correctly, none of them explicitly mentioned using the race of the target face as a strategy for the face identification task. All participants reported that both foil options seemed plausible. All participants believed that one of the foils was the target face originally shown. Across the two studies, only 2 participants even reported noticing possible racial differences between the two foils.

Face Recognition

We categorized participants as incremental or entity theorists by applying a median split to their scores on the Levy et al. (1998) measure of implicit theories. A chi-square analysis of implicit theory by foil choice indicated that implicit theory significantly influenced the foil choice participants made in the memory task, both in Study 1, $\chi^2(1, N = 66) = 3.75, p < .05$, and in Study 2, $\chi^2(1, N = 42) = 4.75, p < .03$. Consistent with our prediction, entity theorists were significantly likely to assimilate to the racial label, whereas incremental theorists were significantly likely to contrast away from it (see Table 1).

TABLE 1: Assimilation and Contrast Responses as a Function of Implicit Theory (Studies 1 and 2)

		Assimilation	*Contrast*	N
Study 1	Incremental theorists	34%	66%	35
	Entity theorists	58%	42%	31
	$\chi^2(1, N = 66) = 3.75, p < .05$			
Study 2	Incremental theorists	36%	64%	22
	Entity theorists	70%	30%	20
	$\chi^2(1, N = 42) = 4.75, p < .03$			

Face Perception

In Study 2, a drawing task was employed as a more direct measure of online perceptual processing. Although people differ considerably in their drawing ability, we predicted that race-relevant information would be conveyed in many of the drawings produced. We predicted that entity theorists would draw faces that would be judged to be more consistent with the racial label, whereas incremental theorists would draw faces that were judged to be less consistent with the racial label.

Judges used for drawing ratings. A community sample of 26 New York City residents (17 women, 9 men) was used to judge the race of faces in the drawings. Judges were blind both to the experimental hypotheses and the racial label condition of the participants who drew the faces. All judges were White American.

Method used for judges. Judges were told that in an earlier experiment people had been shown Black and White male faces with the instruction to draw those faces to the best of their ability. Judges were then given a booklet of 42 drawings randomly numbered from 1 through 42 together with a questionnaire in which they were instructed to indicate (a) whether the person in the drawing was Black or White and (b) how confident they felt about their judgments (using a 7-point scale). To protect against the possibility of order effects, two random orders of drawings were created. After completing the task, judges were debriefed and excused with thanks.

Drawing results. The drawing data were analyzed by dummy coding the judges' racial categorization judgments (-1 = White, $+1$ = Black) and multiplying these categorization judgments by the judges' confidence judgments (1 = *not at all confident*, 7 = *extremely confident*). This allowed us to analyze the drawing data as a continuous dependent variable ranging from -7 (*extremely confident that the drawing is of a White person*) to $+7$ (*extremely confident that the drawing is of a Black person*). As can be seen in Figure 2, ratings by naïve judges confirmed that participants who were entity theorists were more likely to draw faces that assimilated to the racial label provided,

whereas incremental theorists were more likely to draw faces that contrasted away from the racial label provided. The two-way interaction between implicit theory and racial label was highly significant, $F(1, 38) = 8.15$, $p = .007$. Specifically, entity theorists who received a Black label drew faces that were later rated as "more Black" by judges compared to entity theorists who received a White label, $F(1, 39) = 36.34$, $p = 4.7 \times 10.^{-7}$ By contrast, incremental theorists who received a Black label drew faces that were later rated as "more White" by judges compared to incremental theorists who received a White label, $F(1, 39) = 47.86$, $p = 2.8 \times 10.^{-8}$ Figure 3 shows sample drawings of two different participants who saw the identical target face under different labeling conditions. The drawing on the left was produced by an entity theorist in the Black label condition. The drawing on the right was produced by an entity theorist in the White label condition.

Additional Measures

No differences in task difficulty, confidence, or reaction time were expected or found. Participants rated how confident they were that they had identified the (target) face accurately (1 = *not at all confident*, 7 = *extremely confident*) as well as how difficult it was to identify the (target) face (1 = *not at all difficult*, 7 = *extremely difficult*). As predicted, in Studies 1 and 2, both entity and incremental theorists were moderately confident about their performance on the face recognition task (Study 1: entity theorists' $M = 3.55$, incremental theorists' $M = 3.69$; Study 2: entity theorists' $M = 4.00$, incremental theorists' $M = 3.95$; $t < 1$). In Studies 1 and 2, both entity and incremental theorists rated the foil choice task as rather difficult (Study 1: entity theorists' $M = 5.59$, incremental theorists' $M = 5.09$; Study 2: entity theorists' $M = 4.75$, incremental theorists' $M = 5.45$; *ns*). Reaction time to complete the foil choice task did not differ between entity and incremental theorists in Study 1 or in Study 2 (Study 1: entity theorists' $M = 8.23$ s, incremental theorists' $M = 8.77$ s; Study 2: entity theorists' $M = 11.54$ s, incremental theorists' $M = 10.86$ s; $t < 1$).

Although entity and incremental theorists differed dramatically in their face recognition responses as a function of the racial label provided, as predicted, they were equally surprised by the target's appearance ($t < 1$). In Study 1, the overall means on the surprise measure were 4.94 and 4.88, respectively (1 = *not at all surprised*, 7 = *extremely surprised*). In Study 2, the means on the one-item surprise measure were 4.35 and 3.57, respectively.

GENERAL DISCUSSION

The visual perception of race is often treated as obvious and straightforward. Yet, we have argued throughout this article that seeing race is conditioned by what
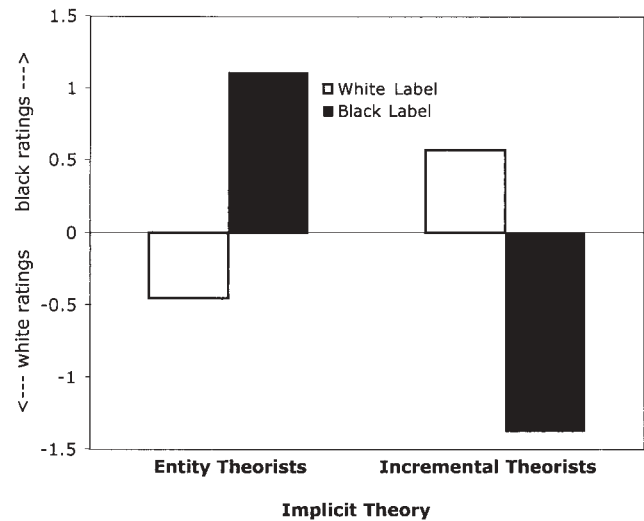

Figure 2   Judges' race judgments as a function of racial label and implicit theory (Study 2).

people expect to see as well as their well-practiced habits of seeing. Across two studies, we have shown that racial labels and implicit theories can affect how participants see and remember racially ambiguous faces. Whereas entity theorists responded to the racial label by assimilating the face to it, incremental theorists responded by contrasting the face away. In Study 2, we found that participants not only remembered faces differently based on labels and implicit theories, they actually saw the faces differently based on labels and implicit theories. Entity theorists were more likely to draw faces that were later rated by judges as consistent with the racial label seen by these theorists. Incremental theorists were more likely to draw faces that were later rated by judges as inconsistent with the racial label seen by these theorists. Although participants were highly motivated to produce accurate drawings (given the instructions and financial incentive), implicit theories and racial labels prompted participants to render dramatically different representations of the same faces, even while these faces remained available for visual inspection.

As predicted, almost all participants noticed and accurately recalled the racial label. As predicted, both entity and incremental theorists found the target face equally surprising and expectancy inconsistent. In fact, the target face was chosen precisely because it did not fit the prototype for how a Black or White face is expected to look. Although entity and incremental theorists attended to the same racial labels and (due to those labels) judged the target face to be expectancy inconsistent, their reaction to this inconsistency differed substantially. Entity theorists encoded and remembered the face in line with the racial label in spite of the inconsistency, focusing on the ways that the face still fit the proto-

Figure 3   Sample drawings of two participants shown the identical target face (Study 2).

type. However, incremental theorists revised and redirected their judgments in line with the inconsistent information, focusing on the ways that the face did not fit the prototype.

Racial labels and implicit theories affected both face perception and recognition memory. Yet, people typically are unaware of the extent to which visual perception and memory are shaped by beliefs about social groups. Although entity theorists tend to believe that human traits are static, entity theorists' memory and perception of facial features dramatically changed as a function of the racial labels provided. The faces they were

shown came to more closely resemble the racial proto-type implied by the label. Although incremental theorists tend to believe that trait labels are relatively insignificant and do not point to enduring properties of a person, incremental theorists' memory and perception of facial features were heavily shaped by the racial labels we provided as well. The faces they were shown came to *less* closely resemble the racial prototype implied by the label. The responses of both entity and incremental theorists clearly were affected by the racial label (albeit in different ways) despite the fact that their theories about human traits differ so greatly and despite the fact that almost none of them were aware of the role that racial labels played in their responses. It is as though the racial labels operated as an invisible magnet, attracting entity theorists yet simultaneously repelling incremental theorists.

In 1954, Gordon Allport argued that "the visible point of physical difference is made the magnet for all sorts of imaginary ascriptions" (p. 109). Here we argue that social imagination is not only affected by physical difference but it is active in creating and maintaining the perception of those differences. This may be especially true for entity theorists. Across both of the present studies, entity theorists were more likely to show an assimilation effect than were incremental theorists. The target faces entity theorists were shown, to some extent, were reinterpreted to "fit" the racial group of which those faces were thought to belong, despite the fact that initially the faces did not look like what participants expected. Assimilation of this sort might allow huge variability in physical appearance among group members to become minimized and, as a result, contribute to perceptions of outgroup homogeneity. Assimilation may offer a mechanism by which sharp racial category boundaries get maintained despite widespread physical variability within groups.

Maintaining sharp racial category boundaries in this way may have numerous implications. Groups whose members look different from one another are more likely to be viewed in essentialistic terms that may, in turn, facilitate stereotype formation (Dasgupta, Banaji, & Abelson, 1999). For example, the perception of physical differences between groups on dimensions such as skin color is often linked to inferences about the trait and behavioral intentions of those groups. Dasgupta and her colleagues found that when members of groups were perceived to be homogeneous in physical appearance they were judged as more hostile and threatening than groups that were more heterogeneous in physical appearance.

In American society, racial labels have strong physical appearance expectancies attached to them (Allport, 1954). Labeling someone as "Black" or as "White"

implies that the person has a range of physical features that clearly signify their racial group membership. Racial labels are not considered as temporary as other trait labels, such as "having patience" or "showing strength." This may be because race itself is considered inborn and stable rather than context dependent (Eberhardt & Goff, in press). Given this, both incremental and entity theorists should be surprised when racial labels do not allow them to accurately predict a target's physical features.

Just as people differ in how likely they are to use trait labels to draw strong inferences, trait labels differ in how likely they are to be used to draw strong inferences. Previous research on implicit theories typically does not distinguish between different types of trait labels (although, see Erdley & Dweck, 1993). Yet these distinctions might be helpful in pinpointing how incremental theorists, in particular, will respond in cases where trait labels are not consistent with other information known about a target. Incremental theorists may be indifferent to weak trait labels (e.g., this person is patient) yet repelled by strong trait labels (e.g., this person is Black). In American culture, racial labels may affect people's expectancies and judgments whether they believe they should (entity theorists) or not (incremental theorists). Future research should examine these possibilities more directly.

Although not addressed in the present studies, we suspect that the effects we obtained are not limited to the perception of racially ambiguous faces. Rather, the perception of racially unambiguous faces might be affected by social beliefs and individual differences in predictable ways as well. Furthermore, social psychological variables may play a key role in determining whether a face is seen as racially ambiguous. Racial ambiguity is not a stable fact of nature but a changing notion that reflects shifts in racial category boundaries across time.

REFERENCES

Allport, G. W. (1954). *The nature of prejudice.* Reading, MA: Addison-Wesley.

Allport. G. W., & Kramer, B. M. (1946). Some roots of prejudice. *Journal of Psychology, 22,* 9-39.

Allport, G. W., & Postman, L. (1947). *The psychology of rumor.* New York: Henry Holt.

Asch, S. E. (1952). *Social psychology.* Englewood Cliffs, NJ: Prentice Hall.

Blair, I. V., Judd, C. M., Sadler, M. S., & Jenkins, C. (2002). The role of afrocentric features in person perception: Judging by features and categories. *Journal of Personality and Social Psychology, 83,* 5-25.

Bruner, J. S. (1957). On perceptual readiness. *Psychological Review, 64,* 123-152.

Bruner, J. S., & Postman, L. (1948a). An approach to social perception. In W. Dennis (Ed.), *Current trends in social psychology.* Oxford: University of Pittsburgh Press.

Bruner, J. S., & Postman, L. (1948b). Symbolic value as an organizing factor in perception. *Journal of Social Psychology, 27,* 203-208.

Bruner, J. S., & Potter, M. C. (1964). Interference in visual recognition. *Science*, *144*, 424-425.

Chiu, C., Hong, Y., & Dweck, C. S. (1997). Lay disposition and implicit theories of personality. *Journal of Personality and Social Psychology*, *73*(1), 19-30.

Darley, J. M., & Gross, P. H. (1983). A hypothesis-confirming bias in labeling effects. *Journal of Personality and Social Psychology*, *44*(1), 20-33.

Dasgupta, N., Banaji, M. R., & Abelson, R. P. (1999). Group entitativity and group perception: Associations between physical features and psychological judgment. *Journal of Personality and Social Psychology*, *77*, 991-1003.

Dweck, C. S., Chiu, C., & Hong, Y. (1995). Implicit theories and their role in judgments and reactions: A world from two perspectives. *Psychological Inquiry*, *6*(4), 267-285.

Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review*, *25*, 109-116.

Eberhardt, J. L., & Goff, P. A. (in press). Seeing race. In C. S. Crandall & M. Schaller (Eds.), *The social psychology of prejudice: Historical perspectives*. Seattle, WA: Lewinian.

Elliot, D. N., & Wittenberg, B. H. (1955). Accuracy of identification of Jewish and non-Jewish photographs. *Journal of Abnormal and Social Psychology*, *51*, 339-341.

Erdley, C. A., & Dweck, C. S. (1993). Children's implicit personality theories as predicators of their social judgments. *Child Development*, *64*, 863-878.

Goldstein, E. B. (1999). *Sensation and perception*. Pacific Grove, CA: Brooks/Cole.

Higgins, E. T., Rhodes, W. S., & Jones, C. R. (1977). Category accessibility and impression formation. *Journal of Experimental Social Psychology*, *13*, 141-154.

Hong, Y., Levy, S. R., & Chiu, C. (2001). The contribution of the lay theories approach to the study of groups. *Personality and Social Psychology Review*, *5*(2), 98-106.

Kelley, H. H. (1950). The warm-cold variable in first impressions of persons. *Journal of Personality*, *18*, 431-439.

Levy, S. R., Plaks, J. E., & Dweck, C. S. (1999). Modes of social thought: Implicit theories and social understanding. In S. Chaiken & T. Trope (Eds.), *Dual-process theories in social psychology* (pp. 179-202). New York: Guilford.

Levy, S. R., Stroessner, S. J., & Dweck, C. S. (1998). Stereotype formation and endorsement: The role of implicit theories. *Journal of Personality and Social Psychology*, *74*, 1421-1436.

Lindzey, G., & Rogolsky, S. (1950). Prejudice and identification of minority group membership. *Journal of Abnormal and Social Psychology*, *45*, 37-53.

Livingston, R. W. (2001). What you see is what you get: Systematic variability in perceptual-based social judgment. *Personality and Social Psychology Bulletin*, *27*, 1086-1096.

Livingston, R. W., & Brewer, M. (2002). What are we really priming? Cue-based versus category-based processing of facial stimuli. *Journal of Personality and Social Psychology*, *82*, 5-18.

Maddox, K. B., & Gray, S. A. (2002). Cognitive representations of Black Americans: Reexploring the role of skin tone. *Personality and Social Psychology Bulletin*, *28*, 250-259.

Purdie, V., & Eberhardt, J. L. (2002). *Beyond Black and White: The impact of stereotypicality on perceptions of criminality*. Paper presented at the annual conference of the Society of Personality and Social Psychology, Savannah, GA.

Rosenhan, D. L. (1973). *Odyssey into lunacy*. Del Mar, CA: Ziff-Davis.

Sagar, H. A., & Schofield, J. W. (1980). Racial and behavioral cues in Black and White children's perceptions of ambiguously aggressive acts. *Journal of Personality and Social Psychology*, *39*(4), 590-598.

Wegener, D. T., & Petty, R. E. (1995). Flexible correction processes in social judgment: The role of naive theories in corrections for perceived bias. *Journal of Personality and Social Psychology*, *68*, 36-51.

Williams, M. J., & Eberhardt, J. L. (2002). *Measuring beliefs about the origins of race*. Poster presented at the Society of Personality and Social Psychology, Savannah, GA.

Zebrowitz, L. A. (1996). Physical appearance as a basis of stereotyping. In C. N. Macrae, C. Stangor, & M. Hewstone (Eds.), *Stereotypes and stereotyping*. New York: Guilford Press.