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CHAPTER

7   Social Categorization: Looking Toward the Future 🔓

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Abstract

Social categorization is central to the field of social cognition and has been an integral topic of study since the field's conception. Social categorization has long been viewed as the starting point of various downstream cognitive, affective, motivational, and behavioral processes. This chapter discusses a modern understanding of social categorization that bridges social cognition and visual perception research to examine the visual and perceptual determinants of social categorization and how they can inform an understanding of these downstream social cognitive processes. As the social world changes, a revised perspective of social categorization is necessary to drive future research. The chapter focuses on three emerging topics in social categorization research, namely, (a) how perceivers handle intersectionality and the complexity of multiply categorizable targets; (b) how perceivers categorize along a seemingly infinite set of perceptually ambiguous category dimensions, such as sexual orientation or religious groups; and (c) how perceivers navigate the blurring of traditionally studied categories, as in perceiving multiracial and transgender individuals.

Keywords: social categorization, social perception, intersectionality, stereotyping, multiracial, ambiguity, transgender, representation, identity

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In navigating the social world, we sort others into an array of social categories, placing them into categorical boundaries that shape how we think, feel, and behave. Social categorization has had a long history in social cognition. Classic work by Allport (1954), Sherif (1967), and Tajfel (1969) argued that individuals perceive others via automatic category-based impressions that economize on mental resources. For decades, social categorization research on these category-based impressions led to a variety of cognitive, affective, and behavioral outcomes and set the stage for stereotyping and prejudice (Brewer,

1988; Devine, 1989; Dovidio et al., 1997; Fiske & Neuberg, 1990; D. T. Gilbert & Hixon, 1991). Researchers even considered whether encoding social categories in the first place could be avoided to prevent harmful social outcomes like stereotypical biases (Macrae & Bodenhausen, 2000). Such research emphasized that social categorization is highly automatic and efficient, and while social categorization is certainly malleable, it is not likely to be erased in the hopes of mitigating downstream biases. It is also worth noting that, in the context of race categorization in particular, research on racial color-blindness ideology has raised questions about the value of such an approach to mitigating bias, even if it were possible empirically (Rattan & Ambady, 2013).

In this chapter, we provide a brief history and overview of models of social categorization. We then discuss research over the past 15 years bridging social cognition and visual perception ↳ research to examine the visual and perceptual determinants of social categorization and how they can inform our understanding of downstream evaluation and behavior. We focus on three emerging topics in social categorization research, namely, how perceivers (a) handle intersectionality and the complexity of multiply categorizable targets; (b) categorize along a seemingly infinite set of perceptually ambiguous dimensions (e.g., sexual orientation or religious group membership); and (c) navigate instances where traditionally studied categories are blurred, as in the perception of multiracial and transgender individuals. We then close with a discussion that looks to the future of social categorization research.

A Brief History

Classic approaches to social categorization focused on internal representations of social categories and how they drive subsequent cognitive, affective, motivational, and behavioral processes (Brewer, 1988; Fiske & Neuberg, 1990; Macrae & Bodenhausen, 2000), without regard for these processes' visual determinants. For example, according to influential models of impression formation, Fiske and Neuberg's (1990) continuum model and Brewer's (1988) dual-process model, from some array of available cues arises a dominant categorization (e.g., Black), which then exerts a host of influences on impressions, memory, and behavior. It automatically activates related stereotypes (Devine, 1989), albeit conditionally (D. T. Gilbert & Hixon, 1991; Macrae & Bodenhausen, 2000), which then bias impressions in ways that are often stereotypically consistent.

This category-based responding, however, may be tempered by a number of factors, such as attention or motivation. With the help of such intervening factors, these models posit that perceivers may move beyond categories and begin to rely more on individuating information, such as specific behaviors. In general, these models argue that perceivers by default resort to category-based responding, presumably because it maximizes cognitive efficiency and streamlines the demands of social interaction. However, motivation, such as the desire to be accurate, can move perceivers from category-based to more individuated impressions, involving a piecemeal integration of unique aspects of a target's behavior (Fiske & Neuberg, 1990). Inconsistencies between stereotypes and a target's behavior, or bad category fit, can also lead to more individuated impressions (Brewer, 1988). Moreover, attentional resources may limit perceivers' ability to move toward more individuated responding. As such, these person perception models aim to parse out the relative contributions of stereotypical and individuated information in forming impressions of others.

Although sharing a similar aim, Kunda and Thagard's (1996) parallel constraint satisfaction model took a different approach, arguing that stereotypical and individuated information are given equal priority in person perception and that both kinds of information are simultaneously integrated into a coherent impression through constraint satisfaction. This stands in contrast to Fiske and Neuberg's (1990) and Brewer's (1988) models, in that stereotypical information does not inherently receive more weight than

individuating information. Kunda and Thagard's (1996) model instead assumes there are no fundamental differences in the representation of stereotypical and individuating information; only the strength of the information is consequential. Despite their differences, these prior models of person perception share an emphasis on the tension between categorical and individuated styles of processing. Importantly, all of these models highlight initial categorization as the starting point, after which subsequent impressions, memory, or other social phenomena are predicted and explained. With a given categorization having taken place (e.g., Black), these models endeavor to understand the variety of factors that guide subsequent impressions and contribute to more category-based versus individuated responding. However, although these models had

long ↳ acknowledged that perceivers tend to categorize other people spontaneously along a dominant dimension from brief exposure to another's face, the underlying visual processes remained relatively obscure.

Over the past 15 years, researchers have explored the visual determinants of social categorization and focused on visually based social categorizations, zooming in on perceivers' categorical processing and aiming to understand how particular categories and the stereotypes they trigger become activated in the first place. For instance, an early series of studies demonstrated that perceivers more efficiently extract facial category cues than identity cues, suggesting that this perceptual efficiency provided a foundation for categorical thinking in the downstream person perception process (Cloutier et al., 2005). The consequences of perceiving category cues were emphasized by further studies documenting the ability of such cues to function independent of category membership in both stereotypic attributions (Blair, 2002; Blair et al., 2002) and automatic evaluations (Livingston & Brewer, 2002). Cues relevant to category membership by themselves (e.g., hair) can even result in automatic category activation, and the prototypicality, or within-category variation, of cues related to race or sex has also been demonstrated to sculpt perceptions (Blair, Judd, & Chapleau, 2004; Blair, Judd, & Fallman, 2004; Freeman et al., 2008; Freeman, Pauker, et al., 2010).

To account for such visually based social categorization processes, approaches such as the dynamic interactive (DI) framework sought to open up the initial social categorization process, well before subsequent person processing and impression formation have a chance even to begin. Frameworks such as the DI model have been developed to understand the intimate interplay between social cognition and visual perception that drive initial perceptions of others (Freeman & Ambady, 2011; Freeman et al., 2020). The DI model argues that an initial categorization (e.g., male, Black) is a gradual process of negotiation between the multiple visual features inherent to a person and a variety of social cognitive processes the perceiver brings to the perceptual process (e.g., stereotypes, attitudes, goals). Accordingly, initial categorizations are not discrete "readouts" of facial features; they evolve over hundreds of milliseconds—in competition with other partially active perceptions—and may be dynamically shaped by context and one's stereotypes, attitudes, and goals. A central premise to the DI framework is that social category perception reflects an implicit compromise between "bottom-up" perceptual cues (i.e., those originating in the target of perception) and "top-down" social cognitive processes (i.e., those originating in the minds of a perceiver) and preexisting assumptions that are brought to the perceptual process.

The DI framework's assumptions might seem counterintuitive, because we might expect that our basic perception of a visual stimulus, such as a face, would be immune to top-down factors and instead entail a veridical representation of the perceptual information before our eyes (see Marr, 1982). This was long presumed to be the case (Fodor, 1983; Pylyshyn, 1999). However, most researchers would now agree that human perception is a highly active and constructive process. The visual world is rife with ambiguous, incomplete, and conflicting information—ever more so in perceiving social targets—and it is the job of the perceptual system to construct coherent, meaningful percepts that the cognitive system can use to inform behavior. For instance, large-scale neural oscillations allow visual perception to arise from both bottom-up feed-forward and top-down feedback influences (Engel et al., 2001; C. D. Gilbert & Sigman, 2007). Neuroimaging has played a crucial role in an emerging understanding of how bottom-up and top-down

factors interact in ultimately shaping categorization. Even the earliest of responses in primary visual cortex are sensitive to learning and altered by top-down knowledge (Damaraju et al., 2009; Li et al., 2004). A brain region central to object and face perception, the fusiform gyrus (FG), is sensitive to such knowledge and learning (Tarr ↳ & Gauthier, 2000) and readily modulated by perceptual "priors" and top-down expectation signals from ventral–frontal regions, notably the orbitofrontal cortex (OFC) (Bar, 2004; Bar et al., 2006; Freeman et al., 2015; Summerfield & Egner, 2009). For instance, when participants have an expectation about another person's face, top-down signals from the OFC to the FG are enhanced, suggesting that expectations available in the OFC may play a role in modulating FG visual representations (Summerfield & Egner, 2009; Summerfield et al., 2006).

Of the many neural systems that would be involved in social categorization, recent extensions of the DI framework (Freeman & Johnson, 2016) highlight the interplay of the FG (involved in face perception), OFC (involved in top-down expectation signals), and anterior temporal lobe (involved in the storage and retrieval of semantic associations; Olson et al., 2012) in the integration of bottom-up and top-down information in initial social perception. Indeed, there has been an increasing recognition of such processes and the important role that top-down social cognitive factors, such as stereotypes, attitudes, and goals, play in initial social categorizations (Freeman & Johnson, 2016; Hehman et al., 2019; Huang & Sherman, 2018; Kawakami et al., 2017).

Social Categorization Gets Visual: Bottom-Up and Top-Down Processes

In considering perceivers' initial perceptions of a complex stimulus such as a face, a challenge for the social perceptual system is to bring a complicated and diverse array of facial features into a coherent categorization. No face is the perfect prototype of, for example, the "male" or "female" category or of a particular race category. Instead, it is possible for different visual cues of the face to trigger partial activations of alternate categories. For instance, the jaw of a particular man's face might strongly activate a male category representation, while his long eyelashes might activate a female category representation. Over hundreds of milliseconds, these conflicting representations need to compete to form a coherent categorization of the target as male. Researchers have examined these dynamic competition processes and temporary ambiguities to fundamentally understand how multiple bottom-up facial features are integrated into stable representations of other people's faces.

Indeed, the natural diversity of features present in faces often leads to multiple alternate categories (e.g., both male and female; both White and Black) becoming simultaneously active during initial perceptions (Freeman & Ambady, 2011). Furthermore, these social category coactivations are consequential with tangible downstream impacts, rather than being just artifacts of the perceptual system. Both stereotyping (Freeman & Ambady, 2009; Mason et al., 2006) and social evaluation (Johnson et al., 2015; Livingston & Brewer, 2002) are impacted by partial and parallel coactivations of social categories. Importantly, these ephemeral influences on perception, despite not being observed in explicit responses, can nonetheless impact consequential downstream outcomes. For instance, more prototypical Black faces receive harsher criminal sentences (Blair, Judd, & Chapleau, 2004; Blair, Judd, & Fallman, 2004), including capital punishment (Eberhardt et al., 2006), and this effect is thought to be a result of stronger activation of the Black category. Prototypicality has also been shown to impact electoral results, where American female politicians with fewer "feminine" facial features (i.e., more masculine cues) are less likely to be elected in conservative American states (Carpinella, Hehman, et al., 2015; Hehman et al., 2014). Furthermore, the perceptual biasing effect occurring when individuals categorize the politicians by sex predicts this effect (i.e., coactivation of the "male" category; Hehman et al., 2014). Moreover, a long history of research on overgeneralization effects shows that facial cues related to low fitness, babies, emotion, or identity are overgeneralized to people whose facial appearance resembles the unfit, babies, a particular emotion, or a

particular identity, respectively (Zebrowitz & Montepare, 2008). For ↳ instance, adult faces with high baby-facedness evoke baby-related inferences (e.g., needing to be taken care of).

However, the bottom-up information available to the social perceptual system is not restricted to facial features. Indeed, various other forms of input from a social environment can broadly impact social perception. Certain bottom-up cues of the body or the environment in which a target is encountered can trigger top-down knowledge structures, such as stereotypes, that constrain the perception of a face. Social psychologists have long thought of stereotype activation as a consequence of social categorization (Allport, 1954; Brewer, 1988; Fiske & Neuberg, 1990; Macrae & Bodenhausen, 2000). The idea that stereotype activation could impact the formation of a visual percept in a top-down manner prior to categorization has only been recently assessed (Freeman & Ambady, 2011; Freeman & Johnson, 2016; MacLin & Malpass, 2001).

One set of studies illustrated that race labels influence the perceived lightness of a face. Specifically, perceiver knowledge that a person is Black made their face's skin tone appear darker (Levin & Banaji, 2006). If a target appeared with a stereotypically Black hairstyle, racially ambiguous faces were more likely to be categorized as Black and judged to have Afrocentric facial features (MacLin & Malpass, 2001). Similarly, congruency between a target's race and visual context can impact race perception, such that targets are more likely to be categorized as White or Asian if they appear on stereotypically American and Chinese scene environments (Freeman et al., 2013). Even cues from a target's body (e.g., hair or clothing) can supply top-down predictive ammunition to the processing of faces (de Gelder & Stock, 2011; de Gelder & Vroomen, 2000; de Gelder et al., 2005; Johnson & Shiffrar, 2012). For example, race categorization can be biased by clothing, where visual predictions about an individual's race are impacted by the social status cued by an individual's clothing. One study presented subjects with faces morphed along a Black–White continuum, each paired with low-status attire (e.g., a janitor uniform) or high-status attire (e.g., a business suit). In a mouse-tracking paradigm, subjects categorized faces as White or Black by moving the mouse from the bottom center to either top corner of the screen. A mouse-tracking paradigm can reveal biases resulting from top-down stereotypes even when they do not manifest in an explicit, conscious response via partial attraction in participants' hand movements toward a stereotypically associated response (e.g., gravitating toward the "Black" response for a White face with low-status attire). Indeed, low-status attire biased categorizations toward the Black category, while high-status attire biased categorizations toward the White category. However, congruency between target race and status (as cued by attire) further impacted perceptual processing. Stereotypically incongruent race–status pairings (e.g., a White face with low-status attire or a Black face with high-status attire) resulted in participants' hand movements exhibiting a partial attraction to the opposite, stereotypically associated category response, suggesting that even when an explicit categorization outcome is not biased by top-down stereotypes, the perceptual process may still be biased considerably (Freeman et al., 2011). Such findings demonstrate the rich interactions between bottom-up visual and top-down stereotype processes during social perception.

These examples provide an important illustration of how current models, such as the DI model, envision any distinction between bottom-up and top-down processes. The DI model posits that bottom-up and top-down processes richly interact via ongoing feedback loops of processing until stabilizing on a social judgment (Freeman & Ambady, 2011). As such, it is important to note that there is nothing that distinguishes the inherent nature of bottom-up and top-down information in the model. Rather, it is more appropriate to talk about bottom-up and top-down effects on certain representations or levels of processing in the system, rather than the existence of separate bottom-up and top-down processes. It is
true that, according ↳ to the DI model, the social perceptual system is initially stimulated by external input that is clearly and unambiguously bottom up or top down, with bottom-up input originating from the visual and auditory systems and top-down input originating from a top-down attentional system or motivational system. However, once the system is initially stimulated by these external bottom-up and top-down inputs, bottom-up and top-down processing become inextricably intertwined in the DI framework. For example,

consider the effects of status stereotypes on race categorization just described. The most proximal mechanism underlying these effects was the accumulated top-down pressures from status stereotypes, which exerted an influence on race categories. But such a top-down effect was set into motion only by the bottom-up processing of contextual attire cues, which eventually came to activate status stereotypes, which eventually exerted top-down influence on race categories. Thus, while effects in the system can perhaps be described as primarily bottom up or top down for descriptive purposes, ultimately bottom-up and top-down processes are in such interaction that it is difficult to definitively tease them apart. The top-down influence of status stereotypes only came into being from the bottom-up processing of contextual attire cues. Thus, there is an intimate exchange between the bottom up and top down, between the "sensory" and "social," that yields ultimate percepts.

Besides top-down knowledge in the form of stereotypes, goals and motivations can bias the processing of novel stimuli in a top-down manner. In this light, perception is continuously "incentivized" to operate in a manner that facilitates current processing objectives. For example, transient sexual desire can increase the speed and accuracy of sex categorization (Brinsmead-Stockham et al., 2008). Race perception offers more dramatic effects of motivated social categorization. For example, economic scarcity resulted in White subjects perceiving Black faces as more Black and having an increased tendency to categorize mixed-race faces as Black (Krosch & Amodio, 2014). Perceiver group identity can also provide a powerful, chronic motivational state to perceptually categorize in-group and out-group members in a different fashion (Xiao et al., 2016). As an example, political group identity results in lighter or darker skin tone representations of a biracial candidate if they are of the same or different political group, respectively (Caruso et al., 2009).

The mere existence of a social category representation in the first place can have distorting effects on perception in a categorical and homogenizing manner. For instance, as mentioned earlier, in a well-known study, participants were presented with racially ambiguous faces and asked to label them as either White or Black. Participants then had to match the face's skin tone with several tones varying in luminance. When faces were labeled as White, skin tone was perceived lighter; and when faces were labeled as Black, skin was perceived darker (Levin & Banaji, 2006). Of course, category representations themselves can provide a powerful force of distortion, unduly homogenizing exemplars. This not only forms the basis of overgeneralized stereotyping; such homogenizing impacts can occur in visual perception as well. As work on the categorical perception phenomenon has long shown, identical differences in sensory information are amplified or attenuated based on category boundaries. For instance, we see a rainbow as consisting of bands of distinct colors with sharp category boundaries even though it consists of a fully continuous spectrum of light wavelength (Harnad, 1987).

Research has long shown that these categorical distortions occur in the context of perceiving others' faces as well (Beale & Keil, 1995). For example, Campanella et al. (2001) presented participants with unfamiliar faces morphed monotonically along gender (i.e., from male to female). Consistent with a categorical perception effect, participants' identification function exhibited a discrete category boundary at critical changes along the perceptual continuum where a male face suddenly was perceived to be female (also see Freeman, Rule, et al., 2010). This converged with additional evidence from a discrimination task. Moreover, p. 204 these ↳ categorical perception effects were not obtained for inverted faces, which disrupt configural face processing and the extraction of a face's gender (Campanella et al., 2001; Valentine, 1988). By showing categorical perception effects for upright faces and not inverted faces, the researchers showed that their evidence for categorical perception was indeed a result of gender processing rather than some task constraint or stimulus-related confound. Several studies have also provided evidence for categorical perception effects in recognizing face emotions, showing that perceivers identify emotional expressions in discrete fashion although the perceptual signal may be continuous (Calder et al., 1996; Etcoff & Magee, 1992). In sum, this work demonstrates how the social categories held by a perceiver can exert top-down pressure on the perception of sensory information to conform to those categories. Other research has shown

that these perceptual distortions may set the stage for downstream biases in memory of faces as well (Corneille et al., 2004).

In sum, research assessing the interplay between top-down and bottom-up processes has been fruitful for understanding how perceivers reach initial social categorizations that drive consequential downstream processes such as stereotyping, prejudice, and intergroup relations. In understanding initial social categorizations, one must appreciate the individual and interactive contributions of the visual features of a face, the visual context surrounding a face, top-down knowledge (i.e., stereotypes) held by a perceiver, and a perceiver's identity, goals, and motivations in collectively driving the categorization process. Current models such as the DI model view bottom-up sensory and top-down social cognitive processes as taking part in an intimate exchange across the hundreds of milliseconds it takes to achieve a stable categorization. The findings emphasize how initial social categorizations represent the product of a dynamic, interactive process that attempts to integrate myriad sources of social information together.

Intersecting Identities and Multiply Categorizable Social Targets

In most social categorization research, a single category of interest has tended to be isolated (e.g., race) and its influences on subsequent behavior measured, while all other categories are controlled (e.g., sex, age, and emotion). While this affords precision and control, in reality social targets are always categorizable along any number of possible dimensions. Of the many potential categories, then, which get the privilege of perceivers' processing? A classic answer to this question has been that one category (e.g., race) comes to dominate perception, while all others (e.g., sex and age) are inhibited from the processing landscape (Macrae et al., 1995; Sinclair & Kunda, 1999). Presumably, this category selection process makes the perceiver's job easier (e.g., Bodenhausen and Macrae, 1998), keeping with the long-standing notion that social categorization is for maximizing cognitive efficiency (Allport, 1954).

For instance, in their stereotype activation and inhibition model, Bodenhausen and Macrae (1998) argued that multiple potential social categories are active early on in response to another person, which then race to reach an attentional threshold. The winner of the race is ultimately selected and attended to, while the losers of the race are actively inhibited from the processing landscape. They argued that this affords efficient construals of other people, claiming that the numerous other social categories a target inhabits must be suppressed from reaching attention for the sake of cognitive efficiency. The classic evidence used to support this account was a study that presented participants with an Asian woman who was either applying makeup (priming the female category) or eating food with chopsticks (priming the Asian category). A lexical decision task was used to index female-related and Asian-related category activation following the priming manipulation. Not only did viewing the Asian woman applying makeup facilitate activation of the female category, but also it inhibited activation of the ↳ Asian category; viewing the Asian woman eating with chopsticks facilitated activation of the Asian category and inhibited activation of the female category (Macrae et al., 1995).

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Additional evidence classically came from studies that demonstrated that such suppression of a social category representation can arise from motivational processes. After participants were given positive or negative feedback from either a White or a Black doctor, they engaged in a lexical decision task that measured the automatic activation of both the Black category and the doctor category (Sinclair & Kunda, 1999). When provided positive feedback from a Black doctor, participants showed evidence of activating the doctor category while inhibiting the Black category. When provided negative feedback from a Black doctor, however, the opposite pattern was observed: Participants showed evidence of activating the Black category while inhibiting the doctor category. This was taken as evidence that motivational processes, such as motives related to self-protection, help adjudicate in the category selection process, bringing positively

versus negatively associated social categories to the fore—or actively suppressing them—when motivationally important to do so.

Although such now-classic studies and this perspective has been valuable, its upshot has been a tendency to view each category membership as isolated and independent (with one dominating and all others cast aside) and to neglect targets' multiple simultaneous memberships and how they may, in some cases, interact. Social categorization research has seen a proliferation of studies exploring the intersectionality of social identities in driving perceptions of others. Such multiple social categorization is one of the most fascinating and distinctive aspects of person perception. For instance, whereas the perception of an object generally affords only one focal type of construal (e.g., "that's a chair"), multiple construals are simultaneously available when perceiving other people and each is highly relevant. A single face stimulus, for example, permits a rich array of judgments, including basic categories (e.g., sex, race, age, and emotion), perceptually ambiguous categories (e.g., sexual orientation), personality traits (e.g., warmth and competence), and intentions (e.g., deception), among many others. Thus, although construing others is uniquely characterized by an enormous number of simultaneously available perceptions, the social psychological literature had often overlooked their compound nature and how they might interact.

More recently, social categorization research has demonstrated that many social categories do, in fact, interact. Intersections of race and sex have received considerable attention. Specifically, when examining the stereotype contents related to various race and sex categories, it becomes clear that certain pairings share stereotypical associations (e.g., the categories "Asian" and "female" share associations of docility and submissiveness, while the categories "Black" and "male" share associations of hostility and physical ability); accordingly, perceptions of race and sex have been found to be biased in a directional fashion (Carpinella et al., 2015; Johnson et al., 2012). These perceptual effects have been demonstrated using a variety of paradigms and have been related to individual differences in the strength of overlapping stereotype associations between Black and male stereotypes (e.g., aggressive, hostile) and Asian and female stereotypes (e.g., docile, communal) (Johnson et al., 2012). Recently such social conceptual biasing of perceiving gender and race was shown to be reflected in neural representational patterns of visual face-processing regions while viewing faces, showing that it is even reflected in early face processing (Stolier & Freeman, 2016). Current models suggest that these effects naturally arise out of the recurrent interactions between bottom-up facial feature processing and top-down stereotype activation (Freeman & Ambady, 2011). As facial cues (e.g., larger jaw) activate categories (e.g., male) that in turn activate stereotypes (e.g., aggressive) during perception, all conceptually related attributes (i.e., stereotypes) begin feeding back

p. 206 excitatory and inhibitory pressures to category representations (e.g., male and female) and ↳ lower level cue representations (e.g., larger jaw and round face). Following such perceptual biases, research has shown that targets who do not meet the expected stereotype-congruent combination of social categories (e.g., Asian men and Black women), as a consequence, can be subjected to harsh evaluations that negatively impact their experiences in dating, athletics, and leadership selection (Galinsky et al., 2013).

Other examples include how gender stereotypes lead to interactions between sex and emotion. For example, men's faces are more readily perceived as angry and women's faces are more readily perceived as happy (Hess et al., 2000, 2004). Data-driven tasks have provided much value in understanding the impact of stereotypes in tying sex and emotion categories together (Brooks & Freeman, 2018). Some studies have used reverse correlation to derive perceivers' visual prototypes of the categories male, female, angry, and happy. Reverse correlation allows for an estimation of the facial features individuals associate with a given face category (Dotsch et al., 2008; Todorov et al., 2011). In these paradigms, a single base face image is overlaid with different random noise patterns, yielding many targets that vary randomly and subtly on facial features. On each trial, perceivers are typically presented with two targets and asked to select the target most resembling the category of interest. Participant selections are then averaged per category into a visual prototype, with the underlying assumption being that the visual cues responsible for categorization will

emerge, in aggregate, out of the random variations in facial features. In the case of gender stereotypes, of interest were the categories male, female, angry, and happy. Once reverse-correlated visual prototypes of the four categories were generated for each participant, independent raters evaluated each prototype on gender-based and emotion-based appearance, finding that the reverse-correlated prototypes demonstrated a stereotype-consistent bias: Female prototypes were biased toward happy (and vice versa) and male prototypes were biased toward angry (and vice versa). Further, this bias in appearance was related to the strength of perceivers' stereotypes linking men to anger and women to joy (Brooks et al., 2018).

Besides these top-down pressures, bottom-up pressures such as overlapping cues can also throw ostensibly unrelated social categories into interaction with one another. Thus, some perceptual attunements and biases related to social category intersectionality may be driven by the incoming sensory information itself. For example, there is some evidence that the facial features related to masculinity overlap with those related to anger, and the features related to femininity overlap with those related to joy (Becker et al., 2007). This bottom-up perceptual overlap can lead angry male and happy female faces to be categorized by sex or emotion more quickly or lead to biases in perceptual judgments, not because of any stereotypes in perceivers' minds but directly because of these categories' confoundment in the bottom-up perceptual information itself (Becker et al., 2007; Freeman & Ambady, 2011; Johnson et al., 2012).

Research has also explored the ways in which multiple social identities drive higher order perceptions and evaluations. As with the mutual shaping of initial categorizations, intersecting social identities may drive these perceptions and evaluations in ways that are not merely additive. An interesting case involves White and Black men who vary in sexual orientation. Black men tend to be stereotypically associated with being aggressive and hostile, and additional social identities, such as sexual orientation, may amplify or attenuate such stereotype activation by being associated with consistent or inconsistent stereotypes, respectively. Stereotypes about gay men are focused on warmth and a lack of aggression and hostility (Clausell & Fiske, 2005). Accordingly, gay Black men are evaluated more favorably than straight Black men (or White gay men) despite Black and gay identities in isolation often being stigmatized (Remedios et al., 2011). Black gay men are also evaluated to be more fit for leadership roles (Wilson et al., 2017). Not only does it appear that gay male stereotypes of warmth negate the ↳ detrimental effects of Black male stereotypes of hostility, but also the incongruence appears to confer unique evaluative advantages because Black gay men are evaluated more favorably than White gay men (Remedios et al., 2011; Wilson et al., 2017). Gay Black men may also become "deracialized" or viewed as "less Black" relative to straight Black men as a result of these incongruent stereotype contents (Petsko & Bodenhausen, 2019). A similar phenomenon may occur when Black women violate gender stereotypes. For instance, when White women demonstrate assertive behavior in the workplace (which counters female stereotypes), they often face backlash. However, when Black women commit the same counterstereotypical behaviors, that backlash ceases to exist (Livingston et al., 2012). Thus, multiple social categories interact in complex ways based on their particular stereotype contents and the compatibility or incompatibility of those stereotype contexts to drive evaluation and behavior.

Race and emotion have long been known to interact in initial perceptions, with perceptions of Black male faces biased toward anger and perceptions of angry male faces biased toward Black, an effect related to the strength of perceivers' stereotypes (Hugenberg & Bodenhausen, 2003, 2004). More recent work has found that this phenomenon further interacts with targets' age. When Black men are old-aged, perceivers' categorization of angry expressions becomes less efficient while their categorization of happy expressions becomes more efficient (Kang & Chasteen, 2009; Kang et al., 2014). However, in other contexts, such as racial bias in the weapons identification task, old-aged Black men trigger equivalent amounts of stereotype activation as young-aged Black men (Lundberg et al., 2018). This equivalency has also been observed even when faces of Black male children are presented (Todd, Simpson, et al., 2016; Todd, Thiem, & Neel, 2016).

Thus, there are boundary conditions to when intersections play a role and when they do not in shaping perception, evaluation, and behavior.

In short, although classical accounts of social categorization considered category memberships in isolation and independently, recent work has highlighted how social categories effectively exist connected in a shared space, contributing to perceptions in a joint manner. Social targets hold multiple category memberships simultaneously and these memberships often interact during social perception. Specifically, overlap in top-down stereotypes and bottom-up visual features between two social categories can bias perceptions, and co-occurring category memberships (e.g., gay Black men) can impact evaluation and behavior in unexpected ways. That said, context and boundary conditions play an important role in the extent to which these interact or not.

Perceptually Ambiguous Social Groups

Although traditionally social categorization has been studied in the context of the Big Three of sex, race, and age, considerable research has shown that perceivers readily categorize along more perceptually ambiguous category dimensions as well, such as sexual orientation, religious group membership, and political affiliation, among others. As with more obvious categorizations, these more ambiguous categorizations can set the stage for subsequent evaluation and behavior. For example, categorizing a target as gay, a stigmatized identity, generally may increase prejudice and discrimination and affect a target's safety or well-being.

One meta-analysis suggests that perceivers' accuracy in categorizing perceptually ambiguous social categories is 65%, significantly greater than a chance level of 50%, but far more modest than the near-perfect accuracy observed in perceiving more obvious social categories (Tskhay & Rule, 2013). A natural question is how perceivers might correctly extract this information, albeit at the modest levels observed. Studies have shown that above-chance accuracy in categorizing sexual orientation can be maintained even when presented with isolated facial features (Rule et al., 2008) or presented with faces at brief exposures (Rule & Ambady, 2008), ↳ suggesting multiple facial cues quickly provide reliable information about these identities with little effort. However, categorizations of ambiguous social categories differ considerably from those of more obvious categories in that perceivers generally have little awareness or belief that they can accurately judge this information (Rule et al., 2008). Specifically, perceivers' estimation of their own accuracy—their postdictive accuracy—is exceedingly low for perceptually ambiguous social categories (Rule et al., 2008), although perceivers' beliefs about their perceptual accuracy are somewhat calibrated to the diagnosticity of relevant cues (Lick & Johnson, 2014). It is also the case that encouraging greater deliberation as opposed to intuition leads judgmental accuracy to drop to chance levels (Rule et al., 2009). In-group advantage effects in memory have also been observed based on sexual orientation, whereby gay and straight individuals show enhanced memory for gay and straight targets, respectively (Rule et al., 2007).

Considerable research has shown that accurate categorizations of sexual orientation are afforded not only from facial features but also from bodily or vocal cues and that these categorizations are related to stereotypes of gender atypicality. Perceivers stereotypically assume that gays and lesbians possess gender-atypical characteristics, and they use these assumptions to infer who is gay or lesbian versus who is straight. Such assumptions can produce modest levels of accuracy in the aggregate because there is a "kernel of truth": Faces, bodies, and voices of gays and lesbians, as a whole, do tend to exhibit more gender atypicality than those of straight men and women, although, of course, there is considerable variability as well (Freeman, Johnson, et al., 2010; Johnson et al., 2007; Rieger et al., 2008, 2009).

Perceivers' ability to decipher perceptually ambiguous category information is not limited to sexual orientation. Religious group membership, most notably the distinction between Mormons and non-Mormons, has also been thoroughly investigated. Better-than-chance accuracy is observed when naive observers judge faces as either Mormon or non-Mormon, and this is true regardless of whether the perceiver comes from a Mormon or a non-Mormon background (Rule et al., 2010b). Further work implicated such accuracy in categorization to skin-related health cues (Rule et al., 2010a). Specifically, targets with healthier skin were more likely to be categorized as Mormon, presumably because of stereotypes of Mormons as healthy. Interestingly, evidence suggests Mormons are in the aggregate healthier than non-Mormons (Enstrom & Breslow, 2008), and thus there may be a kernel of truth to health-related stereotypes about Mormons that allow for probabilistically accurate categorizations of such religious group membership.

Perceivers also appear able to judge any number of other characteristics from facial appearance alone, such as political affiliation (Rule & Ambady, 2010), mental health status (Kleiman & Rule, 2013), or social class (Bjornsdottir & Rule, 2017). As with sexual orientation and religious group membership, accurate categorization of these characteristics is driven by stereotypical associations, which, because of a kernel of truth, permit better-than-chance accuracy. For example, perceivers categorize a warm facial appearance as likely belonging to a Democrat and a powerful facial appearance as likely belonging to a Republican because of stereotypes about members of these different political groups, and indeed Democrats and Republicans do tend to exhibit such differential facial appearance in the aggregate (Rule & Ambady, 2010). In the context of categorizing social class, perceivers tend to use stereotypes of the rich as happy and attractive, which it turns out has a valid basis in terms of facial appearance in photographs that vary with social class (Bjornsdottir & Rule, 2017).

Much of this research has generally assumed that perceivers hold visual templates of these ambiguous group memberships directly (e.g., "gay face" or "Mormon face"), which are acquired from experience. That is, perceivers would detect regularities in the facial appearance of members of these various groups and then apply such reality-based associations to form ↳ categorizations of new individuals. But there are some potential problems with this account. First, it seems unreasonable that perceivers who lack any direct experience of the groups—yet who have strong stereotype knowledge about them—would not be able to form categorizations by way of stereotypes. Even for perceivers with direct experience, an alternative and more flexible account would posit not that perceivers hold visual templates of the groups directly, but that they hold visual templates of lower level trait information and then use a semantic web of stereotypes to arrive at any potential categorization. In other words, rather than certain facial features (e.g., eyelid openness) becoming associated with ambiguous group memberships directly (e.g., a "college-educated face"), features (e.g., eyelid openness) are associated with any number of lower level traits (e.g., intelligent), and then perceivers can extrapolate about any ambiguous group membership via how those traits stereotypically relate to the group in question (e.g., intelligent → college educated).

Recent work has provided evidence for this perspective and for the comprehensive role of such indirect trait associations in driving categorizations of ambiguous social groups (Meshar et al., 2022). In a series of studies, the researchers found that the extent to which perceivers conceptually associate any given ambiguous group membership and trait (e.g., believing alcoholics are neurotic) predicts a greater tendency to infer that group membership when facial features convey that trait (e.g., neurotic-associated features). They further found evidence of substantial interindividual variability in such facial stereotype associations as well as their causal role in shaping judgments of perceptually ambiguous groups from facial appearance. One implication of this perspective is that perceivers could extrapolate an infinite number of seemingly impossible categorizations from a person's facial appearance using semantic associations alone. Even the most abstract characteristics that lack any physical basis could be consistently judged from facial appearance, because a few cues would ignite a spreading activation of semantic relations. From this

perspective, perceivers can form any ambiguous social categorization from facial appearance—no matter how abstract—merely with the help of stereotype knowledge and activation dynamics of features → traits → groups. This is consistent with evidence for a more domain-general role of conceptual knowledge in social perception (Freeman et al., 2020), such as perceiving emotions (Brooks & Freeman, 2018), traits (Stolier et al., 2018), and impressions of familiar others (Stolier et al., 2020).

Although far from the levels of accuracy demonstrated for the more traditional studies of perceptually obvious social categories, perceivers demonstrate a surprising, above-chance-level accuracy for perceptually ambiguous social groups and use this ability to inform evaluations. This accuracy can be linked to the notion of a kernel of truth, where some trend exists in aggregate for facial features and a social group (e.g., perceivers stereotypically assume that gays and lesbians possess gender-atypical features, and in aggregate they do, despite considerable variability). Yet evidence suggests perceivers need not have direct experience with such groups and that a seemingly limitless number of characteristics can be perceived from a face because perceivers may have trait stereotypes about these groups and use trait-related facial appearance to drive their inferences.

At the Boundaries of Traditional Social Categories: Multiracial and Transgender Identities

As discussed earlier, for decades social categorization research focused on the Big Three—gender, race, and age—and traditionally considered these categories in a relatively discrete, fixed, or binary manner. An increasing body of research has examined the perception of individuals at the boundaries of social categories and the blurring of traditional categorical distinctions, as with multiracial and transgender

p. 210   identities. Indeed, the number of people who fall ↳ outside such traditional identity boundaries is growing in the U.S. population. Multiracial people are currently the fastest-growing demographic group in the United States, with current estimates indicating 20% of Americans will be multiracial by 2050 (Humes et al., 2011). In recent years, transgender individuals have also been increasing in visibility, more transgender individuals are coming out at younger ages, and the U.S. population is generally becoming more familiar with the existence of transgender individuals (Halloran, 2015). Expanding social categorization research to understand the perception of multiracial and transgender targets not only provides critical information about these rapidly growing groups, but also can illuminate basic mechanisms underlying categorizations of others.

Considerable research indicates that, generally speaking, perceivers exhibit a tendency to categorize others using monoracial categories. From the perspective of target experiences, this presents problems because many multiracial individuals prefer to identify and be identified as multiracial, and the identity denial of multiracial identity can have detrimental consequences for targets (Townsend et al., 2009; Udry et al., 2003). For instance, when provided with a multiracial response option, monoracial perceivers tend to regularly apply monoracial categories when categorizing multiracial targets (Chen & Hamilton, 2012; Roberts & Gelman, 2015). Such monoracial categorization tendencies are also biased in a directional fashion because of hypodescent processes. Hypodescent refers to the tendency to assign mixed-race targets to more stigmatized or lower status distinctions (Ho et al., 2011). Historically, hypodescent can be traced to the "one-drop rule" in the United States, which stated that individuals with any degree of Black ancestry were to be classified as Black. Hypodescent categorization patterns (e.g., a bias to categorize mixed-race targets as Black, as opposed to White) are observed generally (Halberstadt et al., 2011; Ho et al., 2011; Peery & Bodenhausen, 2008) and have been linked with numerous individual differences, including race essentialism, social dominance orientation, and political affiliation (Ho et al., 2013, 2015; Krosch et al., 2013).

Despite these monoracial categorization tendencies, when multiracial labels are made available, perceivers can and do use them to categorize others. When judging racially ambiguous faces morphed between members of different racial groups, for example, perceivers categorized targets as multiracial more often than as Black or White (Chen et al., 2014). Because mixed-race communities only recently became widely visible in the United States, multiracial categorizations differ from monoracial categorizations in notable ways related to exposure levels, learning, and experience of perceivers with multiracial identities. For most perceivers, monoracial categories were likely learned earlier in life and used more often than multiracial categories, making them more readily accessible. Consistent with this perspective, multiracial judgments have been shown to be inefficient and take longer to dispel (Chen & Hamilton, 2012) as well as require more cognitive resources to complete (Peery & Bodenhausen, 2008) than monoracial judgments.

While current models of social categorization such as the DI model have accounted for the dynamics underlying a variety of sex, race, age, and emotion categorizations (Freeman & Johnson, 2016), including monoracial categorizations of racially ambiguous targets (Freeman, Pauker, et al., 2010), they have not adequately accounted for the dynamics through which perceivers furnish actual multiracial categorizations and resolve racial ambiguity outside the constraint of monoracial category options. According to the DI model, social categorizations result from a dynamic competition process between multiple partially active categories that stabilize over time. These competitive dynamics are particularly pronounced in cases of

p. 211 ambiguity, because an ambiguous mixture of facial cues will trigger ↳ stronger partial parallel activation of social categories that must compete over time. Recent theoretical and empirical work has begun to extend the DI model to understand the dynamics of multiracial categorization.

For instance, recent studies have theorized that multiracial categories have their own distinct cognitive representations that, like other monoracial categories in the DI model, dynamically compete with those other monoracial categories over time. As with other category representations in the DI model, such representations would be more or less easily activated depending on a number of factors, including their cognitive accessibility. It has long been known that object categories encountered less frequently are recognized more slowly than more frequently encountered categories (Oldfield & Wingfield, 1965) and that social categories representing "cultural defaults" are more quickly categorized than nondefault categories (Zarate & Smith, 1990; Stroessner, 1996). Thus, from this perspective, when processing a racially ambiguous face, a relatively greater exposure to monoracial over multiracial categories would result in more readily and rapidly activated monoracial categories, with multiracial category activation lagging behind. This agrees with research finding that multiracial categorizations tend to have delayed reaction times (Chen & Hamilton, 2012) and require more cognitive resources (Peery & Bodenhausen, 2008) relative to monoracial categorizations.

In a series of studies, participants took part in a three-choice mouse-tracking paradigm and were asked to categorize racially ambiguous faces; on each trial, they were provided with two monoracial response options (e.g., "White" and "Black"; "White" and "Asian") in addition to a "multiracial" response option. In a separate task, they were presented with the same faces and asked to make forced-choice monoracial categorizations (Chwe, Lick & Freeman, 2023). Even when participants ultimately categorized a face as "multiracial," their hand movements revealed an initial, more reflexive attraction to the monoracial category response (whichever monoracial category response they used in the forced two-choice task for a given face). Moreover, whether measured or manipulated, exposure to multiracial targets reduced this reflexive monoracial category activation. These findings suggest that the reason multiracial categorizations are often inefficient (Chen & Hamilton, 2012) is because they compete with more accessible monoracial category representations. However, as multiracial exposure increases, the accessibility advantage of monoracial categories decreases. Other studies have explored how even minimal exposure to multiracial individuals can reduce the perceived magnitude of differences between racial groups (Chen & Ratliff, 2015; Ho et al., 2015; Pauker et al., 2018). Essentialism of a social category involves beliefs that members of the

category have a shared essence and are fundamentally similar (Gelman, 2003), and exposure to multiracial individuals has been shown to decrease essentialist beliefs about race, creating a more flexible and fluid understanding of race (Pauker et al., 2018).

Exposure to members of monoracial groups can affect how multiracial or racially ambiguous targets are perceived as well. In one study, Asian perceivers born and raised in China and White perceivers born and raised in the United States were asked to categorize faces morphed in increments between prototypical Asian and White faces. American perceivers were more likely to categorize ambiguous faces as Asian as compared to Chinese perceivers, and this difference was linked to differences in exposure to Asian faces between the two groups of participants (Halberstadt et al., 2011). Researchers have also explored how White perceivers' exposure to Black individuals shapes the dynamics through which race categories activate and resolve during perception and how these dynamics drive evaluative biases against multiracial ↵

individuals. In a series of studies, White perceivers with lower exposure to Black individuals exhibited more abrupt, unstable race category dynamics in response to multiracial targets, and this instability predicted a negative evaluative bias against them, consistent with an extensive literature on perceptual fluency effects. Simulations with the DI model suggested that these effects may arise because of less conceptually differentiated White and Black categories (i.e., stronger and more distinguished racial stereotypes) that perceivers with lower interracial exposure tend to have (Freeman et al., 2016). The perceptual effects from one's local environment have been similarly demonstrated in multiracial categorizations, where perceivers living in California, a White-majority state, are less likely to make multiracial categorizations of mixed-race faces than perceivers living in Hawaii, a state with a large multiracial population (Pauker et al., 2018).

As can be seen, the boundaries of social categorization have been receiving increasing attention in recent years in the context of perceiving multiracial targets. Although still in its infancy, social categorization research has also begun to explore the perception of transgender individuals, who have been increasing in visibility and becoming more familiar to the general U.S. population (Halloran, 2015). Researchers have examined how gender essentialism influences perceptions of transgender individuals. Essentialist beliefs about gender are generally very strong and influence gender-based stereotyping (Haslam et al., 2000), predicting sexist evaluations and behavior and acceptance of gender disparities (Smiler & Gelman, 2008). Stronger essentialist beliefs about gender also predict more negative evaluative biases against transgender individuals (Roberts et al., 2017; Wilton et al., 2019), suggesting that targets who violate essentialized notions of gender receive harsh evaluations. Research has clearly demonstrated that such evaluative biases against transgender individuals remain strong and highly prevalent (Winter et al., 2009). However, mechanisms of basic categorization and stereotyping patterns in the context of transgender individuals have remained less clear.

Transgender targets may include those who identify as transgender men and transgender women, as well as those who identify as nonbinary, agender, or genderqueer. There are several ways in which perceivers' categorization patterns of transgender men and transgender women (i.e., individuals who identify as men and women, respectively) could be harmful. First, categorizing and stereotyping transgender men and transgender women in line with their assigned sex at birth rather than their current gender identity would constitute a form of identity denial, which has negative consequences for psychological well-being (Nadal et al., 2012). Indeed, evidence suggests that identity denial is a common component to anti-trans prejudice (e.g., "trans women are not true women") (Nadal, 2013). Second, perceivers might "degender" transgender men and transgender women altogether and lump them into a nongendered category. Recent work has found evidence for both types of patterns.

Howansky et al. (2020) presented participants with an artificial dating profile containing a photograph of a transgender individual, with half of the participants viewing a profile suggesting that the target identifies as transgender. The other half of the participants read a profile with neutral information. After viewing the profile, participants were asked to create a digital avatar of the person in the profile as accurately as

possible. When assessed by an independent group of raters, avatars constructed from the transgender condition visually approximated targets' assigned sex at birth more so than those from the neutral condition. The researchers additionally used a visual matching paradigm to assess perceivers' perceptual experiences more directly without relying on independent raters. After being presented with targets who self-identified as either transgender or cisgender, perceivers were tasked with selecting the target from a series of facial morphs varying from more feminine to masculine. Consistent with the previous results,

perceivers tended to match transgender targets with morphs more similar to ↳ the target's assigned sex at birth, relative to when matching nontransgender targets. Further, these impacts on visual representations had implications for how comfortable participants felt with transgender targets identifying themselves with their current gender identity. Thus, even when bottom-up visual information and knowledge about targets' current gender identity were clear, participants were biased by targets' assigned sex at birth in visually representing transgender targets. This is consistent with related work finding that perceivers' memories of transgender targets' faces are distorted toward their assigned sex at birth as well (Wittlin et al., 2018). These findings suggest that harmful identity denial processes can occur for transgender targets even at a relatively implicit, visual level and that perceivers tend to perceive and remember transgender targets closer to their assigned sex at birth than to their current gender identity.

In another series of studies, researchers examined the patterns of stereotyping and stereotype contents related to transgender men and transgender women (Gallagher & Bodenhausen, 2021). Overall, cisgender perceivers stereotyped men and women differently depending on whether they were cisgender or transgender. Whereas cisgender men and women were clearly distinguished on gender-related stereotypes, cognitive representations of transgender men and women were indistinguishable and had stereotypes more similar to one another than to either cisgender men or cisgender women, suggesting that transgender men and women are effectively lumped together, although cisgender men and women are clearly distinguished from one another. Transgender men and women were also uniquely stereotyped as unusual and deviant. These findings suggest that cisgender perceivers degendered transgender men and women. Interestingly, consensus across cisgender perceivers was considerably lower for transgender stereotypes than for cisgender stereotypes, suggesting important variability across these perceivers. Some of this was explained by gender-essentializing beliefs, which exacerbated these stereotyping patterns. Some evidence exists linking such negative evaluation patterns to the ease of gender categorization for transgender targets. For instance, in one set of studies, perceivers gave more negative evaluations to androgynous transgender targets because of difficulties in categorizing their gender identity (Stern & Rule, 2018). Such findings are consistent with a broad body of working assessing the relationship between perceptual fluency and prejudice across multiple social dimensions (Lick & Johnson, 2015).

Collectively, research has begun to investigate how perceivers handle social groups that blur traditional categorical distinctions and the consequences of shifting demographics and social norms around race and gender. Despite tendencies to categorize individuals in a monoracial manner, which at times can represent a form of identity denial, perceivers readily categorize targets as multiracial given the opportunity to do so despite exposure and learning advantages held by monoracial categories. However, these are complex dynamics at play even when participants make multiracial categorization, including reflexive monoracial activation, which has evaluative implications. As research continues to further our understanding of multiracial categorization, nascent work has begun to understand the perception of transgender individuals. Such work finds that transgender individuals are often perceived closer to their assigned sex at birth rather than their current gender identity, representing a kind of identity denial, and transgender men and transgender women are often degendered and lumped together stereotypically rather than viewed in line with their current gender identity.

Future Directions

In this chapter, we have considered intersecting identities and multiply categorizable social targets, perceptually ambiguous social groups, and identities at the boundaries of traditional social categories. Future work can further advance our understanding of these topics in several ways. Historically, social categorization models have contrasted individuated and categorical ↳ processing. However, the DI model does not account for individuation and thus assumes that all targets are unfamiliar. Certainly, categorizations of familiar individuals are informed by knowledge of what category memberships they already hold, and understanding other social cognitive biases has benefited greatly by considering perceiver familiarity with a target (e.g., Hugenberg et al., 2010). Future work should bring individuation to bear into the DI framework (also see Oh et al., 2022). Just as the perception of a given category occurs in the context of other categories activated partially or in parallel during the perceptual process, existing person knowledge likely exists as a strong backdrop on which categorizations of familiar targets are made and updated.

The perception of intersectional identities holds great potential in further understanding social categorization. Currently, most research has focused on the interplay of two intersecting social category dimensions (e.g., race and gender). Yet, a fully intersectional approach has no theoretical limit on the number of category dimensions to be considered. Future research should seek to further investigate higher order intersections, such as the interplay between three or more dimensions. Investigating these higher order intersections will likely introduce analytical challenges as well as additional theoretical considerations. For example, as much as we know in the case of two category dimensions that, for example, race impacts the perception of gender and vice versa, the relationship between race and gender is likely dependent on additional intersecting category dimensions. As the intersections increase, from a computational standpoint it is difficult to imagine that our social cognitive system maintains unique and independent category representations tied to each specific intersection (e.g., for an old, gay, Black, Catholic man). For instance, having such specific intersectional representations would create computational limits and excessive rigidity if representations of old, gay, Black, Catholic man and representations of old, gay, Black, Catholic, libertarian man were truly unique and independent. The field stands to benefit from a comprehensive account of the underlying representations involved in intersectional social category perception.

Moreover, in the future, a more complete and accurate understanding of the perception of perceptually ambiguous social categories could be gained by theoretically and empirically linking the historical focus on accuracy with a growing focus on stereotypes. As discussed earlier, perceivers' ability to judge ambiguous social groups at modest levels of accuracy can be linked to kernels of truth in these groups' stereotypes at the facial appearance in aggregate levels. For instance, greater-than-chance accuracy in judging sexual orientation is achieved because gay men and lesbians' faces, as a whole, appear more gender atypical than the faces of their straight counterparts; accurately judging who is Mormon compared to non-Mormon is possible because Mormons' faces have healthier skin; and accurately judging political orientation is permitted by Democrat and Republican faces appearing more warm or more powerful, respectively. Theoretically, researchers have long considered that such judgmental accuracy reflects true physical differences in group members' faces and perceivers' ability to statistically learn those differences via direct exposure to group members (e.g., Brambilla et al., 2013; Rule & Sutherland, 2017). The focus on stereotypes has, instead, considered that no direct exposure or statistical learning would be necessary and that perceivers could draw only on their stereotypical associations to make these judgments—even when perceivers have no exposure whatsoever to a group (e.g., Freeman, Pauker, et al., 2010; Johnson et al., 2007; Bin Meshar, et al., 2022). Clearly, however, both learned stereotypical associations and direct exposure to group members are likely to jointly shape how perceivers judge ambiguous social categories, and there are many opportunities for these processes to interact (e.g., how varying levels of exposure to group members

p. 215   may confirm or disconfirm existing stereotypical ↳ associations). Future research could endeavor to conduct more comprehensive investigations into how exposure and stereotypes may shape these judgments, including their impact on accuracy.

Social cognition research only recently began to tackle the perception of multiracial individuals, and research on the perception of transgender individuals is still in its infancy. Like the open questions regarding underlying representations involved in intersectional categorization, there are fundamental architectural issues that researchers should tackle to better understand how we perceive those who blur traditional categorical lines. As one example, future research could investigate whether a single, unitary representation exists that would encompass all multiracial category forms or whether there are dissociable representations for White/Black, White/Asian, and Black/Asian individuals (among any number of possibilities), including the moderating role of exposure to multiracial individuals. It is also likely that dissociable versus convergent representations could manifest at different levels of processing, for which neuroimaging could be quite valuable. A recent view of multiracial research criticized the literature's disproportionate focus on biracial identities with White ancestry (e.g., examining White/Black and White/Asian individuals without examining Black/Asian individuals), and future studies on multiracial identities should expand the set of identities examined (Garay & Remedios, 2021). Because research on transgender targets is only beginning, there are many avenues in need of empirical investigation. Numerous studies have found that more disfluent processing of gender-related cues (i.e., ones that take longer to categorize into a binary category) statistically explain prejudicial responses against gay men and lesbians who appear gender atypical; recent work has extended such findings to prejudicial responses against transgender targets who appear androgynous (Stern & Rule, 2018). Interestingly, this role of disfluent processing is often not observed in the context of race categorization (Lick & Johnson, 2013). As discussed earlier, there is considerable diversity within the transgender category, from those identifying as transgender men and transgender women (i.e., identifying as a binary gender) to those identifying as nonbinary, agender, or genderqueer. To the extent disfluency in visual processing may form a perceptual foundation to prejudicial responses against sexual and gender minorities, future research should more comprehensively examine the role of disfluency across a full gamut of transgender identities, because these different identities likely vary in terms of the gender-related cues being presented.

Conclusion

As the field of social categorization research has increasingly zoomed in on initial perceptual dynamics and how they inform stereotyping, evaluative biases, and behavior, it has become clear that there is considerable complexity to social categorization phenomena. While early accounts focused on debates between social categorization and individuation processes, more recent work has demonstrated that single category representations of isolated interest are rarely the full story.

Targets always inhabit multiple social categories that are processed in interactive and conditional ways. They are rapidly activated and interact in complex ways to determine our everyday social percepts, in turn affecting downstream evaluation and behavior. Any accurate and complete understanding of social categorization requires treating social targets as multiply categorizable. But it is also clear that these categories are not limited to the Big Three of sex, race, and age. We now know that there is a seemingly infinite number of perceptually ambiguous category memberships as well, which can be evaluated from faces even when they lack a clear physical basis. Indeed, from a face alone, perceivers seem to extrapolate about sexual orientation, religion, and political affiliation, among other things, and these ambiguous

p. 216   categorical ↳ inferences appear to rely on a web of trait relations informed by perceivers' stereotypes about these groups. Sometimes, these inferences can lead to modest accurate categorization patterns because, at least in the aggregate, there is a kernel of truth, whereby perceivers' stereotypes align with targets'

features. Finally, the notion of fixed social categories to begin with is challenged by multiracial and transgender identities, and exposure levels and perceivers' essentialist beliefs about race or gender play an important part in how perceivers categorize these targets. Numerous harmful categorization patterns may arise, such as identity denial or deracializing or degendering these individuals, which can have negative implications for such targets. Identities that blur the boundaries of canonical social categories also challenge us to develop a more advanced understanding of how social categorization fundamentally operates and the underlying representations involved. If anything is clear, understanding social categorization in the 21st century will require social psychologists to think more widely than ever before about what we conceive of as a social category.

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