

PERCEIVER EFFECTS

A LIFE HISTORY THEORY OF SOCIAL PERCEPTION: STEREOTYPING AT THE INTERSECTIONS OF AGE, SEX, ECOLOGY (AND RACE)

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The authors present a framework to better account for the social dimensions people use to categorize others and the nuanced stereotypes they hold. Conceiving stereotypes as imperfect but useful tools for managing social threats and opportunities, and incorporating ideas from Life History Theory, the authors propose three dimensions of special significance for social perception—age, sex, and home ecology (characterized as “desperation” versus “hopeful”). People possess stereotypes about others along these dimensions—as intersecting AgeSexEcology stereotypes—because, interactively, these dimensions shape the goals and behavioral strategies of others. The authors hypothesize that AgeSexEcology stereotypes are universal. They further propose that race is an important dimension for categorization in the United States because it provides a cue to ecology, and that AgeSexRace stereotypes in the United States should thus track AgeSexEcology stereotypes. The authors discuss several novel implications of this approach for the literature on social stereotypes and for social perception processes more broadly.

Many are familiar with the salmon’s great breeding migration from the oceans back to their home streams. Less well known is that male salmon return to their homes in one of two forms, a “jack” or a “hooknose” (Gross, 1991). Hooknoses take about 18 months to mature in the ocean, whereas jacks mature in 6 months. As a result of their different developmental trajectories, hooknoses and jacks distinctly differ in appearance: Hooknoses are larger and possess bright red coloration and canine-like teeth. The two also adopt diverse mating strategies. Hooknoses straightforwardly compete with other males for access to females, while jacks tend to adopt a sneak strategy, fertilizing female eggs under the cover of debris.

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Whether a male salmon becomes a hooknose or jack is partially determined by predator pressures in the ocean: The greater the risk of predation, the more beneficial it is for the males to mature and leave the ocean quickly.

One might wonder how a male salmon parses and assigns meaning to its social world. It would need to perceive and categorize other salmon by sex in order to identify potential mates and male competitors. Categories of sexual maturity versus immaturity would also be important to assess the viability of potential mates and the competition posed by other males. And the hooknose–jack distinction would also seem critical: Jacks need to avoid direct confrontation with the larger hooknoses, and hooknoses need to be wary of jacks loitering near their mates.

Humans differ from salmon in many ways, yet, at the same time, we share fundamental challenges—obtaining resources for growth, avoiding dangers, managing social competition, and obtaining mates. The dynamic complexity of the human social ecology poses numerous threats and opportunities, apparent and subtle, and the task of identifying and managing them is an intricate and often daunting one.

We present here the outlines of a life history theory of social perception, a conceptual framework that aims to better articulate the types of social information people use to understand others. Our framework builds, first, on an affordance management approach (Gibson, 1979) as applied to social perception (e.g., Cottrell & Neuberg, 2005; McArthur & Baron, 1983; Neuberg, Kenrick, & Schaller, 2010; Schaller & Neuberg, 2012; Zebrowitz & Montepare, 2006), which characterizes the aim of social perception as being to infer the specific threats and opportunities, or affordances, posed by others. We then incorporate life history theory, a theoretical approach from the biological sciences that provides leverage for deriving both (a) the particular cues likely to provide social perceivers with information for inferring important threats and opportunities, and (b) the particular social stereotypes likely to be associated with those cues. From our perspective, stereotypes reflect the threats and opportunities others are presumed to pose, and because different groups of individuals pose different affordances, people possess quite different stereotypes about these groups. Our approach provides an explanation not only for the question of *why* people so readily employ information about others' age, sex, and race in an attempt to better understand them, but also for why people possess many of the particular, highly nuanced stereotypes they do.

The framework also generates a number of novel implications, and we highlight a few here: (a) Perceived age and sex are not separable categories but rather are configured interactively, as a unit. AgeSex is a fundamental way people think about others. (b) People have stereotypes about individuals from different environments—from “desperation” ecologies, which are harsh and unpredictable, versus “hopeful” ecologies, which are secure and predictable; these exist as AgeSexEcology stereotypes. (c) The specific contents of AgeSexEcology stereotypes are universal—held by people of different racial, gender, and age backgrounds across the United States, and by people in divergent societies throughout the world. (d) Because race serves as a cue to ecology in the United States, Americans' stereotypes about racial groups track their stereotypes about these groups' home ecologies, generating AgeSexRace stereotypes that map onto AgeSexEcology stereotypes. (e) Different ecologies leave different marks on individuals, which social perceivers use as cues to infer an individual's home ecology. (f) Race stereotypes

will be overridden by ecology stereotypes when targets exhibit cues of an ecology not typically associated with their race.

ASSESSING AFFORDANCES AS AN ULTRASOCIAL ANIMAL

As interdependent, “ultrasocial” animals (Brewer, 1997; Campbell, 1982; Richerson & Boyd, 1995), our ability to achieve our goals—for example, resource acquisition, mating, child rearing—depends greatly on the actions of other people. This creates a need to manage others’ actions so that they facilitate rather than hinder our goals. Of course, managing others’ actions requires some understanding of their goals, preferred behavioral strategies for reaching them, and ability to implement their strategies. Unfortunately, only rarely can we directly perceive others’ goals, strategies, or capacities. Moreover, some opportunities and threats require rapid responses lest, for example, a desirable mating opportunity disappear into a crowd or a violent blow land on one’s cranium. For such reasons, perceivers have an interest in anticipating others’ affordance-relevant states, a task that requires inference from perceptually salient cues (i.e., behaviors or characteristics) potentially linked to actual goals, strategies, and capacities. For example, encountering a physically imposing man exhibiting an angry scowl, we may infer that he is able and inclined to aggress; encountering a less imposing man exhibiting a smile, we may instead infer that he seeks to befriend us.

As valuable as such cues may be for inferring immediate threats and opportunities afforded by others, they still leave much to be desired. Just as we are motivated to manage others’ actions, others are motivated to manage ours. As a consequence, people sometimes disguise or fake the cues to their own goals, strategies, and capacities. The large, scowling man may be posing in an attempt to conceal a physical handicap, whereas the smiling, approaching man may be disarming in the hope of taking advantage of us. Particularly useful to perceivers, then, are affordance cues that are not just perceptually accessible but also stable and difficult to fake. Even better are cues that imply large complexes of affordance-relevant information.

Three such cues have received great attention—Age, Sex, and Race/Ethnicity (hereafter labeled “race”). Each is easily perceived and frequently used as a basis for stereotyping (Brewer, 1988; Fiske & Neuberg, 1990; Macrae & Quadflieg, 2010). But why these three?

LIFE HISTORY THEORY

Life history theory aims to explain how organisms allocate energy and time to different tasks (e.g., growth, mating, parenting) across the life span (Stearns, 1976). Starting with the premise that resources required for reproduction are finite, organisms face the problem of how to allocate them to maximize reproductive fitness. In sexually reproducing species, the optimal allocation strategy varies across three dimensions: life stage, sex, and ecology. (Hereafter we replace the term “life stage” with “age”; age is highly diagnostic of life stage and is used more commonly in the psychological literature on stereotyping.) Age is important because resource allocation priorities change with time. Devoting resources to mating is

viable only after sexual maturity, whereas devoting resources to offspring care is viable only upon reproducing. Sex is important because males and females face different allocation constraints. For example, in most mammals, females are obliged to invest a greater amount of biological resources in offspring, investing in gestation before birth and nursing upon birth (Trivers, 1972). Finally, ecology is important because aspects of the environment alter the costs and benefits of different allocation strategies. In environments with high mortality rates, for instance, it tends to be beneficial to reproduce early to avoid the possibility of dying without reproducing. The life history approach has successfully accounted for both between- and within-species variation across a range of developmental and behavioral strategies, including rate of sexual maturation, adult body size, and offspring quantity (Charnov, 1993; Cowl & Covich, 1990; Martin, 1995; Roff, 1992; Winemiller, 1989). Most relevant to current purposes, life history theory predicts how age, sex, and ecology—together—shape an organism's priorities and the strategies used for achieving each goal.

Humans, too, face the problem of resource allocation across different life goals (Figueredo et al., 2006; Hill & Kaplan, 1999; Kenrick & Keefe, 1992; Kenrick & Luce, 2000). Ellis, Figueredo, Brumbach, and Schlomer (2009) discuss two attributes of human ecologies that shape resource allocation to fundamental goals—harshness and unpredictability. Harshness is defined by factors that exert physical strain on the individual (e.g., resource scarcity, pathogen prevalence); unpredictability is defined by the degree of random fluctuation in environmental events. Given that the effects of these two attributes greatly overlap, we merge them into a single dimension: An ecology that is both harsh and unpredictable (e.g., in which resources are scarce and fluctuate in availability) will be termed a *desperation ecology*; the converse, in which resources are sufficient and stable, will be termed a *hopeful ecology*. The two ecologies can be represented as anchoring two ends of a continuum.

Ecologies toward the desperate end are associated with an integrated suite of behaviors that have been labeled “fast,” whereas ecologies toward the hopeful end are associated with a suite of behaviors that have been labeled “slow.” For example, father absence signals high male mortality rates and unstable pair bonds, indicating more desperate local ecologies. Girls whose fathers are absent from home exhibit a fast suite of traits—including earlier age of menarche, first sex, and first child (Ellis, 2004). Desperation ecologies are also associated with promiscuity, having more children, risk taking, impulsivity, and antisocial behavior, including violence and criminality (Brumbach, Figueredo, & Ellis, 2009; Figueredo et al., 2005; Figueredo et al., 2006; Simpson, Griskevicius, Kuo, Sung, & Collins, 2012). On the experimental side, studies have shown that when asked to imagine having a shorter life expectancy—potentially priming a desperation ecology—individuals exhibit more sexually promiscuous attitudes and become more aggressive (Dunkel, Mathes, & Decker, 2010; Dunkel, Mathes, & Papini, 2010). Other experiments demonstrate that when high mortality is made salient, again cueing a desperation ecology, individuals become more risk taking and present-oriented—particularly those who grew up with lower socioeconomic status (SES) (Griskevicius, Tybur, Delton, & Robertson, 2011). This coheres with another set of findings that, under a similar mortality prime, low childhood-SES individuals exhibited greater desires to have children in the near future whereas high childhood-SES individuals wanted to delay having children (Griskevicius, Delton, Robertson, & Tybur, 2010). Together, the evidence suggests that desperation and hopeful ecologies engage different psychological and behavioral strategies.

As social perceivers, we want to know whether the individuals we encounter tend toward faster or slower strategies—whether they are impulsive versus reliable, interested in short-term versus long-term gains, or inclined to obtain resources through violence and criminality versus through longer-term skill and knowledge acquisition. Such inclinations, in our highly interdependent social world, have significant implications for whether we are able to achieve our own goals. Life history theory provides a scientific framework for understanding and predicting the interactive effects of age, sex, and ecology on individual traits and behavioral inclinations. We suggest that the same three dimensions, in interaction, have parallel implications for social perception and impression formation processes.

IMPLICATIONS OF LIFE HISTORY THEORY FOR AGE, SEX, AND RACE STEREOTYPING

If perceivers have an interest in understanding others' goals, strategies, and capacities, and if people's age, sex, and ecology shape their goals, strategies, and capacities, then person perception and impression formation systems ought to be attuned to these variables. Our claim is thus that social perceivers are *lay life historians*: People use perceived age, sex, and ecology to make the same predictions about a target's characteristics that life history theory itself would make. The integration of life history theory with the affordance management approach thus provides a framework for understanding why perceivers so prominently use age and sex when forming impressions of others. It also suggests why American perceivers so readily employ information about race for impression formation—because, in the United States, race is perceived to be a cue for a target's ecology, a point we develop later.¹

1. One assumption of our approach is that certain stereotypes will be accurate to a nontrivial extent (Jussim, Cain, Crawford, Harber, & Cohen, 2009; Swim, 1994), thereby making them more useful (from a perceiver's perspective) than having no pre-information at all. If this is the case, stereotyping—the categorization of an individual as a “member” of some social group and subsequent application of the traits presumed to characterize the group to the individual—is a potentially adaptive process. Indeed, scholars have argued that stereotyping (of people, but also of other living and nonliving objects) is a fundamental, evolved feature of the human mind: Our human (and nonhuman) ancestors who were capable of and inclined to employ such inference processes—and who were consequently more likely to avoid threats and exploit opportunities—would have out-reproduced those unable or disinclined to do so, leading over time to stereotyping becoming a species-wide adaptation (e.g., Fox, 1992; Neuberg & Cottrell, 2006). That stereotyping is also relatively effortless and quick (e.g., Brewer, 1988; Devine, 1989; Fiske & Neuberg, 1990; Macrae, Milne, & Bodenhausen, 1994) would further enhance its fitness benefits; it allows us to rapidly gain apparently useful knowledge about those around us, thereby enabling us to allocate limited attention to other potential threats and opportunities. This is not to deny that many stereotypes are inaccurate representations of group members and that stereotyping thus often leads to erroneous inferences about particular individuals. However, for stereotyping to have evolved as the default manner in which we initially, automatically understand others, all that was required was that its fitness benefits outweigh its costs for social perceivers. Stereotyping should thus be especially beneficial when (a) individuals encounter situations in which fitness-relevant threats or opportunities are proximally or temporally immediate and (b) the content of a perceiver's stereotypes confers sufficient predictive utility to enable the perceiver to better avoid the threats or exploit the opportunities than he or she would be able to do otherwise, in the absence of these stereotypes. We argue, based on life history theory and associated findings, that AgeSexEcology stereotypes indeed provide such predictive utility (for more thorough discussions of these issues, see Fox, 1992; Neuberg & Cottrell, 2006).

We highlight several novel theoretical implications of this approach. We are currently engaged in a program of research to test these implications.

IMPLICATION 1: NOT AGE AND SEX, BUT AGE \times SEX

There are large literatures on both sex stereotypes (Eagly & Steffen, 1984; Lueptow, Garovich, & Lueptow, 1995; J. E. Williams & Best, 1982) and age stereotypes (Kite, Stockdale, Whitley, & Johnson, 2005; Rosencranz & McNevin, 1969). With few exceptions (e.g., Fabes & Martin, 1991; Kite, Deaux, & Miele, 1991), these literatures ignore the possibility that sex and age stereotypes are conditional on one another. The traditional views contrast starkly with implications from life history theory, which argues that age and sex *together* shape others' goals, strategies, and capacities. For example, given greater female investment in offspring, females are the choosier sex when selecting mates. In turn, males compete for sexual access to females (Trivers, 1972), but this competition is most fierce as males reach sexual maturity and prioritize mating. Based on our affordance management logic, males should therefore be stereotyped as more competitive than females, but these stereotypes ought to be sensitive to age; the stereotyped difference should be considerably smaller when considering targets who already have grown children. In general, our framework implies that people perceive and cognize others in terms of age and sex interdependently—what we label here AgeSex.

Early research from our lab supports this implication (Sng, Williams, & Neuberger, 2013). In one set of studies, participants reported their beliefs about (a) males and females, without specifying age; (b) people of different ages, without specifying sex; or (c) people of different AgeSex configurations (e.g., 18-year-old women, 45-year-old men, 60-year-old women)—configurations that reflect stages of life at which important human life history goals (e.g., friendship building, mate seeking, child rearing) vary in prominence. The first two methods are those predominantly employed to assess sex and age stereotypes, respectively. The third method, on the other hand, reflects theoretical considerations from the life history approach.

Several findings are particularly relevant. First, between-sex stereotypes differ by age. For instance, although males were generally stereotyped as more agentic than females, replicating traditional findings (e.g., Eagly & Steffen, 1984; Spence & Helmreich, 1978), this difference was large for targets at ages 18 and 28 but much smaller for targets at ages 8 and 60. Within-sex stereotypes also vary across age. Counter to general sex stereotypes in our sample and in the literature, males are actually stereotyped as more *communal* than agentic at age 60, and females are stereotyped as *equally* agentic and communal at ages 18 and 28. These findings suggest that stereotypes manifest not as a general male-female distinction, nor as a general young-old distinction, but rather as specific AgeSex subtypes—subtypes that, because they represent individuals with differing life history goals (and who therefore pose different affordances) are characterized by different stereotypes.

IMPLICATION 2: PEOPLE'S AGESEX STEREOTYPES ARE INFORMED BY OTHERS' APPARENT ECOLOGIES

As predicted by life history theory, the strategies people use to achieve their goals depend on their home ecologies, in interaction with age and sex (Ellis, 2004; Ellis et al., 2009; Figueredo et al., 2005; Figueredo et al., 2006; Griskevicius et al., 2010; Griskevicius et al., 2011). Because such strategies have important implications for our ability to achieve our own goals, an adapted impression formation system would be attuned to cues signaling an individual's home ecology. We thus hypothesize that perceivers' stereotypes about individuals from these ecologies will track the behavioral strategies that people within those ecologies are more likely to employ. Specifically, we predict that perceivers stereotype individuals from desperation ecologies as having "fast" life history characteristics such as impulsivity, risk taking, and promiscuity. In contrast, we predict that perceivers stereotype individuals from hopeful ecologies as having "slow" life history characteristics such as inclinations toward delay of gratification, cautious decision making, and sexual restrictedness. Early findings from our lab support these hypotheses: When asked about their stereotypes of people who come from resource-scarce and unpredictable environments versus resource-sufficient and predictable ones, individuals perceived the former as tending to possess faster life history traits—as being more promiscuous, less likely to plan ahead, less invested in their children, and the like (K. E. G. Williams, Sng, & Neuberg, 2013).

Variation in the effects of ecologies is greatest during stages of life in which alternative ways to allocate resources are greatest—when choices need to be made between growth, mating, and parenting. For humans, differences in the influences of ecology on behavior are most acute at sexual maturity and decline after reproduction. We would thus expect ecology-based stereotypes to be greatest for targets of peak reproductive age. We also predict that the application of these ecology stereotypes will be moderated by target sex, given the different mate-seeking strategies males and females employ (e.g., Kenrick, Sadalla, Groth, & Trost, 1990; Li & Kenrick, 2006). For example, people should stereotype young, but sexually mature individuals (e.g., early 20s to 30-year-olds) from desperation ecologies to be less invested in their children than similarly young individuals from hopeful ecologies. Yet, even within each given ecology, there will be stereotyped sex differences (e.g., young women will be stereotyped to be more invested in their children than young men). Hence, stereotypes will manifest as AgeSexEcology subtypes.

Together, Implications 1 and 2 echo intersectionality approaches to social identity (Cole, 2009; McCall, 2005) in that each suggests broadly the need to consider identities *as they interact with one another* to shape psychology and behavior. Intersectionality research originated in feminist scholarship and argued that the role of gender cannot be understood independent of other social identities, particularly race, sexuality, and social class (Shields, 2008). The framework we propose acknowledges the concept of intersectionality and, we suggest, advances it. Our approach provides a clear, a priori rationale for why, from an actor's perspective, intersectionality of age, sex, ecology, and (as we will soon see) race should shape identity—because these features do interactively constrain to some extent one's behavioral options, in line with the predictions of life history theory. Our approach

also provides a clear, *a priori* rationale for why, from an observer's perspective, social perception as well as the content of many of the most prominent stereotypes should be intersectional in the specific ways they are—because the human mind is designed explicitly to identify and manage the affordances actually offered by the interaction of others' age, sex, ecological background, and race.

IMPLICATION 3: THE UNIVERSALITY OF AGESEXECOLOGY STEREOTYPES

As reviewed, life history theory predicts the behavioral strategies of a large range of non-human animals, as a function of age, sex, and ecology. It also has been applied effectively to predict human behavior, in populations ranging from U.S. urban dwellers to hunter-gatherer populations (e.g., Hill & Kaplan, 1999). To the extent that age, sex, and ecology interact to generate affordance-linked human behaviors, one would hypothesize that social perceivers would universally derive stereotypes calibrated by AgeSexEcology. We thus predict that, regardless of perceivers' own race, sex, or age, they will hold similar and specific AgeSexEcology stereotypes. More broadly, we predict that these stereotypes will hold across societies, whether those societies are, for example, individualistic or collectivistic, relatively rich or poor, or mono- or multiethnic.

This is not to say that there exist no interesting and important distinctions in AgeSexEcology social perception or stereotypes as a function of stable individual differences, acutely activated goals, or culture. We return to this important issue.

IMPLICATION 4: IN THE UNITED STATES, AGESEX RACE STEREOTYPES TRACK AGESEXECOLOGY STEREOTYPES

We suggest that American perceivers associate desperation and hopeful ecologies with different racial groups. Indeed, in the United States, different races *are* differentially distributed across these ecologies (Massey, 2004; Sampson, Raudenbush, & Earls, 1997). Race stereotypes may thus reflect beliefs that different races have different home ecologies. Given that social perceivers employ cues to ecology to infer others' behavioral strategies and capacities, and that race in the United States is correlated with ecology, perceivers are likely to use race heuristically to predict others' behaviors. Thus, just as ecology stereotypes are proposed to be moderated by AgeSex, so should race stereotypes in the United States. Indeed, preliminary evidence from our lab supports this: White perceivers view Black children (regardless of sex) very differently than they view young Black men, women, and grandmothers. Moreover, if race tracks ecology in the United States, then we would expect the content of AgeSexRace stereotypes to track the content of AgeSexEcology stereotypes.

Specifically, our framework predicts that race differences in stereotypes should be greatest (a) when ecologies (desperate versus hopeful) are presumed by perceivers to differ across the groups, (b) for those AgeSex subtypes for which the conflict between allocating resources to one's own growth, mating, and parenting is most acute (e.g., prime reproductive years, early 20s), and (c) on inferences about

those characteristics most relevant to the “fast” and “slow” strategies linked to the desperation/hopeful continuum.

Consider one possible example comparing White Americans’ stereotypes about Black Americans (presumed to be from relatively desperate ecologies) and Asian Americans (presumed to be from relatively hopeful ecologies): We would predict that 20-year-old Black women would be stereotyped as being more promiscuous and less committed to higher education than 20-year-old Asian women, and that 20-year-old Black men would be stereotyped as more risk taking and aggressive than 20-year-old Asian men. We would not expect to find, however, such race or sex differences for Blacks or Asians at age 75. At that age, ecology and sex effects on resource allocation across life tasks would be minimal, given that tasks such as growth and mating will then be largely irrelevant. Note the contrast between the nuanced nature of these predictions and what valence-focused perspectives on stereotypes and prejudices could generate: Because the latter approaches possess no a priori conceptual architecture able to generate textured reactions as a function of target sex, target age, trait, and the functional interactions among them, they are left predicting that Whites would simply stereotype Blacks more negatively than Asians.

Note also that, from an acculturation perspective, individuals might be expected to become dispositionally set in their culturally learned behaviors as they age, leading to ecology-based stereotypes especially pronounced for older targets. Our prediction that ecology-based stereotypes diminish for older targets runs in direct contrast to those predictions.

IMPLICATION 5: ECOLOGIES DIRECTLY AND INDIRECTLY “MARK” INDIVIDUALS, AND PERCEIVERS USE THOSE MARKS TO INFER ECOLOGIES AND THEIR ASSOCIATED LIFE HISTORY STRATEGIES

We have proposed that people can infer a complex of traits and behavioral strategies from the ecologies others inhabit. But how do perceivers identify a particular individual’s home ecology?

Ecologies sometimes “mark” their inhabitants; extremely desperate ecologies, for instance, may mark inhabitants with perceptually salient cues to poverty (e.g., well-worn clothing), malnutrition (e.g., gaunt facial features), and disease (e.g., decaying teeth). Ecologies also mark their inhabitants indirectly via cues to the faster versus slower behavioral strategies such ecologies elicit. The core assumption of the life history approach is that individuals trade off resource allocations among various life tasks (Kaplan & Gangestad, 2004). Ecological marks of one’s behavioral strategy will therefore be marks of one’s trade-offs in resource allocation—that is, cues that one has prioritized one form of investment over another.

For example, individuals from desperation ecologies tend to reproduce earlier and faster, emphasizing offspring quantity over quality; this translates to greater promiscuity and less stable partner bonds than individuals from more hopeful ecologies. Cues that imply promiscuity—for example, particularly snug or revealing clothing—would thus serve to heuristically suggest that a person has adopted the faster strategies associated with desperation ecologies. In contrast, cues that imply commitment to one’s partner—for example, wearing a wedding band—connote the slower strategies associated with hopeful ecologies. Findings from

our lab indicate, for instance, that participants do indeed stereotype individuals from hopeful ecologies as more likely to wear wedding bands than individuals from desperation ecologies (K. E. G. Williams et al., 2013). We are currently developing a taxonomy of cues that heuristically imply different ecologies, and are testing whether these cues are indeed employed by social perceivers in the ways hypothesized.

IMPLICATION 6: REVERSING THE APPLICATION OF “RACE” STEREOTYPES VIA ECOLOGY INFORMATION

We have proposed that race in the United States serves primarily as a cue to ecology, via which perceivers infer affordance-relevant characteristics about individuals of different races. Thus, the impact of race cues on social inferences, prejudices, and discriminatory inclinations should be minimized in the presence of more immediate cues to a target’s home ecology. By manipulating a target’s ecology orthogonally to his or her race, one should be able to reverse perceivers’ inclinations to apply race stereotypes to that target. That is, we predict that American Blacks bearing cues of hopeful ecologies will be viewed similarly to stereotypical American Whites and Asians (who are assumed to come from hopeful ecologies), and American Whites and Asians bearing cues to desperation ecologies will be viewed similarly to stereotypical American Blacks (who are assumed to come from desperation ecologies).

Some evidence supports the idea that targets believed to come from race-unrepresentative ecologies are viewed as less race-typical. For instance, young Black men depicted in church settings are perceived positively, compared to being depicted on a street corner or in a prison (Barden, Maddux, Petty, & Brewer, 2004; Wittenbrink, Judd, & Park, 2001). Moreover, some research has demonstrated that exemplars who display cues to race-unrepresentative ecologies can alter views of the larger racial group (e.g., Dasgupta & Greenwald, 2001; Plant et al., 2009).

Although those findings are supportive of our ideas, our theoretical framework allows for more focused predictions. For example, our framework highlights the need to examine specific AgeSexRace subtypes and their differential susceptibility to stereotype-countering ecology information. Because the differential effects of ecology on behavior are greatest for those in their reproductive years, we predict that stereotype-countering ecology information should have its greatest effects on perceptions of targets within that life stage. We also predict that the changes in perceptions of targets resulting from such shifts in presumed ecology should be specific to life history relevant traits, such as promiscuity, impulsiveness, and risk taking.

CLOSING COMMENTS

We have briefly outlined a new theoretical approach to conceptualizing how and why people use cues of age, sex, and ecology to understand one another—because these cues carry useful information about the threats and opportunities that others may afford. In the special case of race, we propose that it carries useful affordance

information insofar as it is confounded with ecology by perceivers. Our approach, resting on the specific behavioral inclinations actually predicted by AgeSexEcology configurations, also generates a rationale for the highly nuanced stereotypes that people hold of others. We argue that people's stereotypes are not anchored in age *or* sex *or* race, but rather are inherently intersectional. Moreover, our framework generates very specific predictions about the content of the stereotypes. Indeed, no existing approach to person perception, impression formation, stereotyping, or prejudice generates predictions about which specific stereotypes are applied to members of which races of which ages and of which sexes.

One assumption of this approach, consistent with existing literature (Jussim et al., 2009; Swim, 1994), is that certain stereotypes will be accurate to a nontrivial extent. This should especially be the case for AgeSexEcology stereotypes. Our predictions about the content of AgeSexEcology stereotypes have been derived from findings on how age, sex, and ecology—interactively—*actually* shape behavior. To the extent, then, that our AgeSexEcology stereotype content predictions are supported, the idea that these stereotypes are accurate will also be supported. With respect to AgeSexRace stereotypes, we would predict them to be accurate to the extent that race within a society is actually confounded with ecology—that is, that members of different racial groups differentially live in desperate versus hopeful ecologies. Even so, such accuracy is expected to be circumscribed, limited largely to traits relevant to life history strategies. More generally, it is important to note that few individuals are the perfect prototype of their AgeSexRace (or AgeSexEcology) groups; thus, stereotypes will rarely be perfectly accurate representations of any particular individual.

We have focused our social perception analysis on features of targets that imply threat and opportunity affordances. However, affordances are defined not just by features of the object perceived but also by the needs of the perceiver, which “attune” perceivers to certain aspects of the object (McArthur & Baron, 1983; Zebrowitz, Bronstad, & Montepare, 2011).

Consider, for example, that young adults in desperation ecologies will be stereotyped to be more promiscuous than their counterparts in hopeful ecologies. One might expect this ecology-based distinction to be especially useful for young adult perceivers, for whom the sexual promiscuity of others is likely to be more relevant to their own (mate-seeking) goals. Such individuals might thus exhibit especially strong biases toward perceiving promiscuity in desperation-linked young adult targets (for recent examples of motivated perception effects, see Balcetis & Dunning, 2010; Bernstein, Young, Brown, Sacco, & Claypool, 2008; Maner et al., 2005; Maner, Miller, Moss, Leo, & Plant, 2012; Miller, Maner, & Becker, 2010; Rule, Rosen, Slepian, & Ambady, 2011; for reviews, see Neuberg, Becker, & Kenrick, 2013, and Neuberg & Schaller, in press). One might also expect perceivers possessing an interest in or concerns about mating to more strongly hold stereotypes calibrated to ecological differences in promiscuity. Thus, although we predict the pattern of AgeSexEcology(Race) stereotypes to be highly similar across perceivers, one might also expect these stereotypes to be more or less exaggerated depending on perceivers' active goals (Kenrick, Neuberg, Griskevicius, Becker, & Schaller, 2010) and their functional relationships with the stereotypes derived from our framework.

One point here bears special mention: We predict that very different individuals, from very different places around the world, currently engaged by very different goals, will nonetheless share very *similar* AgeSexEcology stereotypes. This does not mean, however, that these stereotypes will have similar affordance implications for these individuals, or will elicit similar responses. It is commonly held, for example, that large young men in desperation ecologies will be more likely to use physical aggression to accomplish their goals than will similarly large young men from hopeful ecologies. This distinction is more useful, however—that is, it holds greater affordance implications—for perceivers for whom being targeted by physical assault would be a highly threatening event, such as those who are physically less formidable. That people hold and even endorse similar stereotypes does not imply that they will behave similarly in response to them.

More broadly, we suggest that integrating the affordance management and life history approaches to conceptualize person perception and impression formation is both innovative and potentially transformative: It provides a theoretical framework that enables a deeper understanding of existing findings. It generates novel hypotheses of a nuanced nature, articulating the manner in which age, sex, ecology, and race work interdependently to shape the social inferences perceivers make. It hypothesizes the universality of AgeSexEcology stereotypes. It complements existing theories that focus on processes of impression formation by articulating the informational content of special value for social perceivers to process; it goes beyond articulating processes of subtyping (Brewer, Dull, & Lui, 1981; Taylor, 1981) to characterize *which* subtypes are likely to be important. Our approach also goes beyond hypotheses about individuating impression formation processes (Fiske & Neuberg, 1990) to characterize *which* kinds of target features—those implying “race-inconsistent” ecologies—are likely to drive individuation of racial outgroup members. It suggests an intriguing approach to reducing the application of “race” stereotypes to individuals—the managing of ecology cues. Finally, it serves a broader scientific goal of disciplinary integration, linking social psychology with biology and animal behavior, on the one hand, and anthropology and sociology, on the other.

The mind of a salmon is the evolutionary heritage of countless salmon ancestors who successfully grew and survived to maturity, competed for and obtained mates, and eventually had offspring who were just as successful. Such a marvel cannot be a mind that parses its social world in arbitrary fashion. Rather, it is a mind that attends to particular cues, defines particular categories, and assigns attributes to individuals within those categories in ways that reflect (if imperfectly) the reality it faces. The heritage of our own ancestry, the human mind, is no less marvelous. It, too, cannot be a mind that parses its social world in arbitrary fashion. It, too, must attend to particular cues, define particular categories, and assign stereotypes to individuals within those categories in ways that reflect (if imperfectly) the reality it faces. The framework we present here—a life history theory of social perception—moves us toward better understanding which cues, categories, and stereotypes social perceivers employ, and how and why they do so.

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