Figure 2 (Kahan). "System 2" identity-protective cognition. Subjects' assessment of the evidence of the validity of the Cognitive Reflection Test (CRT) as an "open-mindedness" test was conditional on congruence of experimentally manipulated information on who scored higher – "climate-change skeptics" or "believers" – and subjects' political identities. This effect was most pronounced among subjects scoring higher on the CRT itself. Derived from multivariate regression. Predictors for "low" and "high" CRT set at 0 and 2, respectively. CIs reflect 0.95 level of confidence (N=1750). From Kahan (2013).

effect was substantially more pronounced among those who scored the highest on the CRT (Kahan 2013).

The tragic conflict of expressive rationality. As indicated, identity-protective reasoning is routinely included in the roster of cognitive mechanisms that evince bounded rationality. But where an information-processing dynamic is consistently shown to be magnified, not constrained, by exactly the types of reasoning proficiencies that counteract the mental pratfalls associated with heuristic information processing, then one should presumably update one's classification of that dynamic as a "cognitive bias."

In fact, the antagonism between identity-protective cognition and perceptual accuracy is not a consequence of too little rationality but too much. Nothing an ordinary member of the public does as consumer, as voter, or participant in public discourse will have *any* effect on the risk that climate change poses to her or anyone else. Same for gun control, fracking, and nuclear waste disposal: her actions just don't matter enough to influence collective behavior or policymaking. But given what positions on these issues signify about the sort of *person* she is, adopting a mistaken *stance* on one of these in her everyday interactions with other ordinary people could expose her to *devastating* consequences, both material and psychic. It is *perfectly* rational under these circumstances to process information in a manner that promotes formation of the *beliefs* on these issues that express her group allegiances, and to bring all her cognitive resources to bear in doing so.

This account roots identity-protective cognition in the theory of "expressive rationality," a rival to *both* the rational actor model in conventional economics *and* the bounded-rationality paradigm (Anderson 1993). The basic tenet of this account is that individuals derive "expressive utility," intrinsic and instrumental, from actions that, against the background of social norms, convey their defining group commitments (Akerlof & Kranton 2000). Actions of this sort – like pretty much any other (Peirce 1877) – are reliably enabled by appropriate beliefs. Identity-protective cognition is the style of reasoning for rationally engaging information that is relevant to identity-expressive beliefs, particularly when that information has no other real relevance to an individual's life.

Of course, when everyone uses their reason this way at once, *collective* welfare suffers. In that case, culturally diverse democratic citizens won't converge, or converge as quickly, on the significance of valid evidence on how to manage societal risks. But that doesn't change the social incentives that make it rational for any individual – and hence every individual – to engage information in this way. Only some collective intervention – one that effectively dispels the conflict between the individual's interest in forming identity-expressive risk perceptions and society's

interest in the formation of accurate ones – could (Kahan et al. 2012b; Lessig 1995).

Rationality≠accuracy (necessarily). Like the scholarship Jussim criticizes, the standard view of identity-protective cognition force fits a species of human perception into the bounded-rationality template. But unlike the larger intellectual project that Jussim attacks, the mistake that doing so involves here does not reflect the field's commitment to denigrating perceptual "accuracy."

Obviously, it isn't possible to assess the "rationality" of any pattern of information processing unless one gets what the agent processing the information is trying to accomplish. Because forming accurate "factual perceptions" is not the *only* thing people use information for, a paradigm that motivates empirical researchers to appraise cognition exclusively in relation to that objective will indeed end up painting a distorted picture of human thinking.

But worse, the picture will simply be wrong. The body of science this paradigm generates will fail, in particular, to supply us with the information a pluralistic democratic society needs to manage the forces that pit citizens' stake in using their reason to know what's known and using it to *be* who they are as members of diverse cultural groups against one another (Kahan 2015b).

The dominance of the bounded-rationality paradigm creates this risk. But a counterprogram that seeks to vindicate human rationality by relentlessly defending the "accuracy" of "perceptions" without addressing how individuals use reason to protect their group identities won't remedy the former's defects.

Realism and constructivism in social perception

John F. Kihlstrom

Department of Psychology, University of California, Berkeley, Berkeley, CA 94720-1650.
jfkihlstrom@berkeley.edu   http://socrates.berkeley.edu/~kihlstrm

Abstract: Jussim's critique of social psychology's embrace of error and bias is needed and often persuasive. In opting for perceptual realism over social constructivism, however, he seems to ignore a third choice – a cognitive constructivism which has a long and distinguished history in the study of nonsocial perception, and which enables us to understand both accuracy and error.

The purpose of perception is action (to paraphrase Bruner 1957b), and so it is important that our percepts be reasonably accurate. And evidently they are, or else we would not have survived so long as a species and as individuals (or maybe the Universe is just very forgiving). Nevertheless, over the last few decades many social psychologists have come to embrace the view that social perception is riddled with error and bias – a framework that I have dubbed the "People Are Stupid School of Psychology" (Kihlstrom 2004b; see also Kihlstrom 2004a; 2004c; 2008). The tenets of "stupidism" may be summarized as follows:

1. *People are fundamentally irrational*: In the ordinary course of everyday living, we do not think very hard about anything, preferring heuristic shortcuts that lead us astray; and we let our feelings and desires get in the way of our thought processes.

2. *We are on automatic pilot*: We do not pay much attention to what is going on around us, and to what we are doing; as a result, our thoughts and actions are inordinately swayed by first impressions and immediate responses; free will is an illusion.

3. *We don't know what we are doing*: When all is said and done, our behavior is mostly unconscious; the reasons we give are little more than post-hoc rationalizations, and our forecasts are invalid; to make things worse, consciousness actually gets in the way of adaptive behavior.

4. *We don't know what we want:* We are extremely poor at predicting how we will feel about various eventualities, and we are so poor at making choices that we might just as well let others choose for us – largely because, again, we don't have accurate introspective access to our beliefs, feelings, and desires. One is reminded of the joke about the two behaviorists who had sex: one said to the other: "It was good for you, but was it good for me?"

5. *We don't even know how stupid we are:* Because of the limitations on our cognitive abilities, we fail to appreciate when our judgments and behaviors are less than optimal.

Stupidism – to the extent that it is not just a figment of my imagination – was in some respects an unanticipated consequence of a very reasonable program of research which employed evidence of errors to produce a more realistic description of how people actually make judgments and decisions. But there are even deeper roots of social psychology's preference for the thoughtless, unconscious, automatic, biased, and error-prone. Somehow, fairly early on, social psychology got defined as the study of the effect of the social situation on the individual's experience, thought, and action (G. W. Allport 1954a; see also Kihlstrom 2013). And, perhaps in a quest for institutional approval, it got tied to the functional behaviorism of Watson and Skinner (Zimbardo 1999). Think, for example, of the classic work on the "Four A's" of social psychology: attitudes, attraction, aggression, and altruism; think, too, of the history of research on conformity and compliance, from Asch and before, to Milgram and beyond. In each case, the experimenter manipulates some aspect of the environment, and observes its effect on subjects' behavior. Sometimes there were inferences about intervening mental states, but not very often – otherwise, the cognitive revolution in social psychology wouldn't have been a revolution.

Occasionally there have been attempts at correction (e.g., Gigerenzer et al. 1999; Hastie & Dawes 2001; Krueger & Funder 2004; Malle 2006). For example, the self-other difference in causal attribution appears not to occur, at least in the form that is usually claimed for it; and, by extension, the "Fundamental Attribution Error" turns out to be problematic, too (someone, not me, once quipped that the Fundamental Attribution Error isn't an error, but it *is* fundamental). Still, errors and biases are so much a part of the current social-psychological *Zeitgeist* that these critiques have not, seemingly, had much impact on how psychologists think about social interaction. Now comes Jussim (2012; and present *BBS* target article) with the heavy artillery, systematically dismantling most of the canonical claims for the power of error and bias. And pretty convincingly, too.

But it is one thing to argue for the fundamental accuracy of social perception, and quite another thing to argue for a particular view of perceptual realism, and against a particular view of constructivism. Social constructivism shouldn't be abandoned entirely – not least because, despite the exaggerations of so much constructivist theory (Hacking 1999), so much of the social world *is* a social construction (Searle 1995; 2011). But Jussim seems to opt for some version of perceptual realism, which is not the only alternative.

Historically, the study of perception has been framed by two competing paradigms (Epstein 1979; Epstein & Park 1964; for a complete review, see Palmer 1999).The most influential approach, beginning in the 19th century with Helmholtz and continuing in the 20th with Hochberg, Gregory, and Rock, is, indeed, constructivist in nature. Helmholtz and the others argued that stimulus information is vague, fragmentary, and ambiguous, and that the perceiver must, in Bruner's (1957a) phrase, "go beyond the information given" by the stimulus by drawing on knowledge, memory, expectations, and inferences (even unconscious inferences) to form a mental representation of that is the most likely interpretation of stimulus information – an interpretation that may be inaccurate in important respects. Perceptual constructivism has been challenged by Gibson's theory of direct perception, or ecological optics, which holds that all the information needed for perception is provided by the stimulus environment, and that our perceptual apparatus evolved to pick up just that information which allows us to perceive the world the way it really is. Some former constructivists were persuaded by this point of view (Neisser 1976a; 1976b), and some advocates have gone so far as to argue that there are no "top-down" cognitive influences on perception at all (Firestone & Scholl 2016).

Jussim, by emphasizing realistic accuracy over constructivist error and bias, seems to incline toward the Gibsonian view. A Gibsonian approach has also been embraced by some other social psychologists, (e.g., McArthur & Baron 1983), and indeed there is a great deal about social perception that can be studied from the ecological point of view. There is a lot of information in the stimulus field, and its background context, and it seems particularly appropriate when analyzing facial emotion, lie detection, and other aspects of person perception which may be largely based on physical appearance and gesture. At the same time, there is a lot of evidence favoring the (Helmholtzian) constructivist view, and some of it even comes from errors on these very tasks. It seems that person perception *is* prone to inaccuracy, after all.

For example, people do not seem to be particularly accurate at detecting deception, largely because their naive theories of deception lead them to pick up on the wrong cues (e.g., Bond & DePaulo 2006; 2008; Hartwig & Bond 2011; 2014). Our "gaydar" does not appear to be that good, either, once we take account of base-rates (e.g., Bruno et al. 2014; Lyons et al. 2014; Poderl 2014) – a problem that bedevils the detection of deception as well. Even our accuracy at reading emotion from facial expressions – which seems the likeliest candidate, in the social domain, for an evolved, hard-wired, perceptual module of the Gibsonian sort – seems to be inflated by such method factors as the use of a forced-choice response format (e.g., Hassin et al. 2013; Nelson & Russell 2013).

Although Jussim is right to be skeptical of a radical *social* constructivist approach which denies the existence of an independent reality, it would seem that the nature of social reality invites a *perceptual*-constructivist approach. Bruner and Tagiuri (1954), in an early analysis of person perception, listed a number of factors that influence perceptual organization, including the stimulus array itself (a prescient nod toward Gibson), but also selective attention, linguistic categories, and especially the internal state of the perceiver – his mental set, or expectations, and his own emotional and motivational state. Much as the stimulus array for nonsocial perception consists of the energy (light waves, sound waves, etc.) that radiates from the distal stimulus, falls on the sensory surfaces, and is transduced by receptor organs into neural impulses, the stimulus array for person perception also consists of the

person's appearance and behavior, as well as the language that others use to describe the person. Much more so than the nonsocial case, the interpersonal stimulus is almost inherently vague, fragmentary, and ambiguous, affording a great deal of room for divergent interpretations. Often, the environment provides conflicting cues as to the nature and activity of the stimulus person, increasing the difficulty of forming an accurate perceptual representation of reality. Moreover, the social situation provides plenty of leeway for emotion and motivation to bias perceptual-cognitive processes (Abelson1963; Bruner 1992; Bruner & Goodman 1947; Bruner & Klein 1960). While all theories of perception, including Gibson's, assume that the context makes a great deal of difference to perception, context effects are arguably even more salient in the social world, so that the same person, or behavior, may be perceived differently, depending on the situation – which is itself inherently vague, fragmentary, and ambiguous. For all these reasons, the social perceiver must fill in the gaps, and resolve the ambiguities, by making inferences about the stimulus given his knowledge, expectations, and beliefs. This is the expressly cognitive contribution of the perceiver to perception; and in this constructive activity lies the possibility for error and bias to occur.

Brunswik's (1955a; 1955b) lens model offers one framework for conceptualizing these constructive processes. The stimulus may provide ecologically valid cues as to its nature, but the perceiver has to utilize those cues in order to form an accurate mental representation of the stimulus; if the perceiver utilizes the wrong cues, or weights valid cues incorrectly, the representation will be inaccurate or biased. Neisser's (1976a) idea of the perceptual cycle offers a similar framework. The stimulus provides information to the perceiver, but the perceiver's exploration of the stimulus is guided by internal cognitive schemata; eventually, the cycle of assimilation and accommodation should result in an accurate mental representation of reality – provided, of course, that the stimulus is richly informative in the first place, and the cycle is allowed to run to completion. Neither is always the case, especially in the social domain – hence, the intrusion of error and bias.

Jussim is right to offer a corrective to the current emphasis on error and bias in social perception – though, as my examples indicate, there remain plenty of opportunities for error and bias as well. This is the price we pay for living in a world in which perception and cognition occur under conditions of uncertainty. As with the literature on bounded rationality exemplified by the program of research on judgment heuristics, anomalies of perception and cognition can tell us a great deal about how social perception actually works. More important, though, the choice Jussim offers between perceptual realism and social constructivism is a false one, because these are not the only choices available. There is at least a third way of *cognitive* constructivism, which allows us to understand both accuracies and inaccuracies in perception, where and when they occur.

An evolutionary approach to accuracy in social perception

Anthony C. Little

Department of Psychology, University of Bath, Bath FK9 4LA, United Kingdom.
a.little@bath.ac.uk
www.alittlelab.com

Abstract: An evolutionary approach highlights that accuracy should be expected over error because selection pressures will have shaped social perception to be functional. Behaviour is extremely complex and so it is unlikely that observers will be perfectly accurate, but an evolutionary view strongly predicts that people will behave as rational observers and in many cases social perception should favour adaptive responses.

Jussim's main thesis is that much research in social psychology has overemphasised error while ignoring accuracy in social perception (Jussim 2012). Jussim's eloquent argument is squarely aimed at social psychologists, and he clearly articulates methodological and interpretation issues with often cited studies in favour of error and self-fulfilling prophecies. He also highlights general research issues that are relevant across science, such as careful research design, the importance of replications (or lack thereof), and the need to focus on effect sizes rather than statistical significance. Indeed, it is the small effect sizes found across studies and meta-analyses (Chapters 6–9) that should make it difficult for any reasonable scientist to persist with the notion that error dominates accuracy and that self-fulfilling prophecies have, on average, powerful effects on other's behaviour. Likewise, the accuracy found across studies (Chs. 17 and 18) makes it clear that accuracy is real and worth studying.

What Jussim is arguing against largely stems from deep rooted ideology in social psychology (as he discusses in Chs. 2 and 10). In other areas of science, however, the argument that social perception should be accurate would not be considered controversial and, in fact, may be taken as an assumption. Specifically, evolutionary or biological approaches examine behaviour in many different species addressing how these behaviours are adaptive and functional. Of course, while it is naive to assume that all behaviour is adaptive, it would be surprising to expect error to dominate accuracy from this view point.

For any organism, the fundamental problems are survival and reproduction, and these often encompass navigating a social world in which individuals, for example, compete, cooperate, and find a mate in a pool of other individuals. Consequently, non-human animals demonstrate a variety of adaptations to assess the behaviour of others and there is a large literature concerning the evolution of animal signals used to communicate, among other things, behaviour (Krebs & Dawkins 1984). For example, in antagonistic encounters with other individuals of the same species, the primary decision to be made is to fight or not. Given the potential costs, injury or even death, we might expect that animals will possess perceptual/cognitive adaptations to assess the risks by assessing fighting ability in their opponents (Enquist & Leimar 1983; Parker 1974). Indeed, there is evidence that animals such as mice and crabs make adaptive decisions about fighting based on the assessment of the relative fighting abilities of their opponents (L. M. Gosling et al. 1996; Hazlett 1996). Accuracy could arise because specific traits of some species can be related to fighting success. For example, variable black facial patterns in paper wasps are related to body size and social dominance (Tibbetts & Dale 2004), and in gelada baboons high status males have the reddest chests (Bergman et al. 2009). Individuals could base their decisions to fight on appearance linked cues to fighting ability allowing them to compete when likely to win and to avoid costly agonistic interactions when likely to lose.

An evolutionary view then has a prediction concerning accuracy and inaccuracy in social perception because this view tends to assume that perception serves an adaptive function: The external world is full of information that can be used to guide adaptive and functional behaviours (Zebrowitz-McArthur & Baron 1983). If, in our evolutionary past, information were presented about a person's behaviour (e.g., likelihood of cooperation or aggression) in any way, then an advantage would accrue to those who utilised these cues and those individuals would leave more genes behind in the next generation. An individual may not last long if they make too many errors in important social domains and that individual may not leave many offspring compared to an individual who is able to more accurately predict the behaviour of others. Of course, this does not mean stimulus-perception links should be innate, selection pressures could favour accuracy or adaptive behaviour via learning or calibration mechanisms.

Other researchers have emphasised that social perception is functional rather than error prone. The evolutionary view has much in common with an ecological approach (Gibson 1979),