hypothesis testing approach. But, their essay does not help us understand the persistent popularity of the traditional approach. Perhaps, there is an important lesson to be learned from the failure of the Bayesian approach to catch on in any major scientific field.

Because we are in essential agreement with K&F's methodological imperatives, we would like to focus our attention on their suggestions for a stronger conceptual foundation for the field of social psychology. K&F view social behavior as central to human adaptation. They argue that it is essential to place social cognition in an interpersonal context and to evaluate its overall adaptive success by a cost–benefit analysis. For example, referring to Funder's (1995) and Kenny's (1994) frameworks for social judgment and personality perception, K&F emphasize that social interactions are an ecologically indispensable ingredient of social cognition. Social interactions determine what types of information are available and relevant to a perceiver, and prescribe the appropriate standards of accuracy by which to evaluate social judgment. K&F also note that in the two traditions they criticize, "The paradigmatic study presents social stimuli directly to participants, thus bypassing relevance and availability completely, and bypassing the task of cue detection. Traditional studies of social cognition concern the utilization stage exclusively" (sect. 4.3.3.2, para. 4).

We agree that considering interpersonal processes is essential to a more ecologically balanced picture of social behavior and cognition. But, we believe that K&F's recommendation about how to salvage social psychology still does not effectively banish the ubiquitous bias toward the study of "individual minds operating in a social vacuum," which has haunted cognitive social psychology. For example, Funder's Realistic Accuracy Model does not consider the rich context of multiple, partially redundant, substitutable social cues. (Why else would they say that "accuracy is a difficult and remarkable achievement" [sect. 4.3.3.2, para. 4] and indicate that the level of accuracy can be predicted by a simple multiplicative calculation?) Nor is it clear where the promised cost–benefit analysis fits into the framework (see their Fig. 2). General criticisms of such individual-focused frameworks have been raised elsewhere (e.g., Nye & Brower 1996), and we will not repeat them. Instead, let us sketch our conception of a more comprehensive framework for social interdependence that extends K&F's suggestions for a more balanced social psychology.

Everyone agrees that the ultimate goal of social psychology is to provide insights and causal theories of everyday social behavior. No social psychologists question this truism. But "social" seems to mean different things to different social psychologists. For some, "social" means being motivated by the immediate *social policy* implications of the research findings. K&F suggest that this motivation is one reason for the emphasis on biases and social misbehavior in some textbooks (cf. Katzko 2002). For others, like K&F, "social" means that the stimulus that is being perceived and judged is another human being; the most social aspect of the framework is an analysis of the agreement and/or disagreement between two perceivers of a target person. And for still others (including us), "social" means adaptive, strategic interaction in a matrix of enduring and shifting social relationships.

The perceiver–target framework is too limited, and it excludes important factors of social motivation and strategic interaction. Without a broader theory of motivation and social interdependence, we fear research will simply continue to produce lists of "effects" and "biases," which under some conditions *may* materialize in interpersonal perception (cf. Table 1 of the target article). Although K&F do not acknowledge it, the heuristics and biases approach to social cognition did more than simply catalogue biases and errors. The underlying conception of the mind, implicit in this approach, includes a "cognitive toolbox" architecture with optional reliance on alternative heuristic judgment strategies. The strategies are associated with fundamental cognitive capacities (memory retrieval, similarity evaluation, causal simulation) that are responsible for the distinctive signature biases that are byproducts of reliance on each strategy (cf. Kahneman & Frederick 2002). Even some of the harshest critics of the heuristics and biases approach have adopted this basic conceptual framework (e.g., Gigerenzer et al. 1999). But, a cognitive architecture is only part of a comprehensive conceptual framework (cf. J. R. Anderson 1990; N. H. Anderson 1996).

We think that K&F's recommendation to consider the *ecological context* of social behavior should be taken more seriously. Only a few social psychologists have grappled with the adaptive character of social interactions. Indeed, we see little evidence that K&F have seriously addressed these issues. However, this challenge has been accepted by behavioral ecologists who study animal behavior (e.g., Dawkins & Krebs 1978; Hauser 1996). Interaction and communication among animals are often deceptive and manipulative, as well as cooperative. And, even some of the most mysterious animal social behaviors can be understood as solutions to the adaptive problems of securing essential resources, such as food, mating opportunities, social power, and so forth (Byrne 1995). This is no different for humans! Game theory and Evolutionary Game Theory provide truly comprehensive frameworks for understanding the adaptive essence of social interaction (e.g., Gintis 2000; Maynard-Smith 1982). These approaches come with powerful analytic and simulation tactics for theory building, as well as original observational and experimental methodologies. More than 25 years ago, Kelley and Thibaut (1978) attempted to introduce social psychologists to Game Theory, but their effort was unsuccessful. We think social psychology has made a major error by myopically ignoring these important and productive approaches. Without more comprehensive foundations, frameworks like the Realistic Accuracy Model will continue to generate superficial lists of "descriptive patterns," but miss deeper insights into the causes of social behavior.

We can point to a few illustrations of the kind of research we advocate. Camerer (2003) provides an accessible and profound introduction to the aspects of Game Theory most relevant to social psychology (and reading Kelley & Thibaut 1978, is still instructive). Kameda et al. (2003) report on an example study of the development of adaptive social norms, and Kameda and Nakanishi (2002; 2003) report on cost–benefit analyses of social conformity. We applaud K&F's goal of promoting the development of a balanced social psychology. But, we want to exhort social psychologists to take their adaptive theme further. Even limited target–perceiver theories, like the Realistic Accuracy Model, need a more comprehensive foundation that deals with interdependencies among social agents.

One path to balance and order in social psychology: An evolutionary perspective

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Abstract: Consideration of the adaptive problems faced by our ancestors suggests functional reasons why people exhibit some biases in social judgment more than others. We present a taxonomy consisting of six domains of central social challenges. Each is associated with somewhat different motivations, and consequently different decision-rules. These decision-rules, in turn, make some biases inherently more likely to emerge than others.

Social psychologists do often seem obsessed with listing the cute and unconnected stupid errors that people make. There may be reasons for the perennial focus on the negative and unexpected, but we agree that this focus has (1) made it difficult to see the overarching functions underlying these biases and "mistakes," and (2) hindered the development of integrative theories of social bias.

Table 1 (Kenrick & Maner). *A taxonomy of social problem domains, with associated decision constraints, and resultant biases*

Social problem domain	Evolved decision constraints (examples)	Resultant cognitive biases (examples)
Coalition formation	Exchange relationships are ultimately beneficial to the extent that exchange partners (a) share genes, or (b) can bet on future reciprocation	Self-serving biases should generalize to those who share our genes; people should be biased to quickly detect cheating by nonrelatives, and to make strong attributions about cheaters
Status	Owing to sexual selection based in differential parental investment, men tend to compete with one another for status more than women do	Men should overestimate the competitiveness of other men; make dispositional attributions for competitive behavior
Self-protection	Out-group members pose a consistent source of competition and physical threat	People should have low thresholds for detecting signs of anger or threat in out-group members
Mate choice	Mating opportunities are low cost for men, potentially higher cost for women; male commitment is key for female reproductive success	Men tend to overestimate female sexual interest; women tend to underestimate levels of male commitment
Relationship maintenance	There are cost asymmetries associated with sexual versus emotional infidelity for men and women	Men and women might overestimate likelihood of partner's sexual versus emotional infidelities, respectively
Parental care	Parents have lower future reproductive potential than their children do	Parents might overestimate children's contributions/efforts; children underestimate parents' contributions/efforts

Why and when do people exhibit biases? And how might all those wacky biases fit into an organized and cohesive framework? A consideration of social psychological biases in light of evolutionary considerations can do two things: (1) suggest the particular content areas where one would expect to find particular types of bias, and (2) suggest a more integrative taxonomy of the different types of bias.

We have elsewhere suggested that all human beings need to solve a set of adaptive problems in different social domains (Kenrick et al. 2002; 2003). As outlined in Table 1, our ancestors needed to: (1) form and maintain coalitions, (2) strive for status, (3) protect themselves from harm, (4) select mates, (5) maintain romantic relationships, and (6) care for their children. Each domain involves distinct problems, and each is linked to a unique set of evolved decision constraints. Indeed, what social psychologists have traditionally labeled as biases often represent decision-rules that, on average, would have helped our ancestors survive, prosper, and ultimately reproduce (cf. Funder 1987; Krebs & Denton 1997).

Some biases suggested in Table 1 are backed by empirical data. Others are hypotheses based on considerations of the relative costs and benefits people commonly confront within each domain. For example, consider the domain of mate choice. Evolutionary theorists have suggested that because men have a lower level of initial obligatory parental investment than women do, there are relatively lower costs and greater benefits associated with short-term sexual partnerships for men, as compared to women (Kenrick et al. 1990; Trivers 1972). Indeed, for men, the potential reproductive benefits of a short-term sexual partnership tend to outweigh the potential costs. As a result, men often exhibit biases designed to facilitate the procurement of short-term relationship partners. For example, men tend to overestimate female sexual interest (Abbey 1982; Haselton & Buss 2000; Maner et al., under review).

On the other hand, throughout evolutionary history, a woman's reproductive success has hinged on her mate's willingness to commit energy and resources over the long term. For women, mating with a noncommittal man could prove a costly error, indeed. Consequently, a woman should exhibit biases designed to help avoid romantic encounters unless she is relatively sure a man is willing to commit to her. Indeed, evidence suggests that women tend to underestimate men's willingness to commit (Haselton & Buss 2000). Thus, both men and women exhibit biases designed to maximize benefits and minimize potential costs when engaging in short-term romantic partnerships.

Unlike most mammals, otherwise sexually unrestricted human males also tend to maintain long-term relationships and invest heavily in their offspring. In turn, one might expect men who are committed to long-term relationships to exhibit biases designed to help them maintain their relationships. For example, committed men tend to devalue attractive alternatives to their current partner (Johnson & Rusbult 1989). That is, as compared to uncommitted men, committed men tend to judge other women as less attractive. Because excessive exposure to attractive women can undermine commitment (Kenrick et al. 1994), this bias may help men resist otherwise attractive infidelities.

Next, consider the need for protecting oneself from physical harm. Throughout human evolutionary history, members of competitive out-groups have posed a consistent source of threat. As a result, we should expect people to exhibit biases designed to reduce the possibility of harm from out-group members, because failing to identify a possible threat is generally a more costly error than falsely identifying one. Indeed, evidence suggests that when people are in fear-eliciting circumstances, they report more negative threat-related out-group stereotypes (Schaller et al. 2002) and see out-group members as angrier and more threatening (Maner et al., under review).

There are important trade-offs associated with almost any type of social behavior. Highlighting the adaptive costs and benefits associated with particular behaviors can reveal the ultimate functions social biases are designed to serve, as well as the contexts in which they are most likely to occur. An evolutionary framework is particularly useful for organizing biases that would have, on average, ultimately maximized our ancestors' reproductive outcomes. Indeed, merging a functionalist-evolutionary perspective with traditional theories of social bias can pave the way for a more integrated social psychology.

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