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reotype activation. When they desire to perceive a person as having the potential for improvement, they will activate the aspects of the stereotype that are congruent with their perception of this person (e.g., "Members of this group are known for manifesting impressive upward mobility"). Likewise, when they wish to perceive a person as lacking in improvement potential, they will subtype this person (e.g., "Members of this subgroup are not particularly known for their upward mobile status"). It is important to note that if subtypes are not available in memory, high-self-improvement individuals will suppress their group stereotype.

I hope that this speculative exercise takes a step toward complementing the work featured in the target articles. It is high time for social and personality psychologists to pay tribute to the motivational sophistication of the perceiver. It is time to move toward a psychology of multiple motives.

Bring the Troops Back Home: Armistice Between Motivation and Cognition

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That motivations and cognitions critically influence and constrain one another is certain (see Gollwitzer & Moskowitz, 1996, and Kruglanski, 1996, for reviews). Although there may be occasions in which cognition and behavior are relatively mindless and environmentally driven (Bargh, 1997), much of the time our thoughts and actions are instigated and directed by an extensive array of interpersonal and intrapersonal motives and goals. These motives range from the concrete and specific (e.g., find out what kind of shoes she is wearing) to the broad and diffuse (e.g., distribute mental resources efficiently) and may be held at varying degrees of conscious intent. Once set into motion, these motives influence all aspects of cognitive life, from what information becomes accessible in memory to what stimuli attract attention, from attributional processes to judgment and retrieval processes. In fact, many motives (i.e., processing goals) are concerned particularly with the gathering and interpretation of information.

At the same time, it is just as clear that motivations are influenced by cognition. Like all knowledge, moti-

ations must be represented in memory and activated before they may exert their influence. The activation and application of these motives may be influenced by what happens to be accessible in memory, by what happens to attract attention, and by the interpretations that are given to environmental stimuli (social and otherwise), among other factors. Moreover, motivations may be realized only through cognitive processes such as attentional allocation, reasoning and planning processes, and the retrieval and use of basic semantic knowledge that supports these latter activities. Thus, it is clear that neither models of cognition that ignore the role of motivation nor models of motivation that do not specify particular cognitive mechanisms are likely to provide particularly comprehensive accounts of social thought and behavior.

In fact, the interdependence of motivation and cognition is so pervasive that it is not clear that it makes sense to talk about them as separate systems. Can one truly proceed without the other? Certainly, as a research strategy, social psychologists have found it useful, if not necessary, to simplify matters by creat-

Note

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ing and inspecting narrow slices of the ongoing interaction between motivation and cognition that are relatively unidirectional by nature. For example, as in the work presented by Dunning (this issue), researchers interested in motivated cognition have often manipulated a particular motivation and examined the impact on various social judgments. Nevertheless, this research strategy need not imply underlying models of the motivation-cognition interface that are unidirectional (and they usually have not carried this implication). In this regard, we concur with Kruglanski's (1996) distinction between "first generation" and "second generation" analyses of motivation-cognition interactions. Whereas first generation analyses seek to establish that motives do, in fact, influence cognition (and vice versa), second generation analyses seek to understand the hows and whys of these influences and the specifics of motivation-cognition interactions. For example, much of the recent work on motivated cognition has been concerned with specifying the particular cognitive mechanisms (e.g., biased activation, attention, interpretation, retrieval) through which motivations assert themselves (Gollwitzer & Moskowitz, 1996; Kruglanski, 1996). This idea of second generation analyses was also suggested by Sorrentino and Higgins (1986), who, in the introduction to the first volume of the *Handbook of Motivation and Cognition*, described a "warm look" and introduced Escher's Mobius strip as a symbol of the interconnected nature of motivation and cognition. The success of this approach is made evident by the recent publication of the third volume of that handbook (Sorrentino & Higgins, 1996).

Here, we suggest several research strategies that we believe would be especially useful for advancing our understanding of motivation-cognition interactions. First, it would be advantageous to identify the factors that moderate the influence of a particular motivation. Most researchers and theorists understandably focus on the role of "positive" motivations, as these motivations bias social cognition and judgment. This focus is especially apparent in the three target articles under discussion. Kunda and Sinclair (this issue) investigate the effects of desired impressions and conclusions on the reasoning process. What people want leads to both the activation of helpful knowledge and the inhibition of disturbing knowledge. Dunning (this issue) argues that the development of schemata for social traits and concepts is shaped by the motivation to retain flattering self-images. This motivation to maintain self-worth prompts the self-serving nature of schemata. Murray (this issue) explores a different kind of positive motivation: the motivation to develop and maintain a satisfying relationship and to dispel doubt and reduce uncertainty about one's romantic partner. This motivation leads to biased construals in which the romantic partner is idealized.

In all three analyses, the suggestion is that attention is likely to be directed toward what people most want to see, and interpretation and construals are biased toward that which is desirable. This makes good functional sense. It is comfortable and advantageous to live in the kind of world that one prefers. Less attention has been paid to the role of "negative" motivations in guiding thought, judgment, and behavior. Not only do people see what they want to see, but often people see exactly what they do not want to see. As Roskos-Ewoldsen and Fazio (1992) pointed out, attention seems to be automatically drawn to objects that have easily activated attitudes—both positive and negative objects. Fear is a good example of a negative motivation that can guide attention and interpretation not away from what people fear but rather toward it. On a hike through the woods, who is most likely to see a small snake at the edge of the trail or to interpret a branch as a snake? Clearly this would be the hiker who most fears and who most does not want to see snakes. In Costa Rica, there is a saying that captures this tendency to experience exactly what one wishes not to experience: "If you don't like soup, you get two cups."

These notions are, of course, related to Wegner's (1994) research on thought suppression, which indicates that people often become fixated on the very thoughts they seek to avoid. Such ironic effects extend to stimuli in the external environment. For example, we found that the attention of participants attempting to suppress a stereotype was captured by the very kinds of behaviors they were trying to avoid (Sherman, Stroessner, Loftus, & Deguzman, 1997).

However, it is also clear that these negative motivations often lead to successful avoidance of unwanted objects or thoughts. Work in the areas of perceptual defense (Erdelyi, 1974) and selective exposure to information (Frey, 1986) point to the fact that sometimes people can avoid objects or thoughts that are unwanted or feared. The trick will be to identify moderators that predict and explain when these negative motivations guide attention, perception, judgment, and thought in a desirable direction and when they lead to exactly the thoughts and experiences that one wishes to avoid.

A second important research strategy will be to examine the influence of multiple motives on the same cognitive process. A good blueprint for this kind of analysis can be found in the multiple motive heuristic systematic model of persuasion developed by Chaiken, Liberman, and Eagly (1989). In their analysis, Chaiken et al. examined how each of the motives of self-defense, accuracy, and self-presentation would influence the uses of heuristic and systematic processes in persuasion. Not only did this analysis shed light on many important aspects of the persuasion process, but it also helped to clarify the operation of the different motivations by comparing and contrasting their effects with one another. The focus on the simultaneous oper-

ation of the multiple motives of self-assessment, self-protection, self-enhancement, and self-verification has led to similar beneficial clarifications (e.g., Sedikides, 1993; Swann, 1990; Tesser, 1988; Trope, 1986).

A related approach is to examine how multiple motives interact with one another and particular cognitive processes at the same time. We have pursued such questions in our research on stereotype efficiency (Sherman, Lee, Bessenoff, & Frost, 1998). In this work we examined how the motivation to form accurate impressions of others and the motivation to process information efficiently jointly influence stereotyping processes as a function of available processing capacity. Current models of stereotyping suggest that accuracy motivation may override or diminish the influence of stereotypes, but only to the extent that sufficient resources are available to pursue the motivation (for a review, see Hamilton & Sherman, 1994). The implication is that perceivers who may have initially been motivated by accuracy to individuate a target will abandon that motivation when resources are scant and will revert to more simplistic modes of processing. To the contrary, our research showed that accuracy motivations continued to exert an important influence even when cognitive resources were depleted (but they certainly did not override stereotyping processes). In fact, when resources were depleted, particular stereotyping and individuation processes both increased compared to when participants possessed greater attentional capacity. Thus, when resources were scant, processing did not become more simplistic; it became more efficient. In this research, we not only examined the interaction of multiple motives with environmental factors (i.e., degree of distraction), but we were able to specify the particular encoding mechanisms that enabled the joint pursuit of those motives.

In another line of research, we examined how the motivation to avoid stereotyping someone is influenced by the availability of processing resources (Wyer, Sherman, & Stroessner, *in press*). Participants who had a stereotype unintentionally activated by attempting to suppress the stereotype (see Wegner, 1994, for a review) were able to avoid applying the stereotype to a subsequently encountered group member when attentional capacity was plentiful. In contrast, participants with limited resources were not able to avoid applying the unwanted stereotype. This suggests that there are important constraints on the motivated inhibition of stereotype application discussed by Kunda and Sinclair (this issue).

In the area of the perception of individuals and groups, we have suggested that motivations for both accuracy and efficiency guide the perceptions of social targets (Hamilton & Sherman, 1996). Depending on the balance of these motivations, impressions are developed either online (when the accuracy motivation

prevails), or in a memory-based fashion (when efficiency motivation is predominant). This difference in processing leads to many important differences regarding the amount recalled, primacy effects in impressions, and the formation of illusory correlations. In addition, expectations about the unity or entitativity of the social target play a role along with the motivations in determining whether online or memory-based judgments are formed. Finally, self-relevance and involvement are also important in determining the processes through which impressions of social targets are formed. This framework has helped us to understand and clarify similarities and differences between the impression formation processes as they apply to individuals versus groups. Thus, the interaction of multiple motives with each other and with cognitive mechanisms has proven useful to a wide range of topics in our research programs.

These are but a few examples from our own laboratories of the kinds of research we see as critical for advancing our understanding of motivation-cognition interactions. Similar strategies are being pursued by many researchers in many different domains of social psychology. Rather than examining a single motivation or cognition in isolation, further advances will ultimately depend on analyses that include the interactions of multiple motives and cognitive processes. Social psychologists have understood this for a long time. From Bruner's (1957) analysis of perceptual defense and Festinger's (1957) dissonance theory, through Tajfel and Turner's (1979) analysis of social identity, and up through more recent theoretical formulations (Devine, 1989; Fiske & Neuberg, 1990; Kunda, 1990), this has been the case (see Gollwitzer & Moskowitz, 1996; Kruglanski, 1996, for reviews).

How have the three target articles fared in terms of advancing our understanding of motivation-cognition interactions? Kunda's research (both past and present) is an excellent example of work that seeks to clarify the specifics of motivation-cognition interactions. Her work on motivated cognition has specified the particular cognitive mechanisms through which motivations assert themselves. Her most recent work on motivated inhibition represents a further advance in demonstrating the interplay between motivation and cognition.

Murray extends work on motivated cognition to explore the role of motivation in construal processes that allow relationships to succeed. Bringing both motivational factors and cognitive mechanisms to bear on the complex issue of relationship satisfaction is certainly an ambitious goal. Although we found the framework and conceptualization compelling, we would like to have seen more progress made toward teasing apart the directions of causality for some of the proposed relationships. It will also be important to more directly investigate the motivational factors that are assumed to be involved in the biased construals of romantic partners.

With regard to Dunning's article, certain aspects of it were somewhat surprising. We do not concur that cognitive approaches have dominated over motivational approaches in the last 30 years. To be sure, over time, motivational accounts have become more embedded in fine-grained analyses of cognitive processes. However, it is just as true that analyses of cognitive processes have been increasingly informed by motivational considerations. By now it should be obvious that we think this is the way it should be, and we hope that these integrational forces will continue to thrive. We see little to be gained from resurrecting the bogeyman of the "cognitive industrial complex" or an "either-or war" between motivation and cognition. We strongly suspect that most of the field feels the same way and that it would be very difficult to round up a motivational guerrilla force or find a cognitive counterinsurgency with which to fight. Contrary to Dunning's suggestion, we do not believe this sort of debate has died down because the issue is "unsolvable" (Tetlock & Levi, 1982). Rather, the debate has died down because it is not a useful debate. Most researchers have concluded that it is time to move beyond such confrontations and get down to the hard work of figuring out exactly when, why, and how motives and cognitions interact.

Note

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