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Understanding Social Judgment: Multiple Systems *And* Processes

Richard E. Petty
Ohio State University

Pablo Briñol
Universidad Autónoma de Madrid

The venerable dual and multiprocess models that have guided work on attitudes and social cognition for the past few decades (see Chaiken & Trope, 1999) have been challenged recently on one hand by those who claim that there is really only one fundamental process of judgment (e.g., Fishbein & Middlestadt, 1995; Kruglanski, Erb, Pierro, Mannetti, & Chun, this issue; Kruglanski & Thompson, 1999) and on the other hand by advocates of newer systems approaches (e.g., Kahneman, 2003; Lieberman, 2003) that try to subsume the earlier frameworks. Indeed, the claim of some systems theorists is that "the most important strength of dual-system models is their ability to integrate theory and research in the realm of existing dual-process models" (Deutsch & Strack, this issue, p. 168). In this commentary we argue that there is room for both multiprocess and multisystem approaches, because processes and systems are somewhat distinct beasts (although some have used these terms interchangeably; e.g., Kokis, McPherson, Toplak, Stanovich, & West, 2002). If systems and processes are distinct, then it is not clear that systems perspectives make process approaches unnecessary.

In this commentary we first reinforce our belief that a single-process framework is not the most fruitful way to account for social judgment (see also Petty, Wheeler, & Bizer, 1999). Next, we examine the evidence for multisystem frameworks and conclude that although it is quite plausible that there are multiple systems that contribute to social judgment, the purported criteria for establishing different systems are not entirely convincing. Nevertheless, in accord with Sherman (this issue), we conclude that a consideration of both multiple systems and processes is the way to make the most progress in understanding the judgmental and behavioral phenomena of interest to social psychologists.

Single Versus Multiprocess Models of Judgment

We begin our discussion with Kruglanski and colleagues' (this issue) unimodel. Perhaps the key difference between the unimodel and multiprocess models such as the Elaboration Likelihood Model (ELM; Petty & Cacioppo, 1986; Petty & Wegener, 1999) is in how one thinks about psychological processes. Social psychologists are enamored with theories and with process considerations. Recent issues of major social psychology journals have taken on the topics of what makes for a good theory (see *Personality and Social Psychology Bulletin,* February 2004) and what are the best ways to go about establishing a postulated process (e.g., moderational vs. mediational tests; see Muller, Judd, & Yzerbyt, 2005; Spencer, Zanna, & Fong, 2005). Theories and processes are inextricably linked in social psychology in that our theories specify the processes by which variables have their effects. But what is a process? Simply put, a process is a means of bringing something about (turning straw into gold; turning a negative attitude into a positive one). *Webster's Unabridged Dictionary* (J. L. McKechnie, 1976) defines *process* as "a method of doing something generally involving a number of steps or operations" (p. 1434). For example, one might have discovered that putting people in a positive mood or exposing them to an attractive source can make attitudes more favorable than when in a negative mood or with an unattractive spokesperson, but why does this occur? Table 1 outlines some causal sequences that are possible according to the ELM.

As Table 1 makes clear, Kruglanski and colleagues (this issue) make an error when they characterize the ELM as asking, "when do message arguments, versus *peripheral* or *heuristic* cues, impact opinions" (p. 153), as if the ELM suggests that some variables invariably serve as arguments whereas *other* variables invariably serve as cues. Rather, as explained in some detail in a previous exchange (see Petty et al., 1999), and illustrated in Table 1, the ELM holds that any *one* variable (e.g., mood, source attractiveness) can serve as an argument or a cue and serve in several other roles as well, depending on the situation. However, assessing the processes by which variables can affect attitudes often involves measuring some content rather than the process directly. For example, if an attractive source is postulated to motivate people to generate positive thoughts, and integration of these positive thoughts into an overall evaluation produces the favorable attitude (Process 4 in Table 1), we do not measure the generation process or the integration process per se (i.e., without more advanced techniques, we cannot see the thoughts coming to mind or being integrated). Rather, we assess the content of what is generated and integrated—the positive thoughts. It is indeed difficult to find pure measures of the cognitive processes themselves (Jacoby, 1991).

Table 1. *Possible Processes by Which a Visually Attractive Source Can Lead to More Favorable Attitudes in a Shampoo Ad Presenting Five Cogent Reasons to Buy the Product*[a] *Compared to an Unattractive Source*

1. ATTRACTIVENESS PROCESSED AS A CUE (Peripheral process)
   Attractive source → positive affect associated with product → If I feel good, then I like it (if-then).
2. ATTRACTIVENESS PROCESSED AS ARGUMENT (Evidence)
   Attractive source → infer that the shampoo makes your hair very clean → if it gets my hair clean, I like it (if-then).
3. ATTRACTIVENESS MOTIVATES MORE THINKING (Extent of thinking—Objective Processing)
   Attractive source → instills curiosity about message → increased thinking → more positive thoughts to the strong arguments → if many positive thoughts, then I like it (if-then).
4. ATTRACTIVENESS MOTIVATES POSITIVE THINKING (Direction of thinking -Biased Processing)
   Attractive source → motivated to like the recommendation → generation of positive thoughts → if many positive thoughts, then I like it (if-then).
5. ATTRACTIVENESS VALIDATES THOUGHTS (Self-validation process)
   Attractive source → enhances confidence in thoughts → if thoughts positive and confident in them, then adopt favorable attitude (if-then).

[a]For example, arguments included: "has a top conditioner," "vitamin enriched," and so forth.

Notably, the ELM does not dispute that rule-based reasoning can be involved in lots of judgments (and lots of judgmental processes can be described within a rule-based framework). For example consider the possible processes outlined in Table 1. In this table we outline some ways in which an attractive source featured in a shampoo advertisement might make attitudes more favorable toward the shampoo. In this example, the variable of interest is always the same attractive source who presents some information about the shampoo. Thus, there are no confounds across the postulated conditions in complexity, order of presentation, and so forth, with respect to the key variable of interest.[1]

In each of the processes we have inserted an if–then reasoning step. Does this render the mechanisms by which an attractive source produces persuasion the *same* for each of the possibilities outlined in Table 1? We think not, but why should we consider the processes as fundamentally different? First, there are different discrete steps involved in the five postulated processes. For example, in Processes 1 and 2, people are not postulated to think about the verbal arguments presented. Processing of the attractive source, either as an argument or a cue, is sufficient to produce the attitudinal judgment. When two postulated processes involve qualitatively different events, we think it makes sense to view them as different. To take a well-worn example, the fact that dissonance processes (Festinger, 1957) involve a step in which people experience unpleasant arousal whereas self-perception processes (Bem, 1972) do not is sufficient to regard dissonance and self-perception processes as qualitatively different mechanisms of attitude change (see also Petty & Cacioppo, 1986; Spencer et al., 2005; Wegener & Carlston, 2005).

A second reason to see the processes as different is that separating the processes allows us to make unique predictions (e.g., about moderating conditions). Consider the cue versus argument process alternatives (1 vs. 2). If attractiveness is processed as a cue, then it will have a positive effect on attitudes regardless of the product under consideration, because the cue effect is unidirectional (i.e., attractiveness is always good as a cue). However, if attractiveness is processed as an argument, then it will have a positive effect for some products but not for others (e.g., an attractive source provides persuasive visual evidence for the merits of a beauty product but not for an air conditioner). So, it is important to know by which process attractiveness is working. Focusing on the if–then commonality does not allow for this differentiation. The ELM predicts that the cue process should operate when motivation or ability to think are low and thus, in a highly distracting environment, attractiveness would work just as well for shampoo as for an air conditioner or a car. However, in a high-thinking environment, attractiveness would work for the shampoo (and other beauty products) but not for beauty-irrelevant products.

Note that in each of the causal chains in Table 1, the final step can be described as involving if–then reasoning. Because of this, Kruglanski and colleagues (this issue) hold that there are no qualitative differences in the processes. However, seeing them as the same process ignores what comes *before* the final if–then syllogism. In our view, focusing only on the if–then aspect of the steps above does not help us much in understanding the mechanisms of persuasion. Readers might test themselves to see where they stand on the classic issue just mentioned. Specifically, if you believe that it is more fruitful to see dissonance and self-perception

[1]Kruglanski et al. (this issue) note that in some prior research on the ELM (and the Heuristic-Systematic Model [HSM]; see Chaiken, Liberman, & Eagly, 1989), the information processed as a "cue" versus as an "argument" differed in several ways. For example, the variable processed as a cue (e.g., an expert source) was shorter, less complex, presented first, and so forth, compared to the variable processed as an argument (e.g., a list of eight verbal reasons to favor the product). In the example presented in Table 1, as in some prior research (e.g., Petty & Cacioppo, 1984a, 1984b), these confounds are not present. That is, the same information (i.e., an attractive source), presented at the same point in time is processed as a cue, an argument, or serves in other roles allowed by the ELM (see also Wegener, Clark, & Petty, 2006).

as fundamentally the *same* process (differing only in degree) because both involve some if–then reasoning, then you are a unimodel fan. If you think that it is more fruitful to see these as qualitatively different processes that work in different situations with differing outcomes (e.g., Fazio, Zanna, & Cooper, 1977), then you are not a unimodel fan.

But how does the unimodel account for data generated by multiprocess frameworks with just one process? It may seem that by proposing five distinct roles that variables can play in persuasion situations, the ELM is less parsimonious than the unimodel. However, to deal with the complexities involved in persuasion, the unimodel introduces multiple "parameters," five of which were identified as relevance of information, task demands, cognitive resources, nondirectional motivation, and directional motivation. It is interesting that each of these parameters was highlighted earlier in the ELM and is, in fact, a core part of the theory. The subjective relevance of the information is what the ELM refers to as whether the evidentiary value of a variable processed as an argument leads it to be seen as strong or weak. Task demands and cognitive resources are what the ELM refers to as one's ability to process. The unimodel subdivides motivation into nondirectional and directional categories, which the ELM refers to as relatively objective versus biased processing. Furthermore, ability and motivation together determine the extent of thinking in the unimodel just as it determines the extent of elaboration in the ELM (elaboration likelihood). Finally, all of the persuasion predictions of the unimodel (e.g., the impact of relevant information increases with greater processing resources; the impact of simple to process information increases with reductions in resources, etc.) are totally compatible with (and have been made previously by) the ELM.

As desirable as a true unimodel might be, and as much as we truly admire Kruglanski and colleagues' (this issue) attempts to formulate one, we think that ultimately this effort is not likely to foster enhanced understanding of the phenomena of interest to social psychologist beyond that already provided by the existing models—at least in the domain with which we are most familiar, persuasion.

Single Versus Multiple Systems of Judgment

Although dual-process models have been popular for decades, over the past several years there has been a growing shift in terminology from *dual-process* to *dual-system* approaches. Whereas theories popularized largely in the 1980s such as the ELM, HSM, the dual-process model of impression formation, and so forth initially attempted to outline the fundamental mechanisms that contributed to judgments in particular judgmental domains, the more recent dual-system models are cast more broadly. Sherman (this issue) therefore refers to the dual-system models as "generalized dual-process models" (p. 177). However, because the earlier dual-process models could be and have been applied beyond their original domains, we do not see generality across domains as a sufficient reason to differentiate system from process approaches. Another difference is that whereas the first wave of dual-process theories focused largely on predicting new effects, the current dual-system models have a mountain of effects that they can try to explain. But the earlier models also attempted to explain prior data, and the newer models also make new predictions, so this too is not a reason to distinguish them. One of the most striking differences between the older process models and the more recent system models is that the newer models focus not on individual processes but on "regularly interacting groups of processes" (Deutsch & Strack, this issue). Second, the system models typically relate these groups of processes to some underlying mental architecture (e.g., memory systems, Smith & DeCoster, 2000) and/or specific brain structures (e.g., Lieberman, 2003).

Perhaps of greatest interest to the current issue, recent system articles have attempted to subsume the prior process models. We believe that although it makes sense to relate systems to processes, it is useful to keep some conceptual distinctions. Indeed, there are many kinds of systems that have been postulated to be involved in human judgment: affective versus cognitive systems (Zajonc, 1980), perceptual versus knowledge systems (Sloman, 1996), approach versus avoidance systems (Cacioppo, Gardner, & Berntsen, 1999), along with the automatic/impulsive and controlled/reflective systems that are at the center of this issue (see also Carver, 2005).

Deutsch and Strack (this issue) nicely outline the arguments for a dual-systems approach, and we comment on each of their points next. They first argue that dual-systems approaches, such as their own Reflective-Impulsive Model (RIM) subsume dual-process models such as the ELM and HSM. However, they argue that just one of their systems—the Reflective system—"generates both heuristic and systematic judgments, and the intensity of thinking is a function of people's motivation and capacity" (p. 168). Indeed all models, including the unimodel proponents, would likely agree with this statement with respect to explicit judgments. To complete an explicit judgmental scale requires some degree of reflection. In terms of understanding how variables affect attitudes and other judgments, however, locating the process within one system, though potentially correct, doesn't get us far enough. That is, to assert that all of the mechanisms identified in Table 1 end up with an if–then inference

generated by the reflective system is not completely satisfying if one's goal is to understand the more precise steps in going from some variable of interest (attractive source, mood) to an evaluative judgment. Thus, the systems framework needs to be supplemented by multiprocess frameworks pitched at a more microlevel of analysis.

Second, Deutsch and Strack (this issue) note that their systems framework can be related to "distinct brain structures." Even if this is true, it is not clear that distinct brain structures necessarily imply that different processes are going on in the structures (Cacioppo et al., 2003; Dunn & Kirsner, 2003). For example, some larger houses have separate heating systems for different zones, such as one system for the right side of the house and one for the left. Nevertheless, the existence of two separate systems that can operate independently in one house does not mean that they operate via different mechanisms or processes (much as the processes of motor control of the right and left brain in one body are the same, though the two sides of the body are capable of independent movement).

Third, the systems framework is argued to provide an account of why controlled (explicit) and automatic (implicit) measures of social judgment predict different kinds of behaviors (spontaneous vs. deliberative, respectively). That is, the dissociation "reflect[s] the differential input from the two processing systems" (p. 169). Although this account is a reasonable one, it is important to note that the fact that explicit and implicit measures predict different things does not necessarily indicate that different systems are involved. Rather, there is matching of the measurement conditions to the behavioral situation (i.e., spontaneous measurement predicts spontaneous behavior and controlled measurement predicts controlled behavior; Vargas, 2004). This matching result also holds true *within* the category of explicit measures. Thus, measures of affective evaluation (pleasant–unpleasant) versus cognitive evaluation (useful–useless) predict behavior better in affective (consumatory) than in instrumental (cognitive) situations (and vice versa; see Millar & Tesser, 1992). Of course, one could take this as evidence that affect and cognition represent separate systems themselves—even though both are assessed with reflective measures. But then, solely within the cognitive domain, measures focused on "price " would presumably predict more variance in behavioral situations where price was salient, whereas measures focused on "image " would predict better in behavioral situations where image was salient. Again, one could take this as an indication of the existence of price versus image systems, or simply of the importance of matching the judgment assessment conditions to the behavioral assessment conditions so that similar inputs come to mind and drive each outcome.

Fourth, Deutsch and Strack (this issue) argue that perhaps the most compelling evidence for dual-system theories comes from the domain of self-regulation, which often entails conflicts between systems. Other systems theorists have also emphasized conflict as providing evidence for the dual-system approach. Sloman (1996), for example, noted that optical illusions can suggest that the perceptual and knowledge systems tell you different things. Logically, one can understand that two lines are the same length (knowledge system), even if they do not look that way (perceptual system). Sloman also gave an example of contradictory responses to an advertisement based on affective associations versus more cognitive considerations like price. He explained, "the fact that people are pulled in two directions at once suggests two forces pulling " (p. 19). Does the presence of conflict necessarily indicate the operation of two separate systems? Consider that emotion researchers have argued that one can have conflict not only between the emotional and cognitive systems but also *within* the emotional system (e.g., feeling "bittersweet"; see Larsen, McGraw, & Cacioppo, 2001). Likewise, conflicting cognitive associations can come to mind quickly and cause conflict even though the cognitions (e.g., the car is prestigious but expensive) each presumably reside within the same system (e.g., Priester & Petty, 1996; see also, Newby-Clark, McGregor, & Zanna, 2002).[2]

Finally, Deutsch and Strack (this issue) note that automatic inputs from one system (Impulsive system) can come to mind and interfere with the judgmental processes of the other (Reflective system) system. Like the aforementioned conflict notion, this phenomena too seems to suggest different inputs from different systems. However, such interference effects can also occur within one system, such as when learning an initial list of words (but not to the point of automaticity) interferes with learning a later list of words even though both learning processes took place by the same mechanisms within the same system. (i.e., proactive interference). If so, the interference criterion does not provide unique evidence for the dual-systems approach.

In sum, Deutsch and Strack highlight a number of sensible predictions that one might make from a dual-systems approach, such as (a) if dual systems exist, different measures should predict different behaviors; or (b) if dual systems are in operation, one can see different areas of the brain activated; or (c) if dual systems exist, there will sometimes be conflict between the outputs of the systems; or (d) if dual systems exist,

[2]Of course one can maintain a systems approach by arguing that the conflict in these cases stem from the collision of the positive versus negative or approach versus avoidance systems rather than the affective/cognitive or rational/intuitive systems (e.g., Cacioppo et al., 1999).

they can interfere with each other. However, just because these consequences would be expected if dual systems exist does not mean that if these consequences exist, we can infer the presence of dual systems. This is the logical error of affirming the consequent.

The Quad Model: Multiple Systems and Processes

Sherman, in the third target article in this issue, postulates both systems and processes. Although Sherman makes some of the same unfortunate mischaracterizations of the ELM, as does Kruglanski (e.g., the ELM was never a content dissociation theory; see Petty & Cacioppo, 1986), and presents some new misunderstandings (e.g., assuming that the dual routes to persuasion map onto automatic and controlled processes that cannot co-occur), we agree with the overall conceptual position about psychological processes that is at the heart of his framework—especially the caveats with which he opens the target article. That is, we agree with Sherman's suggestion that there are multiple systems and multiple processes within each system (and perhaps processes that cut across systems).

In addition, Sherman challenges the view that two is a magic number when it comes to either systems or processes, and we agree because the number of processes or systems that make sense will depend on one's purpose. What are you trying to explain, and what are the best criteria by which to lump and to split when distinguishing processes and systems (Petty et al., 1999)? For example, in the ELM, various cue processes (e.g., mere association, reliance on heuristics) are lumped together, not because there are not some meaningful distinctions that might be made among them but rather because the antecedent conditions that foster use of these processes (low motivation or ability to think), the impact the process has on judgment (main effect unmediated by issue-relevant thoughts), and the consequences they have (e.g., producing relatively weak attitudes that are not very resistant to change) are similar.

We also agree with Sherman (this issue) that it is important to distinguish processes not only when the two processes lead to different outcomes (as when their outputs collide) but also when different processes produce the *same* outcome. Sherman notes, for example, that if two people appear to be unprejudiced on an implicit measure, it is important to know if they are activating equally positive associations to the ingroup and outgroup, or if it is just the case that they are very good at inhibiting negative reactions to the outgroup. Just as cue processes and elaboration processes in the ELM can produce the same positive judgment (see Table 1), so too, in the Quad Model, can different processes produce the same judgment.

Although we agree with the overall conceptual position articulated by Sherman, his use of the term *process* does not appear to map directly onto our own. For example, in our framework "detection" or "correction of bias" are not in and of themselves processes. In some sense, each is more akin to a goal (e.g., I aim to detect the correct answer, or I am trying to avoid bias). The particular way in which one goes about implementing these goals can vary. Consider self-regulation or correction of bias. Correction can occur in a variety of ways. Effortful recomputing of one's judgment can be a debiasing strategy (Strack & Mussweiler, 2001) as can subtracting out the contaminating thoughts (Martin, Seta, & Crelia, 1990). Relying on a naïve theory of the magnitude and direction of the bias to make an adjustment is a third approach (Petty & Wegener, 1993). These bias correction strategies involve different steps and can lead to different predictions (see Wegener & Petty, 1997, for a review). When bias correction is viewed as a goal, it becomes more clear that it can be carried out in different ways (i.e., refers to a family of processes). Most notably, perhaps, Sherman acknowledges that bias correction (self-regulation) processes can be controlled or, with practice, become automatic. Thus, bias correction is independent of, or cuts across, the automatic/controlled distinction. Similar points might be made about the other processes Sherman identifies.

Conclusions

Each of the target articles in this issue has made valuable contributions to understanding social judgment and each has enriched our own thinking. The articles share various ideas as well as conflict in certain ways. Deutsch and Strack *partially agree* with Kruglanski's unimodel in that they locate judgment formation as syllogistic reasoning exclusively taking place in the reflective system. Thus, from their point of view, theories of judgment all are incorporated within the reflective system. However, to argue that there is one system largely responsible for the formation of explicit judgments does not mean that this system relies on just one meaningful psychological process. Again, from our point of view we can agree with Deutsch and Strack and Kruglanski that some form of syllogistic (or reflective) reasoning is likely involved at some point in the formation of explicit judgments. Nevertheless, we believe that it is useful to distinguish the qualitatively different steps that can be involved in producing a judgment under different conditions (see Table 1) and the qualitatively different inputs from multiple systems (affective/cognitive; approach/avoidance; perceptual/knowledge; impulsive/reflective) that can be involved.

In accord with Sherman (this issue), we believe that various systems models entail "multiple processes" (p. 173). Because of this, the systems perspective *cannot* replace the processes perspective, because one can still enumerate processes within and across systems. To the extent that the enumerated processes are still useful in explaining phenomena of interest, the processes should be retained. The systems approach can be valuable to be sure. Our point is that the new systems perspectives, valuable though they may be, do not imply the replacement of the earlier process perspectives. We can have both systems *and* processes.

Note

Correspondence should be sent to Richard E. Petty, Department of Psychology, 1835 Neil Avenue, Ohio State University, Columbus, OH 43210-1222.

References

Bem, D. J. (1972). Self-perception theory. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol 6, pp. 1–62). New York: Academic.

Cacioppo, J. T., Berntson, G. G., Lorig, T. S., Norris, C. J., Rickett, E., & Nusbaum, H. (2003). Just because you're imaging the brain doesn't mean you can stop using your head: A primer and set of first principles. *Journal of Personality and Social Psychology, 85,* 650–661.

Cacioppo, J. T., Gardner, W., & Berntsen, G. (1999). The affect system has parallel and integrative processing components: Form follows function. *Journal of Personality and Social Psychology, 76*, 839–855.

Carver, C. S. (2005). Impulse and constraint: Some perspectives from personality psychology, convergence with theory in other areas, and potential for integration. *Personality and Social Psychology Review*, *9*, 312–333.

Chaiken, S., Liberman, A., & Eagly, A. H. (1989). Heuristic and systematic processes within and beyond the persuasion context. In J. S. Uleman & J. A. Bargh (Eds.), *Unintended thought* (pp. 212–252). New York: Guilford.

Chaiken, S., & Trope, Y. (1999) *Dual-process theories in social psychology.* New York: Guilford.

Dunn, J. C., & Kirsner, K. (2003). What can we infer from double dissociations? *Cortex, 39*, 1–7.

Fazio, R. H., Zanna, M. P., & Cooper, J. (1977). Dissonance and self-perception: An integrative view of each theory's proper domain of application. *Journal of Experimental Social Psychology*, *13*, 464–479.

Festinger, L. (1957). *A theory of cognitive dissonance*. Evanston, IL: Row Peterson.

Fishbein, M., & Middlestadt, S. E. (1995). Noncognitive effects on attitude formation and change: Fact or artifact? *Journal of Consumer Psychology*, *6*, 107–115.

Jacoby, L. L. (1991). A process-dissociation framework: Separating automatic from intentional uses of memory. *Journal of Memory and Language, 30*, 513–541.

Kahneman, D. (2003). A perspective on judgment and choice: Mapping bounded rationality. *American Psychologist*, *58*, 697–720.

Kokis, J. V., McPherson, R., Toplak, M. E., Stanovich, R. F., & West, K. E. (2002). Heuristic and analytic processing: Age trends and associations with cognitive ability and cognitive style. *Journal of Experimental Child Psychology*, *83,* 26–52.

Kruglanski, A. W., & Thompson, E. P. (1999). Persuasion by a single route: A view from the unimodel. *Psychological Inquiry, 10*, 83–109.

Larsen, J. T., McGraw, J. P., Cacioppo, J. T. (2001). Can people feel happy and sad at the same time? *Journal of Personality and Social Psychology, 81,* 684–696.

Lieberman, M. D. (2003). Reflexive and reflective judgmental processes: A social cognitive neuroscience approach. In J. P. Forgas, K. D. Williams, & W. von Hippel (Eds.), *Social judgments: Implicit and explicit processes* (pp. 44–67). Cambridge, England: Cambridge University Press.

Martin, L. L., Seta, J. J., & Crelia, R. A. (1990). Assimilation and contrast as a function of people's willingness and ability to expend effort in forming and impression. *Journal of Personality and Social Psychology, 59*, 27–37.

Millar, M. G., & Tesser, A. (1992). The role of beliefs and feelings in guiding behavior: The mis-match model. In L. Martin & A. Tesser (Eds.), *Construction of social judgment* (pp. 277–300). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Muller, D., Judd, C. M., & Yzerbyt, V. Y. (2005). When moderation is mediated and mediation is moderated. *Journal of Personality and Social Psychology, 89*, 852–863.

Newby-Clark, I. R., McGregor, I., & Zanna, M. P. (2002). Thinking and caring about cognitive inconsistency: When and for whom does attitudinal ambivalence feel uncomfortable? *Journal of Personality and Social Psychology. 82*, *157-166.*

Petty, R. E., & Cacioppo, J. T. (1984a). The effects of involvement on response to argument quantity and quality: Central and peripheral routes to persuasion. *Journal of Personality and Social Psychology*, *46*, 69–81.

Petty, R. E., & Cacioppo, J. T. (1984b). Source factors and the elaboration likelihood model of persuasion. *Advances in Consumer Research*, *11*, 668–672.

Petty, R. E., & Cacioppo, J. T. (1986). The Elaboration Likelihood Model of persuasion. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 19, pp. 123–205). New York: Academic.

Petty, R. E., & Wegener, D. T. (1993). Flexible correction processes in social judgment: Correcting for context induced contrast. *Journal of Experimental Social Psychology*, *29*, 137–165.

Petty, R. E., & Wegener, D. T. (1999). The Elaboration Likelihood Model: Current status and controversies. In S. Chaiken & Y. Trope (Eds.), *Dual process theories in social psychology* (pp. 41–72). New York: Guilford.

Petty, R. E., Wheeler, S, C., & Bizer, G. Y. (1999). Is there one persuasion process or more? Lumping versus splitting in attitude change theories. *Psychological Inquiry*, *10*, 156–163.

Priester, J. M., & Petty, R. E. (1996). The gradual threshold model of ambivalence: Relating the positive and negative bases of attitudes to subjective ambivalence. *Journal of Personality and Social Psychology*, *71*, 431–449.

Sloman, S. A., (1996). The empirical case for two forms of reasoning. *Psychological Bulletin, 119*, 3–22.

Smith, E. R., & DeCoster, J. (2000). Dual process models in social and cognitive psychology: Conceptual integration and links to underlying memory Systems. *Personality and Social Psychology Review, 4*, 108–131.

Spencer, S. J., Zanna, M. P., & Fong, G. T. (2005). Establishing a causal chain: Why experiments are often more effective than mediational analyses in examining psychological processes. *Journal of Personality and Social Psychology, 89*, 845–851.

Strack, F., & Mussweiler, T. (2001). Resisting influence: Judgmental correction and its goals. In J. Forgas & K. Williams (Eds.), *Social influence processes: Direct and indirect influences* (pp. 199–212). New York: The Psychology Press.

Vargas, P. T. (2004). The relationship between implicit attitudes and behavior: Some lessons from the past and directions for the future. In G. Haddock & G. R. Maio (Eds.), *Contemporary perspectives on the psychology of attitudes* (pp. 275–297). New York: Psychology Press.

Wegener, D. T., & Carlston, D. (2005). Cognitive processes in attitude formation and change. In D. Albarracin, B. T. Johnson, & M. P. Zanna (Eds.), *The handbook of attitudes* (pp. 403–542). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Wegener, D. T., Clark, J. K., & Petty, R. E. (2006). Not all stereotyping is created equal: Differential consequences of thoughtful versus nonthoughtul stereotyping. *Journal of Personality and Social Psychology, 90,* 42–59.

Wegener, D. T., & Petty, R. E. (1997). The flexible correction model: The role of naive theories of bias in bias correction. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 29, pp. 141–208). San Diego: Academic.

Zajonc, R. B. (1980). Feeling and thinking: Preferences need no inferences. *American Psychologist, 35,* 157–193.

One, Two, Three, What Are We Fighting, Four?

Gordon Moskowitz
Lehigh University

Peizhong Li
University of Wisconsin-Stout

Way back in the 1960s when it was fashionable to protest seemingly unjustifiable wars, the musical group Country Joe and the Fish posed the rhetorical (musical) question, "And it's one, two, three, what are we fighting for?"[1] It was rhetorical in the sense that Country Joe let us know in the next line that he did not want an answer because he *did not give a damn* (maybe he just needed a rhyme for *Vietnam,* but what he probably meant was, "Why answer, because if its unjustifiable there is no answer"). In this issue we find ourselves ensconced in a much different type of battle (given merely careers, not lives, are at stake) between wholly justifiable process models of human cognition (okay, careers are not at stake, only theoretical ideas). Here we ask a similar question: "Is it one, two (does someone have a three) what are we fighting, four?" The battle rages between whether four processes, two processes, or one process can best explain social cognition. Like Country Joe, we respond with an enthusiastic, "Don't ask us, we don't give a damn."

Yet the editors did ask us, and we agreed to write this, so obviously we give a damn about something. It just does not happen to be how many processes can best describe social cognition. It smacks a little too much of the old TV show *Name That Tune*: "I can explain social cognition in one process (the übermodel)." No, we agree with Jeff Sherman (and not because he is the only one among the authors of the target articles still with editorial responsibilities at a major U.S. social psychological journal) that "the question of How Many is a tricky one. The fundamental problem is that the designation of any particular number of processes as the real or important ones is bound to be somewhat arbitrary" (Sherman, this issue). As the very attractive Sherman points out, such a goal is futile. The only real point for establishing such a number would be for metaphorical purposes, to help us illustrate basic processes in some manner that easily describes how the system operates. Any real answer would ultimately take us down to the level of the neuron and could involve any imaginable number of processes. And even then we may debate whether any real answers lie at that level of analysis. For us, the interesting questions are not whether there is one process, or four. The interesting questions are in the details—where the various approaches make similar predictions; where among them there is disagreement; and, most important, how well each accounts for existing data and makes predictions for future research regarding human judgment and action. Each does the incredibly important job of theory building and data integration after an enormously ambitious period of data generation in our field.

Just as the 1950s and 1960s generated tremendous amounts of data that yielded cognitive consistency theories, and the 1970s and 1980s generated tremendous amounts of data that yielded models of social cognition (such as the person memory model and the dual-process model, e.g., Hastie & Carlston, 1980; Hastie & Kumar, 1979; Petty & Cacioppo, 1986), the 1990s and 2000s have seen an enormous amount of research on implicit stereotyping (for reviews see Bargh, 1999; Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997), goals (for reviews see Bargh & Gollwitzer, 1994; Dijksterhuis & Bargh, 2001), and attitudes (spurred by the theory building of the last period, e.g., Brewer, 1988; Chaiken, Liberman, & Eagly, 1989; Devine, 1989; Fazio, 1990; Gilbert, 1989) that needs integrating and consolidation into a coherent frame-

[1]"I Feel Like I'm Fixin' to Die Rag", words and music by Joe McDonald. Copyright @1965 renewed 1993 by Alkatraz Corner Music Co. All rights reserved. Used by permission.