



Taylor & Francis  
Taylor & Francis Group

---

One Process or Two? Quantitative and Qualitative Distinctions in Models of Persuasion

Author(s): Antony S. R. Manstead and Joop van der Pligt

Source: *Psychological Inquiry*, Vol. 10, No. 2 (1999), pp. 144-149

Published by: [Taylor & Francis, Ltd.](#)

Stable URL: <http://www.jstor.org/stable/1449231>

Accessed: 14/03/2014 07:06

---

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at  
<http://www.jstor.org/page/info/about/policies/terms.jsp>

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.



Taylor & Francis, Ltd. is collaborating with JSTOR to digitize, preserve and extend access to *Psychological Inquiry*.

<http://www.jstor.org>

- McGuire, W. J. (1960). Cognitive consistency and attitude change. *Journal of Abnormal and Social Psychology*, *60*, 345–353.
- McGuire, W. J. (1981). The probabilistic model of cognitive structure and attitude change. In R. E. Petty, T. M. Ostrom, & T. C. Brock (Eds.), *Cognitive responses in persuasion* (pp. 291–307). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Petty, R. E. (1994). Two routes to persuasion: State of the art. In G. d'Ydewalle, P. Eelen, & P. Beretson (Eds.), *International perspectives on psychological science* (Vol. 2, pp. 229–247). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- 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). San Diego, CA: Academic.
- Petty, R. E., Cacioppo, J. T., & Goldman, R. (1981). Personal involvement as a determinant of argument-based persuasion. *Journal of Personality and Social Psychology*, *41*, 847–855.
- Petty, R. E., Haugtvedt, C. P., & Smith, S. M. (1995). Elaboration as a determinant of attitude strength: Creating attitudes that are persistent, resistant, and predictive of behavior. In R. E. Petty & J. A. Krosnick (Eds.), *Attitude strength: Antecedents and consequences* (pp. 93–130). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Petty, R. E., & Krosnick, J. A. (Eds.). (1995). *Attitude strength: Antecedents and consequences*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Petty, R. E., & Wegener, D. T. (1998). Attitude change: Multiple roles for persuasion variables. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (4th ed., Vol. 1, pp. 323–390). New York: McGraw-Hill.
- Thomsen, C. J., Borgida, E., & Lavine, H. (1995). The causes and consequences of personal involvement. In R. E. Petty & J. A. Krosnick (Eds.), *Attitude strength: Antecedents and consequences* (pp. 191–214). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Wyer, R. S., Jr. (1970). Quantitative prediction of belief and opinion change: A further test of a subjective probability model. *Journal of Personality and Social Psychology*, *16*, 559–570.
- Wyer, R. S., Jr., & Hartwick, J. (1980). The role of information retrieval and conditional inference processes in belief formation and change. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 13, pp. 241–284). San Diego, CA: Academic.

## One Process or Two? Quantitative and Qualitative Distinctions in Models of Persuasion

Antony S. R. Manstead and Joop van der Pligt

Department of Social Psychology  
University of Amsterdam

Kruglanski and Thompson's unimodel of persuasion is a bold enterprise, flying as it does in the face of much conventional wisdom regarding persuasion. Most current persuasion researchers work with some variant of a dual-process model, so to argue as Kruglanski and Thompson do that the distinction made by these models between two qualitatively dissimilar routes to persuasion is artificial is to question the foundations of modern persuasion research. In this article, we comment on the theoretical arguments and empirical evidence that lead Kruglanski and Thompson to reject dual-process models in favor of their unimodel. We focus on the degree to which their arguments undermine the claims made by the Elaboration Likelihood Model (ELM; Petty & Cacioppo, 1986), and although we are mindful of some important differences between the ELM and the other major dual-process model of persuasion, the Heuristic Systematic Model (HSM; Chaiken, 1980; Chaiken, Liberman, & Eagly, 1989; see Eagly & Chaiken, 1993, for a discussion of these differences), we believe that many of the arguments we develop are applicable to both models.

Like the HSM, the ELM makes a qualitative distinction between a more thoroughgoing and a more superficial mode of processing persuasive communications. This qualitative distinction is the tar-

get of Kruglanski and Thompson's article. It is worth pointing out that the ELM makes both a qualitative and a quantitative distinction (see Petty, 1997). The quantitative distinction pertains to elaboration likelihood and refers to the assumption that at high levels of elaboration, receivers' attitudes will be determined by an effortful examination of all relevant information, whereas at lower levels of elaboration their attitudes are more likely to be determined by "less effortful (less careful) examination of the same information, or effortful examination of less information (e.g., the person critically examines just the first argument in a message, but not the remaining arguments)" (Petty & Wegener, 1998, p. 327). Thus low elaboration can refer to a person basing his or her attitude on the first of 10 arguments as opposed to carefully deliberating all 10, or to a person considering all 10 arguments somewhat superficially; either way, there is some degree of responsiveness to the arguments that are presented. The qualitative distinction made within the ELM relates to whether or not there is any effortful information processing at all. A receiver who falls on the peripheral side of the central-peripheral distinction fails completely to consider the merits of the 10 arguments; instead he or she may, for example, simply count them (see Petty & Cacioppo, 1984).

Kruglanski and Thompson question whether we need both the quantitative and the qualitative distinction. In their view the quantitative distinction is sufficient, and moreover they have serious doubts about the discriminant validity or functional independence of the two modes. We do not necessarily agree with Kruglanski and Thompson, but we do share some of their concerns about some of the central distinctions made in the ELM. On the one hand, there is a (quantitative) continuum, ranging from detailed and careful consideration of all the information at one extreme to a low degree of information processing at the other. On the other hand, there is a qualitatively different mode or "route to persuasion," relying on heuristics and rules of thumb, which is also characterized by a low degree of information processing and is likely to be rather sloppy and inaccurate. Thus we appear to have an elaboration continuum, running from high to low, plus a separate sort of "no-elaboration" category located near the bottom end of the continuum.

An element that complicates matters further is that there is a difference between theoretical statements and research practice. Research practice has (as noted by Kruglanski and Thompson) tended to focus on source characteristics as instances of peripheral/heuristic cues, and arguments contained in the message as instances of central cues. It therefore appears that the distinction between the central/systematic mode and the peripheral/heuristic mode rests mainly on the distinction between source characteristics and message arguments, and how these two sorts of information are processed under conditions varying in involvement, distraction, and so on.

### **Kruglanski and Thompson's Theoretical Argument**

The essence of Kruglanski and Thompson's theoretical argument is that if one shifts up one level in terms of abstraction, then both peripheral and heuristic cues, on the one hand, and message arguments, on the other hand, can be regarded as special cases of what they call "persuasive evidence." They illustrate this point with an analogy concerning Tylenol caplets and tablets. Setting aside the point that the details of this analogy will only be understood by those who have some knowledge of U.S. domestic pharmaceutical culture, we suggest that the analogy is not entirely convincing. One might just as well use Mercedes Benz and BMW automobiles as the analogy, and argue that although they may differ in the details of their appearance, performance, price, and so on, (a) they *need* not differ on these dimensions, and (b) driving the two vehicles gets you from Point A to Point B in pretty much the same way and in pretty much the same time. They are, after all, both automobiles, just as Tylenol caplets

and tablets are both sorts of pain relievers. The differences between the two are nevertheless meaningful to many people. If one removes these differences and continues the analogy or argument, the two things become the same. Applying the same logic to cue-based and message argument-based persuasion, Kruglanski and Thompson wish to argue that although there may appear to be differences in the informational parameters that are characteristic of these two types of persuasion, in principle these differences need not exist. If the differences are controlled for, one should be able to demonstrate that cue-based and message argument-based persuasion are influenced in the same way by the variables having an impact on motivation and ability to process a persuasive communication.

The authors base their unimodel on Kruglanski's (1989) Lay Epistemic Theory (LET) of the processes governing the formation of subjective knowledge. Within the terms of LET, persuasion is "a process during which beliefs are formed on the basis of appropriate evidence." Evidence, in turn, "refers to information relevant to a conclusion," where "relevance" implies some prior link between categories such that affirmation of one has an influence on one's belief in the other. This point strikes us as crucial, because defining evidence in this way opens the door to heuristic processes. Indeed, the authors acknowledge that "The notion of evidence here is the integrative glue that binds together the dual modes of persuasion."

Note the example given in the target article, "an individual may be convinced that 'if a candidate totally lacked political experience, he would make a poor president'." This is not fundamentally different from the heuristic "experts can be trusted." What this implies, of course, is that the presence of evidence that a given candidate did lack political experience would lead rather automatically to the conclusion that this candidate would make a poor president. Let us pursue the concrete version of the example used by the authors, namely the candidacy of Steve Forbes for the U.S. presidency in the 1996 election. Let us also assume that most voters to a greater or lesser degree have available the heuristic "experts (in this case, those with political experience) can be trusted (i.e., to be good presidents)." For voters who know precisely who Forbes is and that he lacks political experience, the mere mention or sight of Forbes in a campaigning context may be sufficient to make this heuristic more accessible and to lead the voter to reject the assertion that he would make a good president (or to accept a political rival's assertion that he would make a poor one). But for voters who know little or nothing about Forbes, much more information may need to be processed before the same conclusion is reached. These two ways of arriving at the same evaluative conclusion seem to us to be quite different. In the one case what Kruglanski and Thompson call the major premise is already pres-

ent, in the mind of the voter; and the mere sight or mention of Forbes constitutes the minor premise. In the other case the major premise may also be already present in the mind of the voter, but establishing the minor premise may require a lot of information processing. There may be some abstract sense in which the same underlying process is going on here, but in the most extreme case of peripheral cue or heuristic processing all of the pertinent premises are already present in the mind of the receiver before exposure to any persuasive communication, resulting in a more-or-less automatic formation of an evaluation, whereas in the case where either the major premise or the minor premise has to be established in the course of the communication, more demands are made on both the sender and the receiver of the communication. To regard these two situations as equivalent seems to us to blur some important distinctions. If the function of a communication is simply to confirm the minor premise in a syllogism, the outcome is predetermined; if the communication has to establish the veracity of one or both premises the outcome is less certain and more dependent on the quality of the arguments that are marshaled by the sender of the communication.

Much the same point applies to Kruglanski and Thompson's suggestion that peripheral cues and heuristics need not differ from message arguments with regard to difficulty of processing. No doubt this is true, and later in the article they report studies in which they put this idea to the test. However, the point is surely that this is to ignore the ecology of peripheral and heuristic cues and of message arguments. Although we cannot cite hard evidence to support the point, we feel that we are on firmer ground in suggesting that there is a systematic difference in the length and complexity of peripheral and heuristic cues, on the one hand, and message arguments, on the other, than are the authors when they jump from the observation that the two types of information "need not systematically differ" to the assertion that "they do not differ systematically."

A similar objection can be made to the authors' argument concerning ordinal position. They first establish that it is "not inevitable" that message recipients encounter peripheral and heuristic cues prior to message arguments by citing the hardly typical example of "op-ed" pieces in newspapers, where the authors' credentials are "often conveyed at the end of the article" (as if no reader ever checks these credentials first to find out whether the piece is worth reading). Then they go on to assert that the two kinds of information do not systematically differ with respect to order. We hope that the point is clear by now: It is not appropriate to conclude that there is no systematic difference simply on the grounds that the difference does not in principle have to exist. Analogously, the population of the Netherlands does not have to live in urban areas (indeed,

there are plenty of people who do not). However, the overwhelming majority of the population does live in urban areas, and this is a feature of the country that can be used to contrast the country in sensible ways with countries that are less highly urbanized.

### **Kruglanski and Thompson's Treatment of Existing Evidence**

We keep our comments on this part of the target article brief. The section on inferred interactions is based largely on conjecture. For example, it is suggested that repetition of peripheral and heuristic cues might have affected attitudes and intentions in the same way that repetition of message arguments did (Schumann, Petty, & Clemens, 1990), and that need for cognition might also enhance people's motivation to process peripheral and heuristic cues, not only message arguments, with similar results for the attitude-behavior relation (Cacioppo, Petty, Kao, & Rodriguez, 1986). In the authors' defense it can be said that the "inferred" interaction is also a sort of conjecture, and that what is really needed to make a solid case for dual-process models are studies reporting the sort of "manifest" interaction that Kruglanski and Thompson go on to discuss. The authors' main argument against the results of these latter studies is that there is a confound between information type (peripheral and heuristic cue vs. message argument) and persuasion-relevant variables such as length, complexity, ease of processing, and ordinal position. The fundamental question to be asked of the authors here is whether or not this "confound" is one that reflects natural confounds in the world around us, or experimenter-created confounds that generate artifactual findings.

### **Kruglanski and Thompson's Own Evidence**

Consistent with their own logic, in their experimental work testing the unimodel, Kruglanski and Thompson systematically seek to unconfound the relation between information type and other characteristics of the information, such as its length or complexity, and then to see whether other classes of variable, such as involvement, interact with the information type per se or with these other characteristics of the information. These are cleverly designed studies that generate interesting findings. We nevertheless have a number of reservations.

One main comment echoes the point we have tried to make throughout. What Kruglanski and Thompson show in these studies is that if you substitute the attributes typically associated with peripheral and heuristic cues (short, simple, easy to process, early) with the at-



tributes typically associated with message arguments (long, complex, difficult to process, late), you can mimic the interaction effects normally found between argument quality and variables influencing either the motivation or the ability to process the message. How one evaluates this evidence (i.e., as an interesting demonstration or as undermining the theoretical logic of dual-process models of persuasion) seems to us to depend on what one regards as the defining features of the two types of information. Kruglanski and Thompson define peripheral or heuristic cue information as “extraneous to the message arguments as such.” As argued earlier, this definition relates more closely to research practice than to theoretical statements to be found in the ELM. Such a purely formal definition leaves the way open to specify the content of the information in any way they wish, including making it long, complex, difficult to process, and late. As argued earlier, this seems to us to overlook the ecology of peripheral and heuristic cue information. By way of an analogy, if one removed all of the unique attributes of a Mercedes Benz and exchanged them for all of the unique attributes of a BMW, any “effects” arising from one vehicle or the other would also be the reverse of what they originally were.

A second point concerns the inferences that are likely to have been made by the participants who received extensive and elaborate information about the source of a message and a short set of mixed quality arguments. In accordance with Grice’s (1975) conversational maxims, it seems likely that these receivers would have been led to conclude that such extensive information about the source was provided because it is of great importance. In other words, the sheer extensiveness of the source information is likely to have carried with it an implicit demand to process it carefully. Moreover, this effect is likely to be more pronounced for respondents under conditions of high elaboration.

A third issue concerns the nature of the experimental designs employed in the four studies. It is not clear to us why in Studies 1, 2, and 3 the authors used a mix of four “moderately weak” and two “strong” arguments. Would the peripheral or heuristic cue interact in the same way with involvement or distraction if the message contained a different mix of arguments? In these studies the impact of detailed information about the source was compared with that of ambiguous (in terms of quality) message information. Such a design seems to favor the impact of source information, especially under conditions of high elaboration. We would have preferred to see the hypotheses being tested in a more “complete” design in which message quality was also systematically varied. Although argument quality was manipulated in Study 4, source expertise was not manipulated in that study.

In summary, Kruglanski and Thompson’s experiments show that under some circumstances source in-

formation can be processed thoroughly, and more thoroughly than the arguments contained in a persuasive message. However, this is not the same as establishing that there is no need to distinguish between central/systematic and peripheral/heuristic modes of information processing.

## Conclusions

A straightforward conclusion to be reached on the basis of Kruglanski and Thompson’s arguments and evidence, in our view, is that a purely formal definition of peripheral and heuristic cue information is insufficient: One also needs to specify some of the typical content attributes of such information. A second simple conclusion is that although it seems to us to be self-evident that peripheral and heuristic cue information is typically short, simple, easy to process, and early, there is to our knowledge no hard evidence concerning this point. Content analysis of naturally occurring persuasive communications would help to provide such evidence. Our third point is more of an observation than a conclusion: The distinction between peripheral and heuristic cue information and message argument information has proved to have heuristic value in social psychological theorizing and research on persuasion. To abandon this distinction on the grounds that one can, with some experimental sleight of hand, make it “go away,” would in our view be a pity. Later, we add some further thoughts concerning the merits and demerits of this distinction.

The distinction between systematic/central and peripheral/heuristic information processing can be compared with distinctions made in the literature on behavioral decision making (see Dawes, 1998, for a recent overview). In this tradition normative models assuming a complete and elaborate cost-benefit analysis of behavioral actions, and/or an accurate application of Bayesian rules, are frequently contrasted with the use of decisional shortcuts. These may be simplified decision rules (disjunctive decision rules, conjunctive decision rules, elimination by aspects, etc.), or heuristics such as availability, anchoring-and-adjustment, and representativeness. This distinction has proved to be useful and has improved our understanding of human decision making. Interestingly, in this literature researchers have avoided referring to different “routes,” or different “systems.” Such dichotomies can be oversimplifying and highly controversial, although it should also be acknowledged they can (eventually) lead to greater clarity. A somewhat related example of a dichotomy between forms of information processing is Zajonc’s (1980) distinction between affective and cognitive processing. His claim that these represent two partially independent systems led to vehement debate (e.g., Lazarus, 1981, 1984; Zajonc, 1984). It took

some time before it was clear whether such a distinction could be made, whether it should be made, and how it should be studied, but the field of emotion research has, it could be argued, benefited from Zajonc's claim.

It may be that equally beneficial outcomes will result from this discussion. However, on the arguments and evidence presented here Kruglanski and Thompson have not convinced us of the need for a unimodel. Rather than pointing to the need for a unimodel, their article seems to us to reveal the need for a greater degree of precision in the ELM. The model appears to suggest that we can distinguish between levels of elaboration both in quantitative terms and in terms of qualitatively different processes. An interesting point of contrast with the decision-making literature is that in the latter tradition simplified decision rules and heuristics are generally placed in the same category. Both decision-making strategies are seen as constituting nonelaborate, incomplete information processing that can be suboptimal, but that can also be quite functional and adaptive. By contrast, within the ELM simplified information processing, such as focusing on just a few arguments (which could be achieved by following a disjunctive or conjunctive decision rule), seems to constitute an impoverished form of central information processing, whereas the use of heuristics is regarded as qualitatively different. Thus Petty and Cacioppo (1984) regard simply counting the number of arguments as a peripheral mechanism, in that it does not involve thought about the substantive merits of the arguments but rather entails reliance on a "rule of thumb or heuristic that the person generates or retrieves from memory" (Petty & Wegener, 1998, p. 327).

How do we define the boundaries between these two qualitatively different routes? As we have seen, counting the number of arguments is regarded a heuristic. But what if a person were only to look for one specific aspect or attribute and ignore all others, such that if the attribute is present persuasion or yielding will take place, but if it is absent there is no persuasion? Similarly, what if a receiver considers the first argument carefully, but ignores all other arguments? Further, what if a person relies heavily on the availability heuristic in assessing the likelihood of various attributes or consequences that are mentioned in the message arguments? As a final example, what if a person were only to take into account those (claimed) attributes and consequences that are certain and ignored all noncertain attributes and consequences, however high their probability?

It seems to us that there are some conceptual problems here with regard to the boundary between the two routes. The aforementioned cases are all examples of heuristic reasoning but they nevertheless seem to us to involve some focus on the message and there-

fore to fall somewhere on a continuum of central route processing—albeit at the lower end of that continuum. The ELM regards the application of other simplifying heuristics (e.g., attaching much weight to the source of the message, or simply counting the arguments) as qualitatively different. The examples we cited earlier suggest in our view that there is a degree of similarity between the various heuristics, whether they are placed at the low end of the elaboration continuum or in the qualitatively different category of heuristic and peripheral information processing. The only real difference is that whereas one set of heuristics concerns cognitive shortcuts in appraising message content, the other concerns aspects of the message and the source that are not directly related to message content. If this is all there is to it, it may be confusing to claim that there are two qualitatively different modes of information processing. In terms of cognitive operations there may be a good deal of overlap between central and peripheral information processing. Conceptually, then, this distinction seems to have some serious shortcomings.

A further problematic aspect of the category "peripheral information processing" is that it includes such a wide variety of peripheral mechanisms (classical conditioning, identification with the source, misattribution of affect to the message, mere exposure effects, and subliminal priming). Four of these mechanisms, it could be argued, are based on qualitatively different cognitive mechanisms. The odd one out is "identification with the source," because this factor is presumably related to the perceived likability of the source, and probably also with perceived expertise. As argued by Kruglanski and Thompson, it is difficult to maintain that the impact of source characteristics (including identification with the source) relies on a qualitatively different sort of information processing than that entailed in the appraisal of message arguments.

In sum, we tend to agree with Kruglanski and Thompson that it is difficult to maintain that source information is always associated with peripheral information processing, and that this sort of information processing is qualitatively different from central information processing. Where we do not agree with Kruglanski and Thompson is their claim that showing that source information can have an impact comparable with message content establishes that the two types of information are processed in a similar way. Establishing that this is the case does not necessarily imply that a unimodel provides a more parsimonious explanation than the ELM for the impact of persuasive information. Kruglanski and Thompson's article serves as a timely reminder of the fact that dual-process models need a clearer conceptual basis. It may in fact be useful to distinguish between three classes of information processing: first, elaborate,

effortful processing of the provided information in accordance with normative models of decision making and judgment (including information about the source); second, the use of heuristics or shortcuts (these might entail attending to less information, relying on only a few arguments presented in the message, attaching excessive weight to source characteristics, ignoring probable as opposed to certain consequences of the attitude object [e.g., a behavioral act], and the use of heuristics in assessing the subjective probability of attributes or consequences); and third, truly automatic information processing.

How strict should one be with regard to the criteria for determining whether different processes are involved? A very strict criterion would be that each process is associated with a distinct underlying mechanism. That is, each process should be associated with different cognitive operations and (ideally) be associated with qualitatively different patterns of brain activity. Kruglanski and Thompson appear to adopt this strict line and argue that the two processes specified by the ELM and the HSM should be scrutinized and shown to be functionally independent (in the same way as semantic vs. episodic memory, or associative vs. rule-based reasoning). Kruglanski and Thompson are of course correct in arguing that such a strict criterion is not fully met. The first two categories we distinguished earlier differ mainly with respect to the amount of cognitive effort invested; here it seems unlikely that we are dealing with qualitatively different cognitive operations. It seems to us to be easier to defend the functional independence of automatic and controlled information processing. Thus there may, after all, be two routes to persuasion, but these may not be identical to the two routes sketched by currently dominant dual-process models.

#### Note

Antony S. R. Manstead and Joop van der Pligt, Department of Social Psychology, University of Amsterdam, Roetersstraat 15, 1018 WB Amsterdam, The Netherlands. E-mail: sp\_Manstead@macmail.psy.uva.nl and sp\_Pligt@macmail.psy.uva.nl

#### References

- Cacioppo, J. T., Petty, R. E., Kao, C. F., & Rodriguez, R. (1986). Central and peripheral routes to persuasion: An individual difference perspective. *Journal of Personality and Social Psychology*, *51*, 1032–1043.
- Chaiken, S. (1980). Heuristic versus systematic information processing and the use of source versus message cues in persuasion. *Journal of Personality and Social Psychology*, *39*, 752–766.
- Chaiken, S., Liberman, A., & Eagly, A. H. (1989). Heuristic and systematic processing within and beyond the persuasion context. In J. S. Uleman & J. A. Bargh (Eds.), *Unintended thought* (pp. 212–252). New York: Guilford.
- Dawes, R. M. (1998). Behavioral decision making and judgment. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (Vol. 1, 4th ed., pp. 497–548). New York: McGraw-Hill.
- Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes*. Fort Worth, TX: Harcourt Brace Jovanovich.
- Grice, H. P. (1975). Logic and conversation. In P. Cole & J. L. Morgan (Eds.), *Syntax and semantics* (Vol. 3, pp. 41–58). New York: Academic.
- Kruglanski, A. W. (1989). *Lay epistemics and human knowledge: Cognitive and motivational bases*. New York: Plenum.
- Lazarus, R. S. (1981). A cognitive reply to Zajonc on emotion and cognition. *American Psychologist*, *36*, 222–223.
- Lazarus, R. S. (1984). On the primacy of cognition. *American Psychologist*, *39*, 124–129.
- Petty, R. E. (1997). The evolution of theory and research in social psychology: From single to multiple effects and process models of persuasion. In C. McGarty & S. A. Haslam (Eds.), *The message of social psychology: Perspectives on mind in society* (pp. 268–290). Oxford, England: Blackwell.
- Petty, R. E., & Cacioppo, J. T. (1984). The effects of involvement on responses 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. (1986). The elaboration likelihood model of persuasion. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 19, pp. 123–205). San Diego, CA: Academic.
- Petty, R. E., & Wegener, D. T. (1998). Attitude change: Multiple rules for persuasion variables. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (Vol. 1, 4th ed., pp. 323–390). New York: McGraw-Hill.
- Schumann, D. W., Petty, R. E., & Clemens, D. S. (1990). Predicting the effectiveness of different strategies of advertising variation: A test of the repetition–variation hypothesis. *Journal of Consumer Research*, *17*, 192–201.
- Zajonc, R. B. (1980). Feeling and thinking: Preferences need no inferences. *American Psychologist*, *35*, 151–175.
- Zajonc, R. B. (1984). On the primacy of effect. *American Psychologist*, *39*, 117–123.