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Associating Versus Proposing or Associating What We Propose: Comment on Gawronski and Bodenhausen (2006)

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Abstract

This commentary highlights the strengths of the associative-propositional evaluation model. It then describes problems in proposing a qualitative separation between propositional and associative processes. Propositional processes are instead described as associative. Propositions are ordered associations, whereas many other associations do not depend on the order of the involved elements. Implications of this alternative definition for the phenomenology of thought and for social psychology are discussed.

Keywords

implicit and explicit attitudes; persuasion; social cognition; judgment

A variety of dual-process models have been proposed to understand how automatic associations are suppressed in response to external and internalized social norms. With the associative-propositional evaluation (APE) model, Gawronski and Bodenhausen (2006) distinguished between associative and propositional processes. They defined associative processes as “automatic affective reactions resulting from the particular associations that are activated automatically when one encounters a relevant stimulus” (p. 693). Propositional processes were in turn defined as “generally concerned with the validation of evaluations and beliefs” (p. 694). These processes are presumably qualitatively different. Associative processes are reflected in implicit attitudes, or measures of automatic evaluative associations. Propositional processes are reflected in explicit attitudes, or verbal acknowledgments of the evaluation of an object.

In this article, we present a commentary on the scope and explanatory power of the APE model. In addition, we reflect on the proposed qualitative distinction between associative and propositional processes. Specifically, we discuss data that question the need for qualitatively different processes.

Toward the end of the commentary, we define and characterize propositional and associative processing as associative in both cases. This circumvents the assumption of qualitative processing differences. Specifically, we define *associative* as “the property of producing the

same result no matter which pair of elements are next to each other in a mathematical expression” (Merriam-Webster Online Dictionary, 2005–2006). For example, addition is associative because $(a + b) + c = a + (b + c)$. On the basis of this principle, we delineate *propositional* as relying on the order in which two elements appear. Correspondingly, *association* refers to an order-free relation between elements. In contrast, a *proposition* refers to an order-bound relation between elements. We present some implications of this definition for the ability of propositions to influence associations and for associations to produce propositions.

Theoretical models often have the goal of integrating the available evidence in previously separate domains. Research on implicit and explicit attitudes has stemmed from different theoretical models and different methodological paradigms. In this context, merely recognizing that these phenomena are part of indivisible human beings is laudable. However, the Gawronski and Bodenhausen (2006) article captures implicit attitudes in relation to the previously known dynamic of explicit attitudes. Thus, it goes beyond prior attitude models that have not considered implicit attitudes (e.g., Albarracín, 2002; Petty & Cacioppo, 1986).

Attitude Stability

The APE model defines attitudes as neither stable nor unstable. The model also does not define implicit attitudes as being more stable or genuine than explicit attitudes. This aspect of the model is timely given a recent debate about whether attitudes should be defined as stable or unstable. For example, Schwarz and Bohner (2001) argued that attitudes are online evaluative judgments. Albarracín, Johnson, and Zanna (2005) included memory and judgment components as equally valid aspects of attitudes. However, Eagly and Chaiken (2005) preferred to retain the term *attitude* for the stable, memory component.

It seems more natural to construe attitude stability as a phenomenon deserving of study rather than as a definitional property. In this regard, the APE model has advantages over semantic discussions. Specifically, instability in explicit attitudes may trigger instability in implicit attitudes. Likewise, instability in implicit attitudes may trigger instability in explicit attitudes. For example, implicit attitudes will remain stable across situations so long as associations do not change. If, however, explicit attitudes are continuously in flux, new associations may develop and existing ones may weaken or strengthen. As a result, implicit attitudes may change. As another example, explicit attitudes should persist if there is no change in implicit associations and the propositions qualifying these associations.

The Roles of Motivation and Inhibition

According to the APE model, associative activation may change as a result of changes in transient motivations. Gawronski and Bodenhausen’s (2006) discussion of motivations as “transient” states led us to consider goal stability. As is the case with attitude stability, the temporal stability of goals varies. On the one hand, motivations can be chronic (e.g., Maslow, 1943). These motivations should stimulate permanent changes in attitudes at both associative and propositional levels. On the other hand, which goal is pursued at any given time can be a function of priming (e.g., Chartrand & Bargh, 1996). For example, word

primes related to the goal of “achievement” have yielded better performance on verbal puzzles than have neutral primes (Bargh, Gollwitzer, Lee-Chai, Barndollar, & Troetschel, 2001).

A parallel between the temporal course of attitudes and the temporal course of goals brings up some important points. Take first the triggers of attitude and goal activation. In the case of attitudes, exposure to the name of an object along with a measurement scale facilitates recall of an attitude about this object. In some people, the scale stimulates retrieving a negative attitude; in others, the scale stimulates retrieving a positive attitude.

Naming an object or concept appears to have directional effects on goal-mediated behavior. Researchers qualify this finding by suggesting this form of automaticity is goal dependent. That is, exposure to the word *win* should elicit the goal to win only if this goal is accessible (for a similar result, see Aarts & Dijksterhuis, 2003).

Theoretically, a goal must be chronic to activate priming (Bargh & Barndollar, 1996; Shah, 2003). However, a direct, rather than inferred, demonstration of this principle has been lacking until very recently. In a study investigating this issue (Hart & Albarracín, 2006), participants primed with *achieve* found more words in word searches after a short delay only if they had a chronic high need to achieve. In contrast, those who were low in their need to achieve found fewer words after the same delay. Presumably, low-need-to-achieve participants activated an alternate goal producing inhibition of the goal to achieve.

A second consideration about the attitudes and the goals literatures is the lack of integration of temporal activation patterns. On the one hand, a stimulus may lead to recalling an attitude. As a result, that stimulus facilitates the use of the attitude until working memory is cleared. On the other hand, the same stimulus can lead to both activation and inhibition of goals depending on one’s behavior. For example, Zeigarnik (1927) showed that uncompleted or interrupted tasks are better remembered than completed tasks. Probably, an inability to satisfy a goal can lead to more conscious attempts directed at goal attainment. When a goal is attained, however, goal-related thoughts may be inhibited (Forster, Liberman, & Higgins, 2005). Interestingly, then, attitudes may share a similar fate if associated with a goal. When goals are active, relevant attitudes should be highly active. In contrast, when goal-related thoughts are inhibited, relevant attitudes should be as well.

The temporal course of attitude and goal activation elicits the question of inhibition in the APE model. Normally, facilitating links are proposed in tandem with inhibitory links. For example, to read the word *WILL* as the nickname “Will,” one must inhibit the activation of “will” as implying volition. Thus, inhibitory links resolve the interference that stems from coexisting associations. These inhibitory mechanisms are present for semantic memory (for a review, see Anderson, 2003), interpretation of events (Bodenhausen & Macrae, 1998), and goal activation (Kruglanski et al., 2002). Given the pervasiveness of these principles, the APE model should spell out their role in the relation between implicit and explicit attitudes.

Dissociation

The APE model treats findings with different implicit measures as unitary. The preponderance of evidence to date, however, suggests that the various available implicit measures are not highly intercorrelated (e.g., Bosson, Swann, & Pennebaker, 2000; Fazio & Olson, 2003). Hence, it may be important for the APE model to account for these inconsistencies.

There are also differences in the APE model's predictions and the data from the domains of intergroup attitudes and self-esteem. According to the APE model, an implicit reaction (e.g., negative affect) about a social group may be viewed as undesirable. Thus, people may correct for this undesirable reaction by means of conscious thought. In support of this contention, when conscious thought is disrupted, the relation between explicit and implicit evaluations appears to increase (Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005).

Just as people should avoid undesirable evaluations, they should embrace desirable ones. For example, as people strive to feel good about themselves, favorable implicit associations should produce favorable explicit associations. Findings by Baccus, Baldwin, and Parker (2004), however, did not support this possibility. Specifically, the researchers found high levels of implicit self-esteem using a conditioning paradigm. This conditioning, however, did not affect explicit self-esteem. If divergences reflected correction for undesirable implicit reactions, there should be no dissociation given a high implicit self-esteem. In this sense, the APE model should clarify the mechanisms underlying dissociation.

Implicit Beliefs

Defining propositional processes may require a phenomenology of belief. For example, one question is whether an analysis of spontaneous conscious thoughts reveals traces of supposedly explicit judgments of truth (for similar arguments, see Albarracín, Noguchi, & Earl, in press). That is, people's explicit attitudes may or may not be explicitly qualified as truth or false.

Judgments of truth are normally implicit. For instance, if one analyzes Joyce's (1922/2006) *Ulysses*, parts of which are written using a stream of consciousness technique, references to "belief" (e.g., "belief," "probability," "true") appear only .0004% of the time. Likewise, experimental data provided by Albarracín and Wyer (2001; see also Albarracín & Wyer, 2000) suggest that beliefs are formed at an early stage of information processing, to the point that they are not disrupted by distraction. Along the same lines, according to Gilbert, Krull, and Malone (1990), Hummel and Holyoak (2003), and Wyer and Radvansky (1999), beliefs are implicit in mentally manipulating objects. The reasons for this assumption may be evolutionary. Clearly, assuming that a risk is real is more adaptive than perceiving it as illusory.

If beliefs can be conceptualized as associations, one should be able to measure them as associations. In fact, one could easily construct an Implicit Association Test that links an object to "true" or "false." For example, to measure belief in God, one could use words denoting God ("almighty," "God") and words denoting belief or disbelief ("true vs. false,"

“credible vs. bogus,” “real vs. fictitious”). Hence, rudimentary object–truth associations are plausible.

If simple beliefs are associations, complex, verbal, or propositional beliefs (“my liking this person is valid because he is nice”) may also be (for similar reasoning, see Hummel & Holyoak, 2003). For example, linguistic propositions may occur when the order of relatively random material in working memory is syntactically compatible with a given proposition (Chomsky, 1959). The word string “tree going *nice* be *like John*” may map onto “It is nice to like John.” By contrast, “*John* tree *like* going *nice* be” may more easily map onto “John likes nice things.” In sum, complex as well as simple associations may be modeled as associations. The simple association of “attitude is true” does not depend on order. In contrast, the more complex, propositional one does.

What Would Happen Without a Qualitative Distinction Between Propositional and Associative Processes?

The argument that associative and propositional processes are qualitatively different may not be necessary. The temporal flow of information may produce mappings onto prior patterns of activation. Depending on whether or not syntactic structures become active, propositional reasoning may or may not emerge. In this way, the mapping should occur through pattern matching without a need to invoke different types of processing (for similar conclusions, see Hummel & Holyoak, 2005). Hypothesizing a similar pattern-matching process is compatible with the functional properties of the brain. After all, the same neural networks that process associations process propositions.

Of course, discarding qualitative distinctions could imply losing the ability to identify and predict meaningful phenomena. On the contrary, the debate between Kruglanski, Thompson, and Spiegel’s (1999) unimodel and the elaboration likelihood model (Petty & Cacioppo, 1986) suggests that the same phenomena can be accommodated without assuming qualitatively different processes. Our speculation about the mechanisms underlying associations and propositions can also incorporate the predictions of associative versus propositional processing.

Consider the role of distraction. As Albarracín (2002) and Kruglanski et al. (1999) have argued, more complex information requires greater processing ability and motivation. If order is crucial in producing associations versus propositions, then the parsing of order should be disrupted when processing ability and motivation are low. Interestingly, this prediction is supported by prior findings. For example, digit span tests require concentration. That is, repeating a series of numbers in the correct order requires greater cognitive ability than does recalling the numbers irrespective of order. Hence, one may conceive of order as more difficult to process and still postulate pattern activation as the underlying mechanism.

In the past, qualitative distinctions between processing types have assumed that different processes have different outcomes. This evidence, however, is questionable. For example, Petty and Cacioppo (1986) have argued that centrally processed attitudes last longer than peripherally processed attitudes. If so, one may argue that propositions may last longer than

associations. Consider, for example, the sleeper effect (for a review, see Kumkale & Albarracín, 2004). If propositional processing lasted longer than other evaluative associations, one should remember that a message from a noncredible communicator was previously invalidated. Nevertheless, the exact opposite is the case. That is, people who receive a message from a credible communicator are more persuaded of the advocacy as time goes by. They forget that the conclusion was invalid, but they remember the evaluative direction of this conclusion. Rather, the duration of either a belief or an evaluative association depends on allocated attention more than on its presumably associative or a propositional nature.

In closing, the APE model is an excellent first step in integrating phenomena that were previously investigated separately. Moreover, the model's propositions led us to think about the phenomenology of these processes in real life. In the case of this model, the phenomenology suggests different types of associations and mappings rather than qualitatively different processes. Understanding how people translate various types of order-free associations into ordered, truth-stating associations may be an important research focus for the future.

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References

- Aarts H, Dijksterhuis A. The silence of the library: Environment, situational norms, and social behavior. *Journal of Personality and Social Psychology*. 2003; 84:18–28. [PubMed: 12518968]
- Albarracín, D. Cognition in persuasion: An analysis of information processing in response to persuasive communications. In: Zanna, MP., editor. *Advances in experimental social psychology*. Vol. 34. San Diego, CA: Academic Press; 2002. p. 61-130.
- Albarracín, D.; Johnson, BT.; Zanna, MP. Attitudes: Introduction and scope. In: Albarracín, D.; Johnson, BT.; Zanna, MP., editors. *Handbook of attitudes*. Hillsdale, NJ: Erlbaum; 2005. p. 3-20.
- Albarracín D, Noguchi K, Earl AN. Joyce's *Ulysses* and Woolf's *Jacob's room* as the phenomenology of reasoning: Intentions and control as emergent of language and social interaction. *Psychological Inquiry*. in press.
- Albarracín D, Wyer RS. The cognitive impact of past behavior: Influences on beliefs, attitudes, and future behavioral decisions. *Journal of Personality and Social Psychology*. 2000; 79:5–22. [PubMed: 10909874]
- Albarracín D, Wyer RS. Elaborative and nonelaborative processing of a behavior-related communication. *Personality and Social Psychology Bulletin*. 2001; 27:691–705.
- Anderson MC. Rethinking interference theory: Executive control and the mechanisms of forgetting. *Journal of Memory and Language*. 2003; 49:415–445.
- Baccus JR, Baldwin MW, Parker DJ. Increasing implicit self-esteem through classical conditioning. *Psychological Science*. 2004; 15:498–503. [PubMed: 15200636]
- Bargh, JA.; Barndollar, K. Automaticity in action: The unconscious as a repository of chronic goals. In: Gollwitzer, PM.; Bargh, JA., editors. *The psychology of action*. New York: Guilford Press; 1996. p. 457-481.
- Bargh JA, Gollwitzer PM, Lee-Chai A, Barndollar K, Troetschel R. The automated will: Nonconscious activation and pursuit of behavioral goals. *Journal of Personality and Social Psychology*. 2001; 81:1014–1027. [PubMed: 11761304]
- Bodenhausen, GV.; Macrae, CN. Stereotype activation and inhibition. In: Wyer, RS., Jr, editor. *Advances in social cognition*. Vol. 11. Mahwah, NJ: Erlbaum; 1998. p. 1-52.

- Bosson JK, Swann WB, Pennebaker JW. Stalking the perfect measure of implicit self-esteem. *Journal of Personality and Social Psychology*. 2000; 79:631–643. [PubMed: 11045743]
- Chartrand TL, Bargh JA. Automaticity of impression formation and memorization goals. *Journal of Personality and Social Psychology*. 1996; 71:464–478.
- Chomsky N. On certain formal properties of grammars. *Information and Control*. 1959; 2:137–167.
- Eagly, AH.; Chaiken, S. Attitude research in the 21st century: The current state of knowledge. In: Albarracín, D.; Johnson, BT.; Zanna, MP., editors. *Handbook of attitudes*. Mahwah, NJ: Erlbaum; 2005. p. 743-767.
- Fazio RH, Olson MA. Implicit measures in social cognition research. *Annual Review of Psychology*. 2003; 54:297–327.
- Forster J, Liberman N, Higgins ET. Accessibility from active and fulfilled goals. *Journal of Experimental Social Psychology*. 2005; 41:220–239.
- Gawronski B, Bodenhausen GV. Associative and propositional processes in evaluation: An integrative review of implicit and explicit attitude change. *Psychological Bulletin*. 2006; 132:692–731. [PubMed: 16910748]
- Gilbert DT, Krull DS, Malone PS. Unbelieving the unbelievable: Some problems in the rejection of false information. *Journal of Personality and Social Psychology*. 1990; 59:601–613.
- Hart W, Albarracín D. The person situation interaction in the activation of goals. 2006 Unpublished manuscript.
- Hofmann W, Gawronski B, Gschwendner T, Le H, Schmitt M. A meta-analysis on the correlation between the Implicit Association Test and explicit self-report measure. *Personality and Social Psychology Bulletin*. 2005; 31:1369–1385. [PubMed: 16143669]
- Hummel JE, Holyoak KJ. A symbolic-connectionist theory of relational inference and generalization. *Psychological Review*. 2003; 110:220–264. [PubMed: 12747523]
- Hummel JE, Holyoak KJ. Relational reasoning in a neurally-plausible cognitive architecture: An overview of the LISA project. *Current Directions in Cognitive Science*. 2005; 14:153–157.
- Joyce, J. Ulysses [Electronic version]. 1922/2006. Retrieved March 13, 2006, from www.gutenberg.org/dirs/etext03/ulyss12.txt
- Kruglanski, AW.; Shah, JY.; Fishbach, A.; Friedman, RS.; Chun, WY.; Sleeth-Keppler, D. A theory of goal systems: Implications for social cognition, affect, and action. In: Zanna, M., editor. *Advances in experimental social psychology*. Vol. 34. New York: Academic Press; 2002. p. 331-376.
- Kruglanski, AW.; Thompson, EP.; Spiegel, S. Separate or equal?: Bimodal notions of persuasion and a single-process “unimodel”. In: Chaiken, S.; Trope, Y., editors. *Dual process models in social cognition: A source book*. New York: Guilford Press; 1999. p. 293-313.
- Kumkale GT, Albarracín D. The sleeper effect in persuasion: A meta-analysis. *Psychological Bulletin*. 2004; 130:143–172. [PubMed: 14717653]
- Maslow AH. A theory of human motivation. *Psychological Review*. 1943; 50:370–396.
- Merriam-Webster Online. 2005–2006. Retrieved March 20, 2006, from <http://www.m-w.com>
- Petty, RE.; Cacioppo, J. *Communication and persuasion: The central and peripheral routes to attitude change*. New York: Springer-Verlag; 1986.
- Schwarz, N.; Bohner, G. The construction of attitudes. In: Tesser, A.; Schwarz, N., editors. *Blackwell handbook of social psychology: Intraindividual processes*. Vol. 1. Oxford, England: Blackwell; 2001. p. 436-457.
- Shah JY. The motivational looking glass: How significant others implicitly affect goal appraisals. *Journal of Personality and Social Psychology*. 2003; 8:424–439. [PubMed: 14498780]
- Wyer RS, Radvansky GA. The comprehension and validation of social information. *Psychological Review*. 1999; 106:89–118. [PubMed: 10197364]
- Zeigarnik B. Das Behalten erledigter und unerledigter Handlungen [On the recall of completed and incompleted tasks]. *Psychologische Forschung*. 1927; 9:1–85.