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CONTEMPORARY PRAGMATISM 15 (2018) 284-301



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Beliefs are Object-Attribute Associations of Varying Strength

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Abstract

Associative theories of cognitive representation begin with an ontology of two kinds of entities: concepts and associations. According to most social cognitive theories of attitudes, attitudes are object-evaluation associations of varying strength, where strength is defined in terms of accessibility. This paper proposes a cognitive account of belief such that beliefs are object-attribute associations of varying strength: thus, insofar as evaluative concepts are examples of attribute concepts, attitudes are a species of belief. This cognitive account of belief also denies that additional processes of endorsement—explicit or otherwise—are strictly required for an object-attribute association to count as a belief.

Keywords

belief – attitude – social cognition – cognitive association – social psychology

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Since Russell's lectures on logical atomism, philosophers have commonly argued that a belief is a propositional attitude: in particular, it is the attitude that the proposition in question is *true* (e.g., Bogdan 1986; Dawes 2013; Fodor 1978; Merricks 2009; Quine 1956; Schwitzgebel 2015). There are certain benefits to this view. First, it distinguishes belief from other attitudes one could take toward the proposition in question. Consider the proposition "God exists". Besides taking this proposition as *true* (i.e., believing it), one could take it as *desirable* or *worrisome*; for example, one could wish that God existed without believing

that this is so (though see Merricks 2009). Staying within the epistemic realm, one could also *know* that God exists or, to take things down a notch, *accept* the proposition “as a premise in theoretical and/or practical reasoning” (Dawes 2013, 62). Second, this account of belief distinguishes the object of belief from the belief itself: beliefs are attitudes toward propositions, and not the propositions themselves. As we shall see, this latter point seems trivial but turns out to be significant when translated into cognitive psychological terms.

There is, as Egan (1986) observed over three decades ago, no widely-accepted cognitive psychological theory of belief; despite the philosophical importance of doxastic states and clinical importance of delusions and other misbeliefs, there has been remarkably little research attention to this topic within psychology (though see Connors & Halligan 2015). There is, however, a large theoretical and empirical literature on *attitudes*. It is tempting to equivocate between the philosophical usage of the term “attitude” in “propositional attitude” and in the cognitive psychological literature, but inter-disciplinary interactions must proceed cautiously. This cautious proceeding is the brief of this paper, in which I argue for an account of belief informed by the social psychological literature on attitudes, drawing from it to address or reframe questions in the philosophical literature about occurrent and dispositional beliefs, explicit and implicit beliefs, and degrees of belief.

What is an Attitude?

Eagly and Chaiken’s (1993, 1; 1998; 2007) attempt at an inclusive definition is as good a place to start as any: an attitude is “a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor”. Their characterization of attitudes as being about evaluations is universally accepted. By “psychological”, they mean that an attitude is an internal state or trait, inferable but not reducible to observable responses. Radical behaviorists and other eliminativists notwithstanding, this too is widely accepted (for contrary views, see Churchland 1981; DeFleur & Westie 1963; Ramsey, Stich, & Garon 1991; Stich 1983): attitudes are things in the minds of individuals. The distinction between attitudes and behaviors makes the relationship between them one for empirical investigation, and not just conceptual analysis. Indeed, there is a large and growing research literature on the relationship between attitudes and behaviors, and the factors that strengthen and weaken it. The use of the terms “tendency” or “propensity” (Eagly & Chaiken 2007, 583) is more contentious, though it is intended to bridge the gap between those who construe attitudes as ephemeral states constructed in the moment (e.g., Schwarz

& Bohner 2001; Schwarz 2007) and those who think of them as stable dispositions stored in memory (e.g., Fazio 1995, 2007); more on this later. Deliberately avoided in this definition is commitment to any particular theoretical—or, as they prefer *metaphorical*—description of attitudes.

Theoretical nuances aside for a moment, the notion of *association* is crucial in describing attitudes: as Fazio (1995, 2007) puts it, attitudes are object-evaluation associations. The most straightforward way to picture this comes from associative network models, sometimes also called symbolic models. These models would have us imagine our mental contents as comprising of a large collection of items, often called *concepts*. Accounts differ on how to taxonomize concepts, but it will suffice for our purposes to consider two kinds of concepts: object concepts and evaluative concepts. Some examples of the former are “God”, “dog”, “7”,¹ and “justice”; some examples of the latter are our concepts of “good”, “bad”, “disgusting”, and “boring”. Accounts also differ on the relationship between evaluative concepts and affects (i.e., feelings), but it is reasonable to say that evaluative concepts are at least sometimes affect-laden: thus, the evaluative concept “disgusting” might be associated with feelings of disgust. Given these two kinds of concepts, it is easy to see what an attitude is: it is an association between an object and an evaluative concept,² for example, the association between “dog” and “good”. According to most associative network models, what this means is that *activation* of the concept “dog” more or less reliably and readily activates the concept “good”; put another way, increased *accessibility*³ of the concept “dog” more or less reliably and readily increases the accessibility of the concept “good”. This allows attitudes to be a matter of degree: hence, Fazio’s (2007) fuller definition of attitudes as “object-evaluation associations of varying strength”. According to Fazio (2007; Fazio, Sanbonmatsu, Powell, & Kardes 1986), object-evaluation associations can be plotted on an *attitude-nonattitude continuum*: on one end, are objects with no prior evaluative association and on the other are objects that, when made salient, automatically evoke the evaluative concept even without the individual’s intent.

1 You might think that “7” is an attribute (more on which later) and, insofar as quantity is an attribute, you would be right. Here, I am referring to the concept of the number 7 *qua* object, as in the claim that “The number 7 is a Platonic object”.

2 Attitudes may also be associations between objects and *affects*, but I am bracketing this out for simplicity.

3 The distinction is sometimes made between temporary and chronic accessibility (see Chapters 9 and 10 of Moskowitz 2005 for review). It would probably be neater to reserve the term for the latter, referring to the ease of retrieval of a concept (Higgins 1996), but that is not how the term is consistently used in practice.

Associative network models possess the virtue of being easy to understand, in part because they bear resemblance to how natural languages work: just as sentences are made of words, attitudes are made of concepts. Indeed, just as sentences comprise subjects and predicates, so attitudes are made of objects and evaluations. However, there are other ways to describe attitudes, such as those proposed by connectionist network models. As with associative models, connectionist models posit relations between attitude objects and evaluations; however, they differ in how these constituents are described. *Distributed* connectionist network models⁴ draw the analogy, not with language, but with neuronal activity: just as objects are not represented in the brain by specific neurons (e.g., “grandmother” cells; though for a defense of neurobiological localism, see Bowers 2009; Quiroga, Fried, & Koch 2013), they are not cognitively represented as discrete concepts either. Instead of discrete concepts carrying meaning (e.g., “dog”, “good”), connectionist models posit *nodes*. Like neurons, nodes are richly interconnected, and connections between nodes vary in weight or strength. In contrast to concepts in symbolic accounts, individual nodes carry no meaning, only patterns of activation across many nodes do. Proponents of distributed connectionist network models argue that they are better suited than their associative network counterparts to explain various empirical findings, including the malleability of attitudes and the variable relationship between implicit and explicit attitudes (Bassili & Brown 2005; Conrey & Smith 2007). However, the differences between associative and connectionist models can be overstated. Bassili and Brown’s (2005) view on the matter—that this is a debate over conceptual primitives—is a sensible one. On this view, the symbolic model is not mistaken, but supervenes on the distributed connectionist model: there *are* concepts, but they are made up of patterns of nodal activation (see Fodor & Pylyshyn 1988; Marcus 2001).

Another contentious debate about the cognitive representation of attitudes is over whether attitudes are stored and retrieved or whether they are constructed ad hoc. Roughly speaking, the associationists emphasize the stability of attitudes, whereas the distributed connectionists emphasize the malleability of attitudes. On this front, connectionists are natural bedfellows with *construal* models of attitudes (Schwarz 2007; Schwarz & Bless 2007). Indeed, according to the distributed connectionist view, the same mental representation is never activated more than once, because the connection weights between the richly interconnected nodes are constantly changing. This is why

4 There are localist connectionist network models of attitudes too, but they do not seem to me to be interestingly different from symbolic models (Monroe & Read 2008; Van Overwalle & Siebler 2005).

Conrey and Smith (2007) assert that, according to the connectionist view, there are “no true attitudes”, though they unhelpfully also say that there might be “an infinite number of true attitudes”. The latter claim is particularly unhelpful for distinguishing between connectionist and associative network theories, because Fazio’s (2007, 626) account of attitude malleability can also be read as positing a massive multiplicity—though perhaps not an infinity—of attitudes, such as when he says that “water is not the same attitude object when one is thirsty as when not”: in other words, when one’s attitudes seem to differ from context to context, it may be that it’s not the attitude that’s changing but the attitude object itself.

The experimental evidence is ambivalent about the malleability of attitudes. Attitudes—whether measured via self-report or implicit measures—are demonstrably sensitive to context, susceptible even to minor variations in question wording, stimulus choice, and priming (Bless, Schwarz, & Wänke 2006; Schwarz 2006; Schwarz & Bless 2007). However, attitudes are stable when such inputs are constant; indeed, test-retest reliability would make no sense as a psychometric assessment criterion if this were not so. We are at an impasse. Theorists on both sides also agree that the relationship between attitude malleability and attitude *strength* is an important battlefield, but they predictably disagree on who’s winning this fight. For example, Fazio (2007) claims that studies show that context effects are moderated by attitude strength, whereas Schwarz (2007) claims the opposite. There are conceptual and empirical hurdles to overcome before we can adjudicate the matter: not only is there insufficient experimental research on this question, but the results are inconsistent, which is in part driven by disagreements on what attitude strength consists in (Bassili & Krosnick 2000; Krosnick & Abelson 1992; Krosnick & Schumann 1988; Lavine, Huff, Wagner, & Sweeney 1998; Prislín, 1996).

Recall that the associative view emphasizes association strength defined in terms of the spreading activation of concepts (Fazio 1995, 2001; see Klauer & Musch 2003). In contrast, proponents of distributed connectionist views have tended to emphasize the multidimensionality of association strength (Bassili & Krosnick 2000; see Petty & Krosnick 1995 for a variety of views). Again, however, we should resist the temptation to make too much of these disagreements. Disagreement over the term “attitude strength” might just reflect a narrower focus from the associative network perspective. More fundamentally, even if attitudes are “evaluative judgements formed on the spot” (Schwarz 2007, 650), important elements of an attitude’s constituents are stored and retrievable, including beliefs about the attitude object and even memories of “previously formed evaluations”. Conrey and Smith (2007) also claim that individuals can

learn to attend to specific elements of the context (i.e., inputs) in order to reconstruct approximately the same pattern of activation across different contexts, thus accounting for attitude stability. In their view, such stability is the special case, and malleability is the norm, but *something* is being learned—that is, stored or, to use a more up-to-date metaphor, saved in memory—such that approximately the same attitude may be reproduced.

All of which is to say that despite the protestations of distributed connectionist theorists and construal theorists, so-called traditional definitions of attitudes are in my view broad enough to encompass theoretical disagreements. We can all agree that an attitude is an “object-evaluation association of varying strength”, even if we disagree over how objects and evaluations are mentally represented (i.e., as symbolic units called concepts or distributed patterns of nodal activation), how attitudes are activated (i.e., retrieved or reconstructed), and what attitude strength consists in.

But here’s another problem. Both the associative and connectionist network view of attitudes have difficulties distinguishing between an attitude one actually holds and an attitude one knows about. For example, we want to be able to say that someone knows about, say, a negative racial stereotype without endorsing it. This concern has led social psychologists to posit extra-personal as well as personal associations. Predictably, there is no consensus over how these two kinds of association differ cognitively (i.e., how they are represented differently in memory; Gawronski, Peters, & Lebel 2008; Nosek & Hansen 2008; Olson, Fazio, & Han 2009). Before we discuss the theoretical options currently under consideration, we would profit from a very short and very rough primer on *implicit measures* of attitudes. Those already familiar with such methods should skip the following section.

Implicit Measures of Attitudes

Explicit measures are those that require direct responses to the attitude object. For example, asking people “Do you like ice cream?” “Ice cream is delicious. Do you agree?” and “Please categorize ice cream as either good or bad” are all examples of explicit or direct or overt measures of one’s attitude toward ice cream. Implicit measures are those that do not rely on such direct responses. There are a wide variety of implicit or indirect or covert measures, which are designed to solve different methodological problems and that are derived from different theoretical foundations (for review, see De Houwer, Teige-Mocigemba, Fazio & Olson 2003; Spruyt, & Moors 2009; Gawronski &

De Houwer 2014). The most relevant clusters of methods for our purposes are priming measures and dual-task measures.

Meyer and Schvaneveldt's (1971; Meyer, Schvaneveldt, & Ruddy 1975) work on the effects of semantic priming on lexical decisions is widely considered to be the genesis of the way social psychologists think about the cognitive representation of attitudes. A lexical decision is a judgement that some stimulus (e.g., BREAD, DREAB) is a word as opposed to a meaningless jumble of letters. There are various factors that might affect how quickly we can perform this task, such as how long the letter string is or how fluent we are at the language in question. Meyer and colleagues were interested in whether increased accessibility of a semantically related concept also facilitates lexical decisions. Thus, Meyer, Schvaneveldt, and Ruddy (1975) presented participants with word and non-word strings, and found that that lexical decisions on a stimulus were quicker when the preceding stimulus was a semantically-related word. For example, NURSE was more quickly recognized as a word when it was preceded by DOCTOR than when it was preceded by BREAD or by a non-word string.

Fazio, Sanbonmatsu, Powell, and Kardes (1986) then extended this paradigm to study *evaluative* associations by first priming participants with words referring to things that they liked (e.g., CAKE) and disliked (e.g., GUNS) before having them make lexical decisions about positive (e.g., DELIGHTFUL) and negative (e.g., REPULSIVE) adjectives, and they found that the valence of the primes facilitated responses to adjectives. This paved the way for the construction of evaluative or affective priming tasks as a means to measure the extent to which a participant associates any given evaluative object positively or negatively (e.g., Fazio, Jackson, Dunton, & Williams 1995). The logic behind this measurement method is straightforward: if the participant's attitude toward the prime is negative, it should facilitate the subsequent response to a negative adjective, but if her attitude toward the prime is positive, it should facilitate the subsequent response to a positive adjective. Thus, the extent to which responses to positive and negative adjectives are facilitated can serve as an indicator for the participant's attitude toward the prime.

The Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz 1998) is the paradigmatic example of a dual-task procedure, and is admittedly "similar in intent to cognitive priming procedures" (p. 1464). The IAT essentially comprises of two categorization tasks that use the same set of response keys (e.g., Z and / on a QWERTY keyboard): participants are required to categorize words as positive or negative as well as to sort evaluative objects into the appropriate categories. For example, Greenwald, McGhee, and Schwartz (1998, Experiment 3) had participants categorize pleasant and unpleasant words while also sorting first names typically associated with White (e.g., BRANDON, IAN) and

Black (e.g., DARNELL, LAMAR) Americans, and found that their response times were slower when responses to Black names shared the same response key as positive words than when they shared the same key as negative words.

Both the evaluative priming task and the IAT are attempts to measure object-evaluation associations, using response times as a measure of association strength (i.e., attitude strength). There are other kinds of implicit measures like them, and the research literature on the reliability and validity of such measures is large and ever growing. The theoretical literature on personal and extra-personal associations comes directly out of this work on implicit measures, as it addresses questions about what such measures mean. The problem does not arise for explicit measures: under normal conditions, people have little trouble distinguishing their own attitudes from those of others. In contrast, there has been long-standing controversy over whether IAT scores are good indicators of the individual's own attitudes, or whether it is best interpreted as indicators of her knowledge of others' attitudes (e.g., Arkes & Tetlock 2004; Han, Czellar, Olson, & Fazio 2010; Uhlmann, Poehlman, & Nosek 2012).

Personal and Extra-personal Associations

At this early stage of theorizing, one promising theory about how personal and extra-personal associations differ is that they are differentially meta-cognitively *tagged*: that is, the object-evaluation associations are themselves associated with different concepts. For example, Olson and Fazio's (2004) attempt to construct a *personalized* IAT—using the categories I LIKE and I DON'T LIKE rather than PLEASANT and UNPLEASANT—might imply that personal associations are those that are cognitively associated with one's self concept. More broadly, Petty, Briñol, and DaMarree's (2007) Meta-cognitive Model (MCM) suggests a variety of meta-cognitive tags like yes/no, true/false, and so forth that philosophers might recognize as representing different propositional attitudes. Indeed, an object-evaluation association tagged as “true” seems very close to the philosophical definition we began with: a proposition that one takes as being true. Another meta-cognitive account is Olson et al.'s (2009), who suggest that it may be extra-personal associations that are specially tagged, for example with source information, such that it is salient to the person that the association is not her own. All three proposals complicate the account of attitude strength we covered earlier, because they suggest that cognitive tasks that measure the strength of associations between object and evaluation concepts only capture a part of an attitude. Indeed, they do not even really measure what makes something an attitude as opposed to

knowledge of others' attitudes. To successfully measure a person's attitudes, the task would have to measure the secondary association between the relevant meta-cognitive tag (e.g., TRUE/FALSE, ME/NOT ME) and the object-evaluation association (e.g., DOG-GOOD): that is, we would ideally measure the [DOG-GOOD]-TRUE relationship.

The other major theoretical option is to deny the theoretical importance of the personal and extra-personal distinction at the level of associations, or to map this distinction to the distinction between explicit and implicit attitudes. In other words, associations may well be meta-cognitively tagged, but they are really only "personal" when they are explicitly endorsed.⁵ On this view, associations vary in their influence on behavior, not because they are more or less *personal*, but because they vary on accessibility or some other cognitive property (Nosek & Hansen 2008). What turns an association into a personal association is some further process of elaboration. For example, the associative-propositional evaluation (APE; Gawronski & Bodenhausen 2006⁶) model posits a reflective system that translates associations stored in memory (e.g., DOG-GOOD) into a propositional format (e.g., I like dogs).⁷ These propositions are then judged for their validity, based largely on consistency with other propositions that are deemed relevant—and are therefore momentarily highly accessible—for this judgment. It is at the end of this process that we have an attitude that is personally endorsed.

At risk of oversimplification, theoretical interpretations of the research on implicit measures also fall roughly into two camps, corresponding to the two approaches to the personal v. extra-personal distinction. One camp, best represented by Fazio and colleagues, asserts that there is one true attitude per attitude object (recall that "water" might refer to multiple attitude objects, depending on context): the attitude in question is a personal object-evaluation

5 Note that this is not how Olson and Fazio (2004) construe the personal v. extra-personal distinction.

6 The APE model is often described—including by its authors—as a construal model of attitudes, in which attitudes are constructed rather than stored. This is misleading. It is true that, according to APE, *propositions* are best described as constructed states—this is one key difference between APE and MCM—but the reflective system acts on associations stored in memory that are currently activated.

7 Mandelbaum (2016) mentions that the notion of unconscious propositionally-structured representations is anathema to many cognitive scientists. This may be true, but I can see no theoretical reason for this prejudice. For example, Gawronski and Bodenhausen's (2006) APE model is unproblematically modifiable to say that an association needs to be propositionally structured as a necessary but not a sufficient condition of it becoming explicit. Besides, social cognitive theories are hardly equipped to posit sufficient conditions for consciousness.

association stored in memory. On this view, responses to explicit measures are verbal *behaviors*, and like all behaviors, their relationship to the relevant attitudes are moderated by a multiplicity of internal and external factors, including attitude strength, individual's goals and motivations in the given context, and so forth. Implicit measures are therefore more direct measures of attitudes. The other camp, best represented by Greenwald and Nosek (e.g., Greenwald, Banaji, Rudman, Farnham, Nosek, & Mellott 2002; Nosek 2007) and colleagues, posits two processes. On this view, evaluative associations are ingredients of explicit attitudes, which are made by some process of meta-cognitive tagging (e.g., Petty et al. 2007) and/or translation into propositional form and subsequent validation (e.g., Gawronski & Bodenhausen 2006) and/or self-regulatory ascription as MINE or NOT MINE (e.g., Nosek & Hansen 2008), and so forth. On this view, explicit measures are measures of explicit attitudes, admittedly via verbal behaviors; implicit measures are measures of the associations on which explicit attitudes are built.

To nail my colors to the mast, I am inclined to agree with the dual-process view of attitudes, despite the fact that it is less parsimonious, positing two kinds of attitudes rather than one. Evidence for the incremental validity of implicit measures in predicting behavior, even when they are tainted by extrapersonal knowledge suggests to me that there exist at least two kinds of psychological constructs (e.g., Greenwald, Poehlman, Uhlmann, & Banaji 2009). On this view, it is possible for the two representations—one associative and the other propositional—to contradict. One might explicitly reject an attitude as it is represented at the associative level; even so, as Nosek and Hansen (2008) argue, those associations are *ours* to the extent that they affect our other feelings, judgments, and behaviors (see also Mandelbaum 2014). This implication of dual-process models also more readily accounts for the phenomenology of attitudinal conflict than do single-representation models. If all the evaluative associations in our head are ours to some extent, it is no wonder that we often feel self-contradictory and hypocritical.

What is a Belief?

We have not made very much direct progress on the topic at hand: belief. We began—before this long detour through the debates among psychologists over the nature of attitudes—by observing that philosophers often say that beliefs are a kind of propositional attitude. In cognitive psychological terms, this would mean that beliefs are a species of object-evaluation association, in which the object is a proposition and the evaluation is in terms of truth or

falsity. But this is not how cognitive psychologists have typically thought about beliefs, not least because evaluations are typically narrowly construed in terms of preferences or likes and dislikes. Furthermore, propositions are not generally counted among attitude objects. However, it is not now difficult to see how the attitude literature in social psychology might be relevant to our current interest. Before we get to that it is worth briefly considering what attitude theorists have said about beliefs.

Eagly and Chaiken (1998, 274)—our guides once again—state that “In attitude theory, beliefs are the building block of attitudes”, which they elaborate as meaning “the associations that perceivers establish between the attitude object and various attributes”. In other words, if attitudes are *object-evaluation* associations of varying strength, then beliefs are *object-attribute* associations of varying strength. Fazio (2007) essentially agrees; to explain what knowledge⁸ is, he uses the example of knowledge that ants are small but strong, saying that it is “the associations between ant and small and between ant and strong”.⁹ It seems, therefore, that cognitive scientists think of beliefs as having an object-attribute structure in much the same way that philosophers think of propositions as having a subject-predicate structure. This is also consistent with the language of thought hypothesis, widely endorsed among cognitive scientists, according to which mental representations are like sentences in a language (Fodor 1975; see Aydede 2010 for a recent review).

Recall that the associative network models posit concepts and associations as the basic constituents in their mental ontology: attitudes and beliefs are structurally identical on this view, both being associations between concepts. Researchers have expressed this in different ways, with Fazio (2007) claiming that attitudes are a form of knowledge (*viz.*, evaluative knowledge) and, decades prior, Wyer and Goldberg (1970, 102) asserting that “no theoretical distinction will be made between a belief and an attitude”. But this move to dissolve differences between different kinds of associations between concepts seems too quick. After all, not only does the distinction between object-evaluation and object-attribute associations seem like a useful one, but we should also be able to distinguish them from object-object, evaluation-evaluation, and attribute-attribute associations. In other words, we should be able to distinguish associations that are merely semantic (e.g., BREAD-BUTTER, NURSE-DOCTOR, to use to classic examples from Meyer & Schvaneveldt 1971) from

8 Psychologists generally do not have in mind the “justified true belief” definition of “knowledge”: rather, “knowledge” and “belief” are interchangeable.

9 This does not entail that Fazio agrees with Eagly and Chaiken that beliefs are the building blocks of attitudes, which implies that beliefs are necessary for attitudes.

those that are evaluative on one hand (e.g., BREAD-YUM) and doxastic on the other (e.g., GOD-REAL).

The most obvious view about what makes an association between concepts a *belief* is just, as I suggested just a moment ago, that it is an association between an object and an *attribute*, including—all due respect to Kant—that of existence. To paraphrase Fazio: a belief is an object-attribute association of varying strength, with strength defined in terms of accessibility. When the attribute in question is evaluative (e.g., GOOD), then it is an attitude, which as Fazio (2007) argues is just a piece evaluative knowledge (or, as we might say, evaluative belief). But, of course, the debate over personal and extra-personal associations is relevant here. If not all evaluative associations are attitudes, then not all object-attribute associations are beliefs; if, on the other hand, as Nosek and Hansen (2008) argue, associations are *attitudinal* to the extent that they influence other judgments and behaviors, then this applies equally in the case of belief. Taking Nosek and Hansen's (2008) view on this—not requiring meta-cognitive tagging or further cognitive processing as a condition of belief—also avoids treating beliefs as binary phenomena.

Let's sum up. Social cognitive theorists posit object-attribute associations. They may be stored in memory or constructed *ad hoc* (e.g., when a new object is encountered): that is, they may be dispositional or occurrent, chronically accessible or temporarily so. These object-attribute associations may themselves contribute to behavior. They may also be tagged in different ways, and these tagged object-attribute associations may also contribute to behavior. Tagged and untagged object-attribute associations may be elaborated and translated into propositional form for validation and explicit endorsement. These endorsed propositions may also contribute to behavior. These different representations, all built from the initial object-attribute association, may have different affective and behavioral consequences or, indeed, none: recall that, *contra* the behaviorists, attitudes are not reducible to behavioral tendencies, which implies that there is no necessary connection between them.

On this view, there is no simple answer to the question of what a belief is, just as there is no simple answer to the question of what an attitude is. Like Nosek and Hansen (2008), I am inclined toward a promiscuous definition of belief that accepts as beliefs even basic object-attribute associations, untagged and unelaborated. This view allows for multiple and contradictory beliefs about the same object, even at the same level of cognitive processing: for example, the GOD-REAL association and the GOD-IMAGINARY association might both exist (implicitly or otherwise) and even be activated at the same time, triggering different sets of feelings, goals, and actions. It also admits multiple methods of measuring beliefs, though does not provide simple rules for

interpreting what the measures mean. As Fazio (2007) argues, self-reports—whether in interviews or psychometric scales—are forms of verbal behavior, which can serve as proxies for consciously endorsed and linguistically formulable (viz., explicit) beliefs; however, as beliefs are not necessarily tied to behaviors, self-report measures are *indirect*¹⁰ and potentially equivocal measures of beliefs. Implicit measures of beliefs—like implicit measures of attitudes—are generally designed to measure the strength of doxastic associations; again, they do so indirectly, requiring inferences from participants' responses (i.e., behaviors) in the tasks at hand (Jong 2013; Jong, Zahl, & Sharp 2017). And like implicit measures of attitudes, implicit measures of beliefs might measure either chronically or temporarily accessible associations: the interpretation of any given measure will depend both on theory and context (e.g., in a correlational v. experimental study). Note also that there is nothing new about implicit measures of belief, in that because stereotypes are type of belief, implicit measures of stereotypes are examples of implicit measures of belief.

What is a *Religious* Belief?

The brief of this special issue is to collect accounts of *religious* belief. On this front, I have little to add, save to say that religious beliefs are beliefs whose objects are religious, whatever that might mean. There are two easily defeasible objections to this proposal. The first is the theological proposal that God is not an object, not even a possible object of cognition.¹¹ This may be true from a normative perspective, in the sense that all thoughts about God are idolatrous, but largely irrelevant for our interests. Psychologists need not worry about whether or not people's concepts successfully refer to God; all that matters is that when people think or talk about God, they intend—explicitly or implicitly—to refer to God. Furthermore, God is not the only object of religious cognition: people also have beliefs about angels and demons and priests and witches and heaven, all of which can be mentally represented. The second objection is the related idea that religious concepts are too abstract to count as objects of cognition: unlike concrete objects that have perceptible and widely agreed upon referents in the world, things like God and Heaven have indeterminate meaning and are

10 As mentioned above, and throughout the social psychological literature, self-report measures are *direct* measures in the sense that respondents are asked directly about their beliefs and attitudes. Here, they are described as *indirect* because verbal responses—including responses to surveys—are proxies to the beliefs/attitudes themselves.

11 Once again, this idea has a Kantian pedigree, e.g., in *Critique of Pure Reason*. See, for example, Luik (1980) for a relevant interpretation of Kant.

susceptible to massive inter-individual differences (c.f. Coleman, Arrowood, & Hood in press). It may be true that different people disagree much more about what “God” means than what “dog” means, but this does not stop any given individual from (idiosyncratically) thinking about God. Nor does it even pose an insurmountable problem for measurement, unless the measurement of self-esteem is also impossible: by necessity, the referent of “self” in any measure of self-esteem differs from individual to individual. Furthermore, it is an empirical question whether “God” has the same intended referent among or between any given group of individuals, just as it is for any other concepts, whether it is “dog” or “justice”. This is why it is important to subject our measurement tools to psychometric evaluation, to test for construct validity and measurement invariance across groups.

Coda

Not being a philosopher, I wondered—toward the end of writing this paper—if there was a philosophical account of belief that strongly resembled the one proposed here. It turns out that Eric Mandlebaum’s (2014, 2016; see also Quilty-Dunn & Mandelbaum 2017) views come pretty close, despite his claim that “beliefs are not just mere associations, but they are honest-to-god propositionally structured mental representations that we bear the belief relation to” (2016, 635). Clearly, Mandlebaum and I disagree about this: either I have a much more permissive definition of belief than he does, or we disagree about what counts as a propositional structure. But we agree that at least some propositionally-structured representations are unconscious: in my view, neither Petty-style meta-cognitively tagged associations¹² nor Gawronski-style propositions are necessarily explicitly endorsed or linguistically expressible. There can indeed be “unconscious, reason-responsive propositional structures” (Mandlebaum 2014, 647). We also agree that there *are* what Mandlebaum called free-standing associations, though he gives them very limited causal powers. The most significant overlap, however, is in our de-emphasis of the importance of endorsement. Mandlebaum’s claim that “tokening a proposition is sufficient for believing that proposition” (2014, 61) is similar to Nosek and Hansen’s (2008) claim that all object-evaluation associations are attitudinal (and thus my claim that all object-attribute associations are doxastic): whether I am right that it is not just exposure to propositions but also to mere associations that has further affective, cognitive, and behavioral effects is an empirical question. (In-

12 It is unclear to me whether Mandelbaum would consider these to be propositionally structured.

cientally, we also agree on the incoherence of dual-*systems* theories.) There are other disagreements between Mandelbaum and myself, particularly in our interpretation of empirical findings on the amenability of implicit measure scores to logical manipulation (e.g., Gawronski, Walther, & Blank 2005): the adjudication of those disagreements goes, conveniently enough, beyond the scope of this paper.

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