Where does moral conviction fit?: A factor analytic approach examining antecedents to attitude strength☆

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A B S T R A C T

Research and theory has suggested that moral conviction is distinct from other attitude strength antecedents. Yet, many attitude features conceptually overlap with features considered definitional to moral conviction. In order to place moral conviction within the broader landscape of attitude properties, we examined the factor analytic structure of a set of attitude strength antecedents that seemed conceptually related to moral basis. Participants reported attitudes toward the topic of GMOs (Study 1) or toward a topic they identified as important to them (Studies 2–6) and various subjective properties of their attitudes. We also examined the ability of each attitude feature to predict advocacy intentions (Studies 3–6). In Studies 1–3, exploratory factor analyses revealed that the various strength antecedents reflected a two-factor structure that differentiated properties relating to an attitude's *embeddedness* in one's core values from properties reflecting a *consistency* or entrenchment in an attitude. In Studies 4–6, confirmatory factor analyses determined that, in addition to the over-arching two-factor structure, including "minor factors" reflecting each attitude property further improved model fit. We therefore propose a hybrid model, wherein the various attitude properties form an over-arching two-factor structure in which each major factor includes additional "minor" constructs. Across studies, moral basis loaded highly on an embeddedness factor along with values basis (all studies), importance (Studies 4–6), affective and cognitive meta-bases (Studies 5–6), centrality, and extremity (Study 6). The consistency factor was composed of subjective ambivalence (all studies), correctness, clarity (Studies 1–4), attitude-relevant knowledge (Studies 4–6), and certainty (Studies 5–6). Embeddedness and consistency (as latent variables) each independently predicted advocacy intentions. These findings provide insight into how moral basis relates to a broad set of attitude features and has implications for how future work might define moral conviction.

In February 2018, an armed teenager entered a high school in Parkland Florida, killing and injuring dozens of high school students (Spencer & Kennedy, 2018). In the aftermath of this violence, many activists and lawmakers called for legislative action to prevent similar mass shootings from occurring in the future. Many of the most impassioned arguments for greater gun control appealed to Americans' moral values, referring to the current dearth of gun laws as immoral (Been, 2018) and shameful (Witt, 2018).

Remarkably, the student activists and school-shooting survivors at the forefront of the news coverage surrounding the Parkland shooting maintained momentum, long after the shooting, continuing to advocate on behalf of their attitudes. Their arguments have largely centered on the moral imperative to protect children from gun violence (Hart, 2018; Witt, 2018). These student-activists' marked stamina invites the question: Is there something inherent in possessing morally-based attitudes that made these students more likely to persist and act in-line with their position? Do attitudes held with strong moral conviction operate differently than attitudes that are strong for other reasons? And how do attitudes held with moral conviction relate to other types of strong attitudes? Although the extant moral conviction and attitudes literatures provide partial or speculative answers to such questions, there is

scant evidence on how attitudes that are firmly based in moral beliefs fit into the broader landscape of attitude strength antecedents.

1. Moral mandates

Consistent with previous research, we define moral conviction as the subjective perception that one's attitude is based in moral beliefs (Skitka, Washburn, & Carsel, 2015). Contemporary research on moral beliefs and convictions supports the idea that virtually any topic can be moralized (Ryan, 2014; Skitka, 2010; Skitka & Morgan, 2014), and there is great variance across individuals regarding the issues they perceive to be moral. Morality is thus a deeply personal matter, and many individuals may possess the same overall attitude about a given topic (e.g., being favorable toward gun control) but vary on whether they think the issue is a moral one. Research to date has speculated about several defining features of morally-based attitudes. First, people with morally-based attitudes may perceive that these attitudes transcend personal preferences (Turiel, 1983) and should be universally applicable to all people across all times (Skitka, 2010). Similarly, moral mandates may be considered objective facts of "rightness" versus "wrongness" (Skitka, 2010; Skitka, Bauman, & Sargis, 2005), and

possessors of such moral convictions perceive their positions to be irrefutable truths. Finally, moral mandates have been associated with high emotional relevance (Haidt, 2001; Skitka et al., 2005) and are especially imbued with contempt, anger, and disgust (Rozin, Lowery, Imada, & Haidt, 1999).

Attitudes held with great moral conviction also tend to be quite strong – that is, morally tinged attitudes generally predict attitude-consistent behavior (Skitka & Bauman, 2008; Skitka & Morgan, 2014) and resistance to persuasion[1] (Hornsey, Majkut, Terry, & McKimmie, 2003), which are outcomes traditionally associated with attitude strength (Krosnick & Petty, 1995). Furthermore, even when controlling for a handful of other attitude strength antecedents, moral conviction has been found to predict attitude-consistent behavior, such as seeking physical and social distance from an attitudinally-dissimilar other (Skitka et al., 2005). Thus, the research to date suggests that moral conviction is quite powerful. That moral conviction impacts social distance, even when controlling for traditional, strength-related features of attitudes, has been interpreted as evidence that attitudes held with moral conviction may be "something more" than attitude strength (Skitka et al., 2005).

2. Attitude strength

In the present work, we seek to clarify our understanding of morally-based attitudes including its role within the attitude strength literature. A typical definition of attitude strength centers on *consequences of the attitude*. In the same way that people might define physical strength by the quantity of weight a muscle can lift, an attitude is strong if it is associated with key outcomes, such as resisting counter-attitudinal persuasion, persisting over time, and engaging in relevant judgments and behavior (Fabrigar, MacDonald, & Wegener, 2005; Krosnick & Petty, 1995; Petty & Brinol, 2010). This consequence-defined strength, however, is distinct from attitude strength antecedents, which are typically seen as predicting, rather than defining, attitude strength. In the same way that exercise regularity might predict, but not define, physical strength, holding one's attitudes with great certainty or knowledge can predict, but not define, attitude strength (Petty, Wegener, & Fabrigar, 1997; Wegener, Downing, Krosnick, & Petty, 1995). Rather, within this approach, any variable that reliably creates strength-related outcomes (e.g., attitude-behavior consistency) is, by definition, an antecedent to attitude strength. Because the moral basis of an attitude so reliably predicts attitude-consistent behavior and other strength outcomes (and has done so causally, e.g., Luttrell, Petty, Briñol, & Wagner, 2016), it too would be considered an antecedent to attitude strength in this framework.

One of the challenges in this literature has been that different researchers have used different definitional frameworks. For example, in previous work examining whether moral mandates are "more than" attitude strength (Skitka et al., 2005), the term "attitude strength" has been used to refer to constructs that predict strength-related outcomes. As mentioned above, this work has demonstrated that moral conviction predicts attitude-behavior consistency above and beyond other strength antecedents. Thus, using the traditional attitude strength framework described in this section, we would interpret such claims that moral mandates are "more than attitude strength" as suggesting that moral conviction is a unique *predictor* of attitude strength, independent of other *antecedents to attitude strength*.

3. Differentiating antecedents to attitude strength

An important question follows directly from the previous literature

on the unique effects of morally-based attitudes: within the landscape of other similar antecedents to attitude strength, where does a moral basis fit? Many facets of attitudes have been studied over the years, and some of them might seem similar to moral basis or to the qualities that are expected to define moral conviction. The present research seeks to clarify the role of moral conviction in predicting strength outcomes by including measures of moral bases in factor-analytic examinations of a broad set of attitude strength antecedents. With this approach, we hope to clarify how perceptions that an attitude is based in moral conviction relate to other similar perceptions of attitudes that have been previously explored in the attitude strength literature. We sought to examine relations among properties of attitudes that seemed conceptually related to moral conviction or have been previously discussed as integral facets of moral mandates. Below, we briefly outline the various attitude properties examined in the present work.

3.1. Related attitude-strength variables

3.1.1. Correctness

Contemporary discussions of moral bases include, as a central feature, a sense that one's attitude is objectively true (Goodwin & Darley, 2008; Haidt, 2001; Skitka et al., 2005; Skitka, Bauman, & Mullen, 2008), which seems almost identical to attitude correctness (i.e., a belief that the attitude is the right attitude to hold, Petrocelli, Tormala, & Rucker, 2007). Of course an attitude can be perceived as correct and not imbued with moral conviction, but, according to discussions of the relation between moral conviction and objectivity in the moral conviction literature, all attitudes based in morals should be perceived as correct. Yet, there are effects of moral conviction when controlling for attitude certainty (Skitka et al., 2005), and certainty has failed to mediate the effect of manipulated moral conviction on attitude strength (Luttrell et al., 2016), even though attitude correctness is considered a key component of attitude certainty (Petrocelli et al., 2007). Further, the objectivity of one's moral beliefs can be primed and manipulated, suggesting that there are many instances where moral beliefs are not perceived as objectively correct (Yilmaz & Bahcekapili, 2015; Young & Durwin, 2013). Additionally, some have failed to find support for any relation at all between attitude objectivity and moral conviction (Kidder, 2016). Thus, whether attitude correctness is integral to moral bases remains an open question.

3.1.2. Values basis

Another antecedent that might share considerable overlap with moral basis is the *values basis* of attitudes (Pomerantz, Chaiken, & Tordesillas, 1995). Similar to the moral basis of an attitude, a values basis is the extent to which an individual perceives that her attitude is based in core values. The more an attitude is based in one's important values, the more resistant it is to persuasion (Blankenship & Wegener, 2008; Ostrom & Brock, 1969). Thus, the definition and consequences of values basis resemble those of a moral basis. Moral beliefs and core values may be conceptually distinguishable, for example, with moral beliefs being more situation-specific and less abstract than values (Skitka et al., 2005). Yet, the boundaries between moral beliefs and values could be blurry in people's minds, and it seems that a perception that an attitude is based in one's values might often coincide with a perception that an attitude is based in one's moral beliefs.

3.1.3. Attitude clarity

Clarity, or the extent to which one's attitude is clear in one's mind (Petrocelli et al., 2007) is a component of attitude certainty alongside attitude correctness. When someone has moral conviction regarding a topic, they are often described as possessing *moral clarity* (Neiman, 2009; Skitka, 2010; Skitka & Houston, 2001; Wiltermuth & Flynn, 2013). This suggests that great moral conviction could be accompanied by a sense of clarity regarding the content of one's attitude.

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[1] Recent research has found, however, that when individuals with a morally based attitude are provided with a moral argument, they are less resistant to persuasive messages (Luttrell, Philipp-Muller, & Petty, 2019).

3.1.4. Subjective attitude ambivalence

Another often examined subjective strength-related property of attitudes is subjective ambivalence, or the extent to which one feels mixed about a given object or issue (Armitage & Conner, 2000; Nordgren, Van Harreveld, & Van Der Pligt, 2006; Priester & Petty, 1996). Individuals sometimes perceive one-sided arguments as more appropriate for moral issues (Baron, 1995), suggesting there may be a negative relation between moral basis and subjective ambivalence.

3.1.5. Subjective attitude-relevant knowledge

Another important antecedent to attitude strength is subjective attitude-relevant knowledge, or the sense that one's attitude is based in a large network of object-relevant knowledge (Biek, Wood, & Chaiken, 1996; Wood, Rhodes, & Biek, 1995). Despite consistent associations between subjective knowledge and strength-related outcomes such as resistance to persuasion (e.g., Cacioppo & Petty, 1980) or attitude-behavior consistency (Davidson, Yantis, Norwood, & Montano, 1985), subjective knowledge and moral basis may not be highly related. That is, one can possess relatively little knowledge on a topic, yet still hold an attitude with great moral conviction and, of course, there are many topics about which one might possess much knowledge without perceiving it to be particularly related to morality.

3.1.6. Importance

Attitude importance refers to the extent to which one believes that a given attitude or topic is impactful for oneself (Boninger, Krosnick, & Berent, 1995). Attitudes related to one's own moral beliefs seem likely to be perceived as personally important. Conversely, there might also be many attitude objects or topics that are viewed as highly important to the person even if they do not have a moral mandate about that topic (e.g., a football game).

3.1.7. Affective and cognitive meta-bases

A cognitive meta-basis is the subjective perception that one's attitude is based in one's thoughts (or cognitions), whereas an affective meta-basis is a perception that an attitude is based in affect or emotions (See, Petty, & Fabrigar, 2008). Because moral bases might be associated with either affective reactions (e.g., moral outrage) or cognitive beliefs (e.g., about a moral code), we measured both cognitive and affective meta-bases.

3.1.8. Attitude extremity

Typically, attitude extremity is defined as the distance between an attitude's position and the neutral point on an attitudes scale (Judd & Johnson, 1981). However, to replicate the paradigm used in the moral mandate literature (Skitka et al., 2005), we decided to measure attitude extremity as the extent to which one perceives one's attitude as "strong" (where perceived strength denotes attitude extremity). As lay theories of moral conviction include an understanding that moral attitudes are quite strong (Skitka et al., 2005), it would seem that moral conviction would be highly related to attitude extremity.

3.1.9. Attitude centrality

As with attitude extremity, we examined attitude centrality according to how it is described in the moral mandate literature: the extent to which an attitude is seen as relating to one's self-concept. This definition of attitude centrality can be thought of as similar to a self-defining attitude (Judd & Krosnick, 1982; Zunick, Teeny, & Fazio, 2017). It seems likely that moral conviction would be highly related to one's identity, as moral beliefs are such a personal matter (Ryan, 2014; Skitka, 2010).

4. Goals of the present work

The current research was designed to build upon previous work that investigated the unique role of moral conviction (Skitka et al., 2005)

independent of a limited number of other attitude-strength antecedents. To determine where the moral basis of attitudes fit with previously identified attitude strength antecedents, we compared moral conviction to a broader set of strength antecedents that would seem conceptually related (especially in Studies 4–6). To focus our examination on subjective perceptions of attitude qualities (as moral conviction has always been assessed), we did not include "operative" or cognitive structural features of attitudes, such as their accessibility in memory (e.g., Bassili, 1996; see our general discussion for an elaboration on possible relations among subjective and structural variables). The present work sought to examine the relative relations among the antecedents to attitude strength to determine whether moral conviction is more similar to some traditionally examined attitude properties than others, with particular attention to constructs that are considered inherent to the definition of moral conviction.

We conducted a series of exploratory and confirmatory factor analyses, replicating those analyses across studies. Because the goal of our research was to determine the broad pattern of relations among various attitude properties, we decided to use a factor analytic approach, which would provide us with the over-arching structure of a wide array of attitude features. We were ultimately interested in whether moral conviction was more closely associated with some antecedents to attitude strength than to others, therefore factor analysis seemed like the most apt approach (Fabrigar & Wegener, 2014).

Another goal of Studies 3–6 was to examine whether the major factors (as determined by the exploratory factor analyses) predicted unique variance in important outcome variables. We examined the effects of these various antecedents to attitude strength on advocacy, as advocacy could be reasonably predicted by many different antecedent variables. Moral conviction has been found to be particularly linked to engagement in attitude-relevant activism (Herzog & Golden, 2009; Skitka, 2010; Skitka, Hanson, and Wisneski, 2017), thus providing us with a conservative test of the unique effects of moral basis. We chose to define advocacy broadly to encompass any behavior that expresses support or opposition for a particular cause or issue (see Cheatham and Tormala, 2015; e.g., voting, wearing an attitude-consistent pin). As we have two broad goals with the present research (to identify the factor loadings of the various antecedents to attitude strength and to examine whether these factors uniquely predict advocacy intentions), this paper is organized by goal, and not by study.

5. Goal 1: identification of factor structure

Across six datasets, we examined the factor structure of the various subjective antecedents to attitude strength. For all studies, our a priori data analysis plan was to conduct exploratory factor analyses, so that we could identify which antecedents factored with moral basis and which formed separate clusters. We chose to re-visit an exploratory model across studies because we were sensitive to the fact that differences (in paradigm and constructs measured) between these studies might alter the factor structure of the various attitude features. A confirmatory factor analysis would require constraining the factor structure to conform to our hypotheses, but we instead wished to allow for each new study to disconfirm our a priori hypotheses and form a different factor structure (should the data reflect a different pattern than expected; see Wegener & Fabrigar, 2004). Nonetheless, in response to suggestions raised in the review process to test confirmatory models, after determining the structure of attitude features in studies 1–3 using an unconstrained exploratory approach, we did transition to Confirmatory Factor Analysis (CFA) in Studies 4–6 so that we could test more complex models. Therefore, in the main text, we present exploratory models for Studies 1–3 and confirmatory models for Studies 4–6 (see Online Supplement for the results of exploratory factor analyses of Studies 4–6 that closely parallel those of Studies 1–3). Because the studies were so similar in paradigm, as well as in how we analyzed them, we report them all together here, addressing distinctions in

method where relevant.

5.1. Potential relations among antecedents to attitude strength

5.1.1. Existing taxonomies

Previous theory and research identifies a number of possibilities for how the various antecedents might relate. The first and simplest solution would be that all the subjective antecedents to attitude strength form one amalgamated "attitude strength" factor (Bassili, 1996), or that all the subjective properties other than moral basis load on a single strength factor (cf. Skitka et al., 2005). On the other hand, it is possible that all the antecedents will form separate factors. This possibility would be consistent with past research showing that the various antecedents to attitude strength are each conceptually distinct (cf. Krosnick, Boninger, Chuang, Berent, & Carnot, 1993). Finding support for this model might lend credence to the claim that moral basis is truly distinct from other, previously studied antecedents to attitude strength.

However, given how conceptually similar moral basis is to a number of the other traditionally examined antecedents to attitude strength, it seems unlikely that all attitude properties are entirely distinct. However, because at least some of the attitude features are conceptually quite distinct from others, it also seems improbable that all antecedents to attitude strength coalesce to form one monolith. One existing framework that outlines a possible middle ground between distinct attitude properties and one monolithic factor specifies two distinct clusters of attitude features: *commitment* to one's attitude (i.e., the extent to which one is entrenched in their beliefs) and *embeddedness* of the attitude (i.e., the extent to which one's attitude is connected to one's core identity and values; Pomerantz et al., 1995). Other perspectives have similarly found that consistency of an attitude (e.g., it's lack of ambivalence) is distinct from other variables reflecting an attitude's level of ego-involvement (Erber, Hodges, & Wilson, 1995; see Fabrigar et al., 2005, for additional discussion). None of the previous perspectives have examined how a moral basis might fit with or relate to other antecedents to attitude strength.

From this multi-factor point of view, the moral basis of one's attitude might be expected to fall on an "embeddedness" factor, as a basis in one's moral beliefs seems to aptly fit the description of a connection (or basis) in important values. In this two-factor structure, we might expect that the embeddedness factor would also include variables like values basis, issue importance, cognitive and affective meta-bases, and attitude centrality, all of which reflect connections to a dense network of an individual's values, beliefs, or identity. Conversely, variables like correctness, clarity, and subjective (un)ambivalence might compose a "commitment" or "consistency" factor, as these variables all seem to reflect a constancy or lucidity to one's attitudes.[2]

5.1.2. Hybrid taxonomy

It also seemed possible that, because the items used to measure each attitude property might be quite highly related to one another (and not as highly related to items that capture other attitude properties), the individual antecedents to attitude strength might have quite strong intra-construct relations. Although the attitude features might fall into two (or more) "major factors", we might see high residual covariance among the individual items used to measure each attitude feature. Thus, the individual features of the attitude might constitute "minor factors" even if there exists a smaller number of super-ordinate "major factors" (cf. Fabrigar & Wegener, 2012). A hybrid model that includes

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[2] Had we measured attitude extremity as deviation from neutral (perhaps a less subjective measure), one might expect it to load with the commitment variables (cf. Pomerantz et al., 1995). However, we measured extremity in accordance with the moral conviction literature (Skitka et al., 2005), which differs from any variable examined in previous examinations of embeddedness versus commitment.

both the major factors and stronger residual inter-relations among measures of the same attitude feature would thus acknowledge that some variables are more related than others (consistent with the Pomerantz et al., 1995 perspective) while also specifying that each attitude property is potentially distinct and has variance that cannot be fully captured by a common factor with other attitude properties (consistent with the Krosnick et al., 1993 perspective). Whereas, exploratory factor analysis is designed to identify "major factors" (Fabrigar & Wegener, 2012), the confirmatory models examined in Studies 4–6 using Structural Equation Modelling (SEM) allowed us to directly examine such a hybrid model.

5.2. Method

The method across all six studies was quite similar. With only one exception (see below), when an attitude feature was added to a given study, it was included in all subsequent studies.

5.2.1. Participants

Our sample was composed of introductory psychology students (Study 1: $N = 133$; Study 4: $N = 211$; Study 6: $N = 140$) who participated in exchange for course credit, or Mechanical Turk participants who participated in exchange for financial compensation (Study 2: $N = 190$, \$0.75; Study 3: $N = 251$, \$0.75; Study 5: $N = 182$, \$0.40; Study 6: $N = 139$, \$0.40). Data for Study 6 were collected in both sample types to increase power. In Study 1, our sample size was determined by our intention to detect subtle differences across factors. Because each factor was over-determined (over 5 measured items per factor), we decided that a sample size between 100 and 200 would likely be adequate to obtain good estimates from an exploratory factor analysis (see Fabrigar, Wegener, MacCallum, & Strahan, 1999). To determine sample sizes for Studies 2–6, we examined the communalities (or the extent to which the model captures the variance for each item) from Study 1, and found that they were moderately high (between 0.33 and 0.77 for the two-factor solution, with 87.5% falling above 0.45), suggesting that 150–200 participants should be adequate to obtain good estimates from subsequent studies (see Fabrigar et al., 1999), with the understanding that some participants would be excluded. Sample sizes varied slightly across studies due to practical constraints in data collection.

Participants were excluded (Study 1: $N = 12$ Study 2: $N = 13$ Study 3: $N = 26$ Study 4: $N = 11$ Study 5: $N = 22$ Study 6: $N = 48$) for scoring a 1 (or omitting the question) on a 5-point scale measuring how seriously they took the study (with "1 – not at all seriously – skimmed through everything or responded at random" anchoring the low end, and "5 – Very seriously – thought carefully about all the prompts and answered all the questions" anchoring the high end), for having already completed the study, or in Studies 2–6, for not identifying a single topic, making it difficult to interpret their responses. For each study, no additional data collection was conducted after data analysis commenced. The studies varied in gender and age composition (see Supplement for details). Results of sensitivity analyses show that these sample sizes provide 80% power ($\alpha = 0.05$) to detect small effects with two predictors (Study 3: $f^2 = 0.04$ Study 4: $f^2 = 0.05$ Study 5: $f^2 = 0.06$ Study 6: $f^2 = 0.04$), suggesting that we had sufficient power to detect the effects of any advocacy analyses we conducted (especially for any analyses combining across datasets).

5.2.2. Procedure

All participants completed a survey either online (in Studies 2, 3, 5, & 6) or in the lab (in Studies 1 & 4). In Studies 2–4, participants were asked to first identify a topic that was in some way important to them (an adapted paradigm from Skitka et al., 2005). By allowing for a spread of low to high moral basis, we hoped to provide a more robust and ecologically valid test of relations among the various attitude features. Participants first described the issue in detail (i.e., describing the

topic in several sentences), and they then described it briefly (i.e., in a few words) so that we could pipe this shorter text back to them throughout the survey. In all studies, participants next reported their attitudes toward this topic, as well as the various subjective properties about their attitudes toward the topic in a randomized order. In Studies 3–6, participants additionally responded to items regarding their willingness to engage in various advocacy behaviors (see Goal 2). Finally, participants were thanked and debriefed. In Study 1, the procedure was almost identical, with the exception that participants rated their attitudes and answered questions regarding GMOs, rather than identifying the topic themselves. We chose the topic of GMOs because there is wide variance in the extent to which this topic is perceived as a matter of morality (Carolan, 2008; Reilly, 2000).

In Studies 5 and 6, the procedure largely mimicked that of Studies 2–4. Participants were given a brief definition of a moral mandate (i.e., "an attitude that is rooted in your moral beliefs") and were asked to identify an issue about which they had a moral mandate. Next, all participants were asked to identify an issue that was held with certainty, but was not a moral mandate. Participants responded to items about either their moral mandate attitude (in one between-participant condition) or their non-moral mandate attitude (in the other between-participant condition). This change in paradigm allowed us to more closely examine the predictive abilities of morally based versus non-morally based attitudes.

Studies 2 and 3 were the only two studies with identical methods (save for the outcome measures added to Study 3), and so the two studies were combined here for efficiency's sake and increased power, though the results are the same across the studies individually (see Online Supplement for the results of Studies 2 and 3 individually presented). The studies presented below comprise every study we have run in this line of research.

5.2.3. Measures

See Online Supplement for a complete list of item and anchor wordings by study. Unless otherwise specified, "not at all" and "very much" anchored the low and high ends of all scales, respectively.

5.2.3.1. All studies

5.2.3.1.1. Attitude. Attitudes were measured in all studies except Study 5. Participants reported their attitudes toward the topic of interest on three 9-point semantic differential scales, with bad, dislike, and negative, respectively, anchoring the low end ("− 4"), and good, like, and positive, respectively, anchoring the positive end ("+ 4"). The neutral point ("0") was also labeled as "neutral" (internal reliability: Study 1: $\alpha = 0.97$; Study 2 + 3: $\alpha = 0.98$; Study 4: $\alpha = 0.98$; Study 6: $\alpha = 0.99$).

5.2.3.1.2. Moral basis of attitudes. Participants reported the extent to which their attitudes were based in their moral beliefs and convictions on three 9-point scales (e.g., "To what extent do you feel that your position about __ are based on strong moral principles?"; a fourth item was used in Studies 5 and 6). Internal reliability across studies was good: Study 1: $\alpha = 0.94$; Study 2 + 3: $\alpha = 0.94$; Study 4: $\alpha = 0.94$; Study 5: $\alpha = 0.89$; Study 6: $\alpha = 0.91$.

5.2.3.1.3. Values basis of attitudes. Participants reported the extent to which their attitudes were based in their core values on three 9-point scales (e.g., "How frequently does the issue of __ brings to mind important values?"). These scales were adapted from previous research on the values basis of attitudes (Boninger, Krosnick, Berent, & Fabrigar, 1995; internal reliability: Study 1: $\alpha = 0.83$; Study 2 + 3: $\alpha = 0.92$; Study 4: $\alpha = 0.89$; Study 5: $\alpha = 0.91$; Study 6: $\alpha = 0.89$).

5.2.3.1.4. Subjective ambivalence. Participants reported the extent to which they felt mixed and conflicted regarding their attitudes on three 9-point scales (e.g., "How mixed are your thoughts and feelings regarding __?", with "I feel completely one sided reactions" and "I feel completely mixed reactions" anchoring the low and high ends of the scale, respectively; internal reliability: Study 1: $\alpha = 0.85$; Study 2 + 3:

$\alpha = 0.92$; Study 4: $\alpha = 0.87$; Study 5: $\alpha = 0.93$; Study 6: $\alpha = 0.90$).

5.2.3.2. Studies 1–4

5.2.3.2.1. Attitude correctness and clarity. Participants reported the extent to which their attitudinal position was clear to them on four 9-point Likert scales (e.g., "How certain are you that you know what your true attitude on __ really is?", with "Not certain at all" and "Very certain" anchoring the low and high ends of the scale, respectively; internal reliability: Study 1: $\alpha = 0.90$; Study 2 + 3: $\alpha = 0.94$; Study 4: $\alpha = 0.88$). They reported the extent to which they perceived their attitude to be the correct one to have on three 9-point scales (e.g., "How certain are you that your attitude towards __ is the correct attitude to have?", with "Not certain at all" and "Very certain" anchoring the low and high ends of the scale, respectively; cf. Petrocelli et al., 2007; internal reliability: Study 1: $\alpha = 0.87$; Study 2 + 3: $\alpha = 0.88$; Study 4: $\alpha = 0.85$).

5.2.3.3. Studies 3–6

5.2.3.3.1. Advocacy (Goal 2). Participants responded to three items regarding their willingness to engage in various advocacy behaviors. In Study 4, participants responded to a more comprehensive set of fourteen advocacy items. These outcomes included behaviors like going door-to-door canvassing, voting, wearing a supportive pin, posting on social media, etc. Each item was measured on a 9-point scale. See supplemental materials for a full list of advocacy behaviors measured. Because these items had high internal reliability ($\alpha = 0.75$ in Study 3; $\alpha = 0.94$ in Study 4; $\alpha = 0.93$ in Study 5; $\alpha = 0.90$ in Study 6), they were combined to form a single measure of advocacy.

5.2.3.4. Studies 4–6

5.2.3.4.1. Subjective attitude-relevant knowledge. Participants reported the extent to which they perceived that they had extensive knowledge regarding the attitude object on three 9-point Likert scales (e.g., "How much do you feel like you know about ___?", with "nothing" and "a lot" anchoring the low and high ends of the scale, respectively; internal reliability: Study 4: $\alpha = 0.84$; Study 5: $\alpha = 0.85$; Study 6: $\alpha = 0.19$[3]).

5.2.3.4.2. Issue importance. Participants reported the extent to which the issue or topic they had identified was personally important to them on three 9-point scales (e.g., "How much do you care about the issue of __?"; internal reliability: Study 4: $\alpha = 0.80$; Study 5: $\alpha = 0.85$; Study 6: $\alpha = 0.91$).

5.2.3.5. Studies 5–6

5.2.3.5.1. Attitude certainty. Participants reported the extent to which they were certain about their attitude on several (two in Study 5, three in Study 6) 9-point scales (e.g., "How sure are you about your opinion toward __."; internal reliability: Study 5: $\alpha = 0.79$; Study 6: $\alpha = 0.92$).

5.2.3.5.2. Cognitive meta-basis. Participants reported the extent to which their attitudes were based in their thoughts and beliefs on a 9-point scale ("To what extent do you think your attitudes toward __ are driven by your beliefs?").

5.2.3.5.3. Affective meta-basis. Participants reported the extent to which their attitudes were based in their emotions on a 9-point scale ("To what extent to you think your attitudes toward __ are driven by your emotions?").

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[3] One potential explanation for the low reliability is that in Study 5 and Study 6 (and not in any other study), knowledge item 1 had opposite anchors from knowledge items 2 and 3. Throughout the rest of the study, the scales were in a consistent direction, except for this single item. Participants may have been confused by this sudden change in anchors or simply missed the change, adding noise to ratings.

5.2.3.6. Study 6

5.2.3.6.1. Attitude extremity. Participants reported how strong they perceived their attitude to be on a 5-point scale ("How strongly do you feel about __?").

5.2.3.6.2. Attitude centrality. Participants reported the extent to which their attitudes were central to their identity on two 5-point scales (e.g., "How much is __ central to your identity?"; internal reliability: Study 6: $\alpha = 0.94$). All exclusions, measures, and manipulations examined across Studies 1–6 are reported.[4]

5.3. Results

5.3.1. Exploratory factor analyses

All factor analyses were conducted according to the guidelines outlined by Fabrigar and Wegener (2012). We first conducted a scree test, examining the eigenvalues computed from the reduced correlation matrix of the relevant variables. One indication of an appropriate number of major factors corresponds to the eigenvalue prior to the last major drop in the plot (see Fig. 1 for a combined scree plot corresponding to the factor structures for Studies 1–3). Across the studies (including Studies 4–6, when examined),[5] the scree plots consistently suggested that the appropriate number of major factors would be two.

In Studies 1–3, we used the Comprehensive Exploratory Factor Analysis (CEFA) software (Browne, Cudeck, Tateneni, & Mels, 2008) to conduct an exploratory factor analysis specifying two factors. We used an oblique (quartimax) rotation. Consistently across the studies, the two factors extracted could be characterized as a moral/values-basis factor and a factor composed of the other antecedents to attitude strength (see Tables 1 and 2 for factor loadings[6] from Studies 1 and the combined data of Studies 2 and 3; see the Online Supplement for listings of the factor loadings extracted from exploratory factor analysis in Studies 4–6). The two factors could be characterized as an embeddedness factor and a commitment or consistency factor (see interim discussion below). The two factors were moderately correlated in each study (Study 1: $r = 0.24$; Studies 2–3: $r = 0.39$). The model fit (as denoted by the RMSEAs) for Studies 1 and the combined data of Studies 2 and 3 were 0.20 and 0.18, respectively. Readers may observe that this fit was weaker than would be ideal, an issue we address in the hybrid model analyses.

5.3.2. Confirmatory factor analyses

Because EFA does not require constraints on models, it would be particularly impressive if we continued to replicate our factor structure in EFA with Studies 4–6. Indeed, the two-factor structure extracted in Studies 1–3 was replicated across Studies 4–6 in EFA (see Online Supplement for a complete report of factor loadings from Studies 4–6). Despite the consistent scree tests and factor loadings, the indices of fit continued to be weak when specifying an EFA model with two major factors. One reason this might occur is if there are many minor factors present that relate to the specific attitude features (cf. Krosnick et al., 1993). For Studies 4–6, therefore, we examined confirmatory factor analysis models that enabled us to address potential minor factors that would improve model fit despite not qualifying as major factors

according to traditional factor analytic criteria. For our CFAs, we used the Lavaan package in the statistical software, R (Rosseel, 2012). We specified two major factors consisting of the embeddedness items on one factor and the commitment items on the other factor. All items that had been included in Studies 1–3 were categorized into the embeddedness or commitment factor according to the structure found in the exploratory models. For items unique to Studies 4–6 (e.g., attitude importance), the models were constrained according to the results of our exploratory analyses, with importance, the meta-bases, centrality, and extremity items serving as indicators of the embeddedness factor, and knowledge and certainty items serving as indicators of the commitment factor.

Because each antecedent to attitude strength was measured by multiple items (except for affective and cognitive meta-bases in Studies 5 and 6, and extremity in Study 6), it seemed possible that the items used to measure each construct might compose minor factors. We therefore included residual covariances among the multiple items measuring each attitude property in our models (e.g., we allowed all moral basis items to co-vary with one another, but not with other items, and did the same for each individual attitude property).[7] If each attitude property forms a distinct minor factor beyond the major factors identified in the EFA analyses, including the residual covariances within each attitude property should enhance the fit of the two-factor model. Indeed, this model fit the data quite well across Studies 4–6 (and better than the simple 2 factor solution extracted using EFA), as can be seen by multiple indices of fit: the RMSEAs were 0.06, 0.07, and 0.08, respectively, and the Tucker-Lewis Indices were 0.95, 0.93, and 0.92, respectively (see Fig. 2 for a diagrammatic depiction of the model and factor loadings from Study 6, which examined the most comprehensive set of attitude properties; see Interim Discussion for an explanation of labelling choice; see Online Supplement for factor loadings from Studies 4 and 5).[8]

5.4. Interim discussion

In Studies 1–3, we found preliminary evidence for two major factors that reflect the degree to which an attitude is embedded in one's values and identity from one's commitment to or consistent adherence to a particular attitude. Across studies, we also acquired evidence for a more nuanced hybrid model, whereby, in addition to finding support for the two major factors extracted in Studies 1–3, additional minor factors (captured through residual covariances among the items used to measure each attitude feature) further improved model fit. Thus, although these six studies consistently identified two over-arching or major factors that can be characterized as embeddedness and commitment, the confirmatory models provided evidence consistent with a hybrid taxonomy that differentiates between the two major factors, while simultaneously acknowledging the presence of minor factors related to

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[4] In addition to measuring advocacy intentions, Studies 3 and 4 measured liking of those that agreed versus disagreed regarding participants' attitudes. Results across those two studies were inconsistent and so they are not reported here. See online supplement for the item wordings and regression outcomes for these measures.

[5] Because we initially conducted exploratory factor analyses for all studies, we have included the scree test for Studies 4–6 in the online supplement, despite the fact that only confirmatory models are presented in the main text for those studies.

[6] The factor loadings in Tables 1 and 2 reflect the degree to which each item measured is representative of the factor as a whole, with higher numbers denoting more representative items.

[7] The methods literature includes reasonable concerns about adding correlated residuals to models as a data-driven means to improve model fit (i.e., using specification searches to identify correlated residuals that would improve fit in the absence of a strong theoretical rationale; Cortina, 2002; Landis, Edwards, & Cortina, 2009), in part, because such searches take advantage of sampling error (Hermida, 2015). These criticisms, however, are not of concern for the CFA models examined in the present work, in that we did not use specification searches to identify potential parameters to add. Instead, we included all such paths that would reflect the "minor factors" that pertain to the traditional strength-related properties and kept the same model structure in place across studies (and not based on whether particular parameters reached significance in particular samples).

[8] When Studies 1–3 are examined using this same confirmatory model that incorporates the minor factors, the model fits the data even better than in Studies 4–6, with RMSEAs below 0.07 and Tucker-Lewis indices of above 0.95 in all studies (see online supplement for a complete listing of factor loadings and indices of fit).
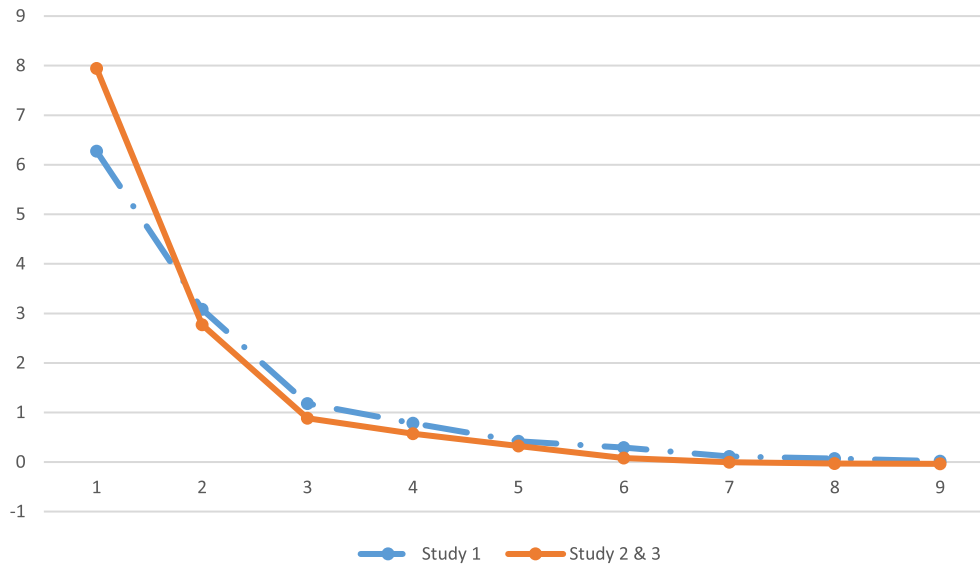
Eigenvalues

Fig. 1. Scree plot of eigenvalues from the reduced matrix for the antecedents to attitude strength examined in Studies 1–3.

Table 1
Factor loadings for two-factor solution examining moral basis, values basis, subjective ambivalence, correctness, and clarity in Study 1.

	Factor loadings	
	Factor 1 (embeddedness)	Factor 2 (commitment)
Moral basis 1	0.93	0.08
Moral basis 2	0.93	0.08
Moral basis 3	0.90	< 0.001
Values basis 1	0.52	0.23
Values basis 2	0.61	0.21
Values basis 3	0.64	0.21
Subjective ambivalence 1	0.11	0.70
Subjective ambivalence 2	0.07	0.71
Subjective ambivalence 3	0.05	0.71
Correctness 1	0.18	0.61
Correctness 2	0.02	0.57
Correctness 3	0.15	0.61
Clarity 1	0.03	0.89
Clarity 2	0.03	0.70
Clarity 3	0.05	0.89
Clarity 4	0.03	0.64

Table 2
Factor loadings for two-factor solution examining moral basis, values basis, subjective ambivalence, correctness, and clarity in Studies 2 and 3.

	Factor loadings	
	Factor 1 (embeddedness)	Factor 2 (commitment)
Moral basis 1	0.94	0.09
Moral basis 2	0.94	0.12
Moral basis 3	0.93	0.03
Values basis 1	0.70	0.25
Values basis 2	0.65	0.30
Values basis 3	0.67	0.29
Subjective ambivalence 1	0.10	0.68
Subjective ambivalence 2	0.10	0.77
Subjective ambivalence 3	0.08	0.70
Correctness 1	0.11	0.69
Correctness 2	0.14	0.52
Correctness 3	0.06	0.68
Clarity 1	< 0.001	0.92
Clarity 2	0.01	0.87
Clarity 3	0.01	0.90
Clarity 4	0.08	0.80

each individual attitude property.

An examination of the two major factors revealed that values basis and moral basis consistently loaded together onto one major factor across all six studies. In studies where they were included, the meta-bases, centrality, importance, and attitude extremity also loaded on the same factor as the moral basis and values basis items, although not quite as heavily as the moral and values basis items. On the other hand, the correctness and clarity (or certainty in Studies 5 and 6), and subjective ambivalence items consistently loaded together on a different major factor from moral basis and values basis. When included, knowledge also tended to load on this second major factor, though not as strongly. With clarity and lack of ambivalence producing the strongest loadings on the latter factor, we might suggest labeling this factor as reflecting "attitude consistency", in lieu of the more traditional "commitment" label.

It seems reasonable that values basis and moral basis would load together on a major factor. Though values and morals might still constitute separable minor factors, the consistent evidence across six studies suggests that these variables overlap considerably (and to a greater

extent than attitude features on the commitment factor). Interestingly, attitude correctness, which we thought might overlap highly with moral basis, consistently failed to load with moral basis or values basis items. This was somewhat surprising, as contemporary descriptions of moral conviction typically include a perception that one's attitude is objectively correct (Skitka, 2010). Thus, perhaps perceived correctness is not so much an integral part of the definition of a moral basis as it is an associate (or perhaps even a consequence) of perceived moral basis.

In Studies 5 and 6, the cognitive meta-basis item loaded well with the other embeddedness factor items. The affective meta-basis item, however, did not load as heavily on either factor. These findings might call into question the notion that moral conviction stems from particular emotions (c.f. Haidt, 2001). As we only measured *subjective perceptions* of attitude bases, it is also possible that the actual (or structural) affective basis would load more strongly with the embeddedness factor. At any rate, it seems that individuals' perceptions of the extent to which their attitudes are moral was more associated with a perceived basis in one's cognitions (beliefs) than in one's emotions. The extremity (perceived strength) items, on the other hand, loaded onto the
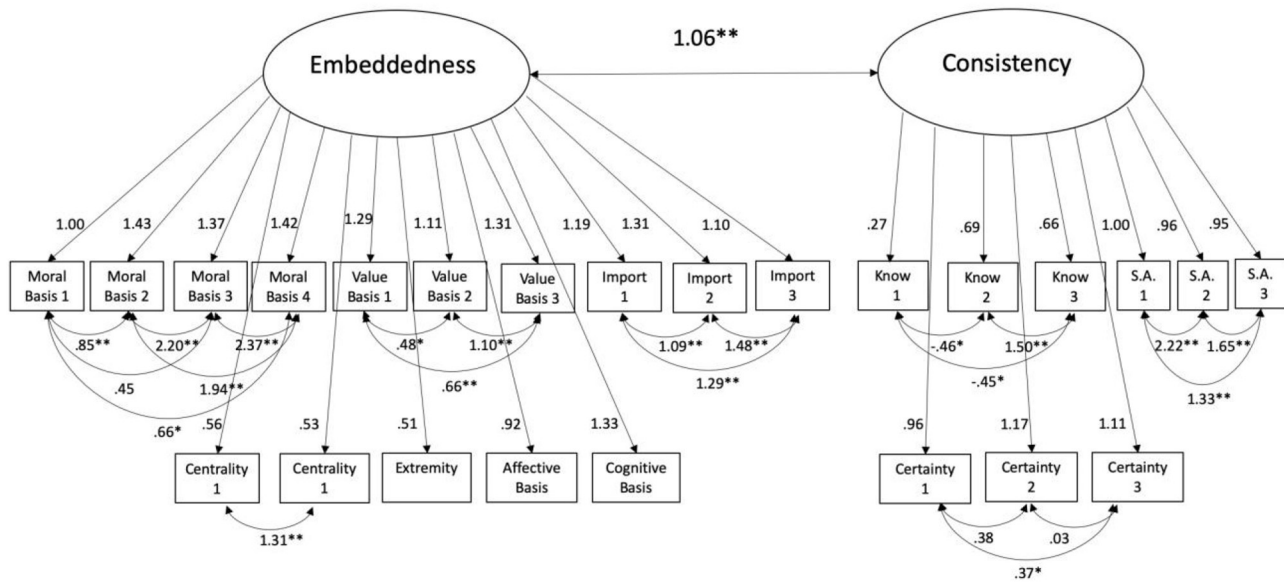
Fig. 2. Confirmatory factor analysis examining two-factor solution (embeddedness vs. consistency), specifying covariance of residuals within each attitude feature in Study 6.

embeddedness factor in Study 6. Because attitude extremity was measured as perceived strength of one's attitude, it could be that highly embedded attitudes might be perceived as stronger overall than highly consistent attitudes.

In sum, our various factor analyses demonstrated that although moral bases loaded on a separate factor from some traditional attitude strength antecedents, moral basis was particularly aligned with variables that, together, seemed to reflect an enmeshment with one's core values and beliefs. Thus, it would seem most fitting to consider moral basis as a component of an embeddedness (rather than a consistency) major factor. Despite the consistent identification of two major factors, we also found that each of the two factors seemed to be composed of multiple related minor factors reflecting each of the attitude properties. The current work also raises some questions about features commonly associated with moral bases (e.g., perceived correctness, emotionality). Perhaps these properties of moral convictions are associated with or follow from a moral basis, rather than being defining features of moral conviction.

6. Goal 2: independent prediction of outcome variables

Beyond evidence regarding the factor structure of attitude features, we wanted to examine whether the embeddedness and consistency factors would have independent influences on an outcome of willingness to engage in advocacy behaviors. Previous research differentiating embeddedness from consistency has found that these two factors have independent effects on intentions to engage in various attitude consistent behaviors (Pomerantz et al., 1995), many of which (though not all) could easily be defined as advocacy. Past research has found that many attitude properties, including moral basis (Skitka, 2010), correctness and clarity (Cheatham & Tormala, 2015; Cheatham & Tormala, 2017), affective and cognitive meta-bases (Teeny & Petty, 2018), and values-based attitudes (Leiserowitz, Kates, & Parris, 2006; Pittinsky & Montoya, 2009) predict advocacy behaviors or intentions. We therefore thought advocacy intentions would be a reasonable test of our hypothesis that embeddedness and consistency would uniquely predict some behavioral outcome. Just as in previous research, we expected both the embeddedness and consistency factors to independently predict willingness to engage in advocacy. As such, in Studies 3–6, we examined whether the major factors uncovered in the previous phase of each study would independently predict intentions to

engage in a set of advocacy behaviors.

We used SEM to examine the extent to which the two major factors represented in the hybrid model from Studies 4–6 (see Fig. 2) predicted advocacy intentions. We first estimated the effect of the two latent variables (embeddedness and consistency) on advocacy, where the major factors were examined while controlling for the residual covariances among items used to measure the same attitude feature (i.e., the minor factors). Because we measured additional items in some studies, but not in others, the embeddedness and consistency latent variables were indicated by slightly different observed items in different studies (e.g., embeddedness was indicated by just moral basis and values basis in Study 3 but also included importance and the meta-bases in Study 5).

In addition to examining the unique effects of each major factor on advocacy, we wanted to ensure that these effects were not simply driven by one or two of the attitude features encompassed by the major factor. Thus, using SEM, we also examined the effects of each individual attitude feature (as its own latent variable), controlling for the opposing major latent factor (e.g., we examined the effect of moral basis on advocacy, controlling for the consistency major factor). This way, we could ascertain whether any of the individual attitude features failed to predict advocacy outcomes above and beyond the other major factor. In these models, we once again controlled for the residual covariances within each attitude feature (i.e., the minor factors) indicating the major factor. We chose not to separately include multiple attitude features from the same major factor in one SEM model (e.g., when testing moral basis as its own individual attitude feature, we did not also include values basis as its own latent variable in the same model) due to concerns of multicollinearity.

6.1. Results

6.1.1. Major factors as predictors

We first examined whether the major factors (embeddedness and consistency) predicted unique variance in willingness to advocate when included together in the same SEM model. We subjected the data to an SEM analysis with embeddedness and consistency predicting the advocacy composite (where the embeddedness and consistency major factors each control for the residual covariances shared by the items used to measure each attitude property). Across all four studies that measured advocacy, both the embeddedness and consistency factors independently predicted advocacy outcomes (see Table 3). These

Table 3

SEM results from analyses predicting advocacy outcomes from embeddedness and consistency major factors across Studies 3–6.

		B	*z*	*p*	95% CI
Study 3	Embeddedness	0.19	2.47	.01	[0.08, 0.44]
	Consistency	0.21	3.51	< .001	[0.12, 0.37]
Study 4	Embeddedness	0.31	4.67	< .001	[0.16, 0.43]
	Consistency	0.28	4.66	< .001	[0.16, 0.39]
Study 5	Embeddedness	0.28	5.05	< .001	[0.16, 0.39]
	Consistency	0.27	3.91	< .001	[0.09, 0.37]
Study 6	Embeddedness	0.41	6.48	< .001	[0.31, 0.56]
	Consistency	0.25	5.09	< .001	[0.13, 0.34]

findings suggest that these two factors are separable – not just factor analytically, but also in terms of the predictions they make.

6.1.2. Independent antecedents to attitude strength as predictors

We were also interested in whether the individual attitude properties predicted the advocacy outcomes when controlling for the other major factor. To examine this possibility, we used SEM models predicting advocacy outcomes from (a) each individual consistency antecedent (e.g., attitude correctness, which would be indicated by the individual correctness items) when controlling for the embeddedness major factor, and (b) each individual embeddedness antecedent (e.g., moral basis) when controlling for the consistency major factor. In each of these analyses, the estimates of the major factors also controlled for the residual covariances among the items used to measure each attitude feature (i.e., the minor factors; as we did in Fig. 2). We replicated these analyses for each of the four studies that measured advocacy. Across these analyses, we generally found consistent evidence of each individual strength-related attitude property significantly predicting advocacy outcomes, even controlling for the major factor on which the attitude property did not load (see Table 4). The only individual tests that failed to reach significance were that of affective bases in Study 5, and knowledge in Study 5 and Study 6 (where the effects were marginal).

Once again these results provide evidence consistent with our overall model. Each major factor (estimated while controlling for the covariances within each attitude property) uniquely predicted advocacy intentions. Additionally, almost every individual attitude property (or minor factor) continued to predict advocacy intentions when controlling for the opposing major factor, thus ruling out the possibility that only a small subset of the attitude properties was responsible for the effects of each major factor.

7. General discussion

The goal of the present research was to better understand the role of moral basis within the broader landscape of antecedents to attitude strength. Across six studies, we examined how perceiving one's attitude as moral related to other subjective perceptions of attitude qualities. In all studies, we found support for a hybrid taxonomy wherein two overarching major factors organize the various attitude properties, but each individual attitude property constitutes minor factors. In Studies 1–3 we found consistent support for a two-factor structure using EFA, but the fit of the resulting model was relatively poor. In Studies 4–6, we used CFA to examine a model that, in addition to specifying the two major factors identified in the previous analyses, included residual covariances among the items used to measure each attitude property (i.e., potential "minor factors"). This hybrid model had good fit (across all six studies), providing support for the notion that the various attitude properties are empirically distinct, even if some of the constructs are more related than others.

This taxonomy was further supported by the advocacy intentions the model predicted. Using SEM, the present work found independent

Table 4

Summary of results from regression analyses predicting advocacy outcomes from each minor factor, controlling for the other major factor, across studies 3–6.

		B	*z*	*p*	95% CI
Study 3	Embeddedness	0.26	3.20	.001	[0.14, 0.43]
	Correctness	0.36	5.49	< .001	[0.19, 0.46]
	Embeddedness	0.20	3.31	.001	[0.10, 0.35]
	Clarity	0.17	4.46	< .001	[0.10, 0.26]
	Embeddedness	0.27	2.35	.02	[0.06, 0.50]
	Ambivalence	0.20	3.04	.002	[0.10, 0.39]
	Consistency	0.22	4.57	< 0.001	[0.14, 0.33]
	Moral basis	0.41	4.62	< 0.001	[0.25, 0.64]
	Consistency	0.21	3.73	< 0.001	[0.13, 0.37]
	Values basis	0.30	4.75	< 0.001	[0.13, 0.43]
Study 4	Embeddedness	0.32	3.91	< 0.001	[0.12, 0.49]
	Correctness	0.34	6.66	< 0.001	[0.22, 0.46]
	Embeddedness	0.29	3.22	.001	[−0.02, 0.49]
	Clarity	0.15	3.63	< .001	[0.08, 0.25]
	Embeddedness	0.31	4.00	< .001	[0.12, 0.44]
	Ambivalence	0.27	4.65	< .001	[0.14, 0.37]
	Embeddedness	0.30	3.72	< .001	[0.11, 0.34]
	Knowledge	0.22	3.87	< .001	[0.14, 0.45]
	Consistency	0.28	5.45	< .001	[0.15, 0.38]
	Importance	0.28	4.00	< .001	[0.12, 0.40]
	Consistency	0.29	4.09	< .001	[0.11, 0.42]
	Moral basis	0.24	2.94	.003	[0.08, 0.38]
	Consistency	0.28	5.30	< .001	[0.18, 0.39]
	Values basis	0.21	3.62	< .001	[0.10, 0.31]
Study 5	Embeddedness	0.29	5.19	< .001	[0.11, 0.37]
	Certainty	0.23	4.58	< .001	[0.13, 0.32]
	Embeddedness	0.28	5.68	< .001	[0.18, 0.37]
	Ambivalence	0.24	4.20	< .001	[0.13, 0.36]
	Embeddedness	0.28	4.70	< .001	[0.17, 0.43]
	Knowledge	0.11	1.73	.08	[−0.05, 0.24]
	Consistency	0.27	5.08	< .001	[0.17, 0.37]
	Importance	0.36	4.29	< .001	[0.17, 0.55]
	Consistency	0.28	4.27	< .001	[0.12, 0.38]
	Moral basis	0.34	5.91	< .001	[0.24, 0.45]
	Consistency	0.25	3.65	< .001	[0.11, 0.44]
	Values basis	0.41	6.21	< .001	[0.28, 0.57]
	Consistency	0.24	3.49	< .001	[0.07, 0.40]
	Affective meta-basis	0.09	1.08	.28	[0.07, 0.28]
	Consistency	0.25	3.53	< .001	[0.10, 0.38]
	Cognitive meta-basis	0.37	3.69	< .001	[0.10, 0.53]
Study 6	Embeddedness	0.41	8.14	< .001	[0.28, 0.51]
	Certainty	0.24	5.97	< .001	[0.16, 0.34]
	Embeddedness	0.41	7.47	< .001	[0.30, 0.53]
	Ambivalence	0.22	4.22	< .001	[0.12, 0.32]
	Embeddedness	0.40	6.52	< .001	[0.27, 0.53]
	Knowledge	−0.09	−1.80	.07	[−0.22, −0.004]
	Consistency	0.25	5.74	< .001	[0.17, 0.35]
	Importance	0.46	8.71	< .001	[0.31, 0.56]
	Consistency	0.26	4.67	< .001	[0.15, 0.37]
	Moral basis	0.32	6.28	< .001	[0.19, 0.43]
	Consistency	0.25	5.60	< .001	[0.14, 0.32]
	Values basis	0.49	9.19	< .001	[0.37, 0.60]
	Consistency	0.26	5.40	< .001	[0.17, 0.40]
	Affective meta-basis	0.28	3.97	< .001	[0.10, 0.42]
	Consistency	0.26	4.87	< .001	[0.11, 0.36]
	Cognitive meta-basis	0.49	7.90	< .001	[0.34, 0.64]
	Consistency	0.26	6.42	< .001	[0.15, 0.33]
	Extremity	0.21	7.67	< .001	[0.16, 0.28]
	Consistency	0.26	5.99	< .001	[0.16, 0.34]
	Centrality	0.19	5.03	< .001	[0.11, 0.27]

effects of these two factors on advocacy outcomes, thus providing converging evidence for the separability of the factors. These findings mirror previous work (that did not include moral bases) that found independent effects of embeddedness and commitment factors on a variety of behavioral intentions (Pomerantz et al., 1995). Additionally, we found that each of the individual antecedents to attitude strength predicted advocacy outcomes beyond the opposing major factor in almost every test. This finding suggested that, not only were the two factors reasonably separable, but also that their effects on advocacy

were not driven by just a couple of the antecedent variables within each factor.

In all studies, we found consistent evidence to suggest that moral bases loaded with other items suggestive of an "embeddedness" factor (Pomerantz et al., 1995), such as values bases, issue importance, and cognitive meta-bases. One's subjective sense that an attitude is based in one's moral beliefs therefore seems to be emblematic of an attitude's perceived linkage to core values and facets of identity. An implication that follows from the structure found in the present data is that the moral basis of an attitude seems to be similar to other embeddedness variables. Moral bases therefore could influence behavioral outcomes and other indices of attitude strength in similar ways to these other properties. Given the strong relations among the antecedents to attitude strength that loaded together, future work seeking to differentiate moral basis from other attitude features should consider a diverse set of variables to examine, with particular attention to constructs relating to an attitude's embeddedness in core values and beliefs.

The present work has implications for novel hypotheses one could predict regarding the consequences of overlapping constructs. It would be reasonable to expect outcomes that previous research has identified as following from moral basis to similarly follow from other constructs like values basis or attitude centrality, given the shared variance among the properties that indicated an attitude's embeddedness. Perhaps outcomes like an attitude's perceived universality (a consequence that previous research has identified as following uniquely from the moral basis of an attitude) might, for instance, follow from an attitude's perceived values basis.

Of course, it is also possible for the "minor factor" variability to produce unique influences on strength-related outcomes. Thus, there may be instances where moral basis diverges from other embeddedness variables in what it predicts. However, it seems that, at least for advocacy behaviors, the embeddedness variables predict strength outcomes relatively similarly. That is, though moral basis did uniquely predict advocacy intentions controlling for the consistency major factor, it did so no better than any of the other attitude properties that loaded on the embeddedness factor. It therefore might be fitting to consider the moral basis of attitudes as one of several antecedents to attitude strength – one that is particularly reflective of an attitude's embeddedness within one's values and identity.

The present findings also have broader implications regarding the several potential taxonomies of attitude properties that have previously been proposed in the attitude strength literature. Across six studies, the major factors consistently followed a two-factor structure (within a more complex hybrid structure), suggestive of a taxonomy that separates what Pomerantz and colleagues labeled as "embeddedness" from "commitment." Because attitude clarity and (un)ambivalence loaded the most heavily on the latter factor, a "consistency" label seemed slightly more apt than "commitment", per se. This difference in appropriate labels might reflect the focus on subjective perceptions of attitude properties in the current research. An inclusion of structural attitude properties in future studies might produce factor loadings more reflective of the traditional "embeddedness" and "commitment" labels. One measurement difference between past and present examinations of this taxonomy is that, whereas the Pomerantz et al., 1995 data used single items representing each antecedent, we incorporated multiple items representing each antecedent (for almost every core property).

Of course another difference that stems directly from this distinction in number of items used to measure each construct is that, in the present work, we were able to test (and support) the possibility that the items used to measure each construct would have strong residual covariances unaccounted for by the two major factors. This finding that each attitude strength antecedent is at least somewhat distinct was reminiscent of Krosnick et al. (1993) suggestion that each attitude property should be considered as a separate factor. The Krosnick et al. (1993) research did not, however, examine possible intermediary options between a single-factor model and a model placing each attitude

property on a separate factor, thus it is possible that even in that work, controlling for an over-arching two-factor structure (i.e., the model we tested in the present work) would have improved the model fit.

One limitation of the approach used in the present research is that factor analysis (both exploratory and confirmatory) simply provides insight into the relative relations and similarities among variables, but is silent on whether those relations are produced because of variable x influencing variable y, variable y influencing variable x, or both. Similarly, factor analysis results (and the "major factors" they may reveal) are dependent on the set of measures included in the analyses. For instance, a major factor in an analysis that examines one set of conceptually similar constructs might look like a minor factor in another analysis that examines a broader set of constructs. Thus, factor analysis does not provide a categorical judgment regarding whether constructs are redundant or distinct, but instead it provides evidence regarding the relative overlap in relations among items given the other variables included in the model.

We would acknowledge that the current analyses do not capture all of the possible nuance that will likely be documented in the research to come. In future analyses that include a broader set of constructs, different major factors might be identified; similarly, future analyses that focus on a more limited set of measures might identify "major factors" that look more like the minor factors identified in the current hybrid models. Indeed, we look forward to future research that attempts to tease apart some of the finer distinctions among attitude features and could similarly determine the conditions under which various properties might be more or less similar, or conditions under which the factor structure might be altered.

Another limitation of the current research within the broader attitude strength literature is the exclusive examination of subjective properties of attitudes. Past work examining the structure of antecedents to attitude strength has often looked at both subjective and structural features of attitudes (e.g., Bassili, 1996; Krosnick et al., 1993). However, moral bases have only been examined as a subjective perception, so we restricted the scope of attitude features examined to subjective properties. Alternative theoretical models of the various attitude features may therefore be at odds with our findings, not because those models are inaccurate, but because they do not reflect how individuals *perceive* various attitude features (which may, in turn, be quite distinct from the factor structure of more structural attitude features). Future work could examine the relations among attitude features with the additional dimension of structural versus subjective attitude properties. In all likelihood, a more complex taxonomy that incorporates the distinction between structural and subjective features would emerge, though subjective and structural measures of the same attitude property might sometimes load together well.

Across six studies, the present work found evidence to suggest that the extent to which an individual perceives her attitude as "embedded" in her core values and identity is closely linked to her perception that her attitude is based in her moral beliefs. Though it still possessed unique variance beyond that captured by the embeddedness latent variable, moral basis predicted relevant outcomes quite similarly to the other attitude properties that indicated embeddedness. The present work continues to support the notion that moral conviction is at least partly unique and independent of other related constructs; however, moral basis is only distinct from other attitude properties insofar as all the various antecedents to attitude strength examined represented potential "minor factors" under a broader major factor. Thus, although moral conviction might help perpetuate the momentum of a political movement or encourage actions that are consistent with one's beliefs, so might many other attitude features that are similarly related to embeddedness in one's values and identity. We look forward to future research that further carves out any unique roles for moral conviction within the rich tapestry of attitude properties.

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Appendix A. Supplementary data

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