

Running Head: SEMANTIC INCONGRUENCE CAUSES FELT AMBIVALENCE

Feeling Torn When Everything Seems Right:
Semantic Incongruence Causes Felt Ambivalence

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ABSTRACT

The co-occurrence of positive and negative attributes of an attitude object typically accounts for less than a quarter of the variance in felt ambivalence toward these objects, rendering this *evaluative* incongruence insufficient for explaining felt ambivalence. The present research tested whether another type of incongruence, *semantic* incongruence, also causes felt ambivalence. Semantic incongruence arises from inconsistencies in the descriptive content of attitude objects' attributes (e.g., attributes that are not mutually supportive), *independent* of these attributes' valences. Experiment 1 manipulated evaluative and semantic incongruence using valence-norms and semantic-norms. Both of these *norm-based* manipulations independently predicted felt ambivalence, and, in Experiment 2, they even did so over and above *self-based* incongruence (i.e., participants' idiosyncratic perceptions of evaluative and semantic incongruence). Experiments 3a and 3b revealed that aversive dissonant feelings play a role in the effects of evaluative incongruence, but not semantic incongruence, on felt ambivalence.

KEYWORDS: Attitudes, Ambivalence, Evaluative Incongruence, Semantic Incongruence.

Feeling Torn When Everything Seems Right:

Semantic Incongruence Causes Felt Ambivalence

Have you ever met a person who seemed perfect, and nonetheless caused mixed, conflicted, or ambivalent feelings in you, as though the person was *too* perfect? Imagine a person whose core attributes – intelligence and humility – remind you of your two idols: Albert Einstein and Mahatma Gandhi. It would seem impossible that you feel ambivalent towards this Einstein-Gandhi hybrid, whose attributes are uniformly positive. In opposition to this intuition, however, we propose that feelings of ambivalence *can* arise. Specifically, we consider the possibility that felt ambivalence may arise due to *semantic incongruence*, which stems from inconsistencies between attitude objects' attributes, such as intelligence – an agentic trait – and humility – a communal trait. Four experiments examined the effect of semantic incongruence on felt ambivalence, and tested whether this effect is independent of the effect of evaluative incongruence on felt ambivalence.

Evaluative Incongruence and Felt Ambivalence

Felt ambivalence is regarded as a particularly important aspect of attitudes (Priester & Petty, 2001), because felt ambivalence comes with far reaching implications. For example, felt ambivalence can increase attitude-behavior consistency (Jonas, Diehl, & Brömer, 1997), elicit easier attitude change (Tourangeau, Rasinski, Bradburn, & D'Andrade, 1989), and heighten vulnerability to self-threat (Haddock & Gebauer, 2011). Felt ambivalence can also decrease elaboration of anti-attitudinal information (Clark, Wegener, & Fabrigar, 2008) and reduce resistance to persuasion (Visser & Mirabile, 2004). In addition to these important implications of felt ambivalence, most people are said to feel ambivalent about most attitude objects most of the time (Zaller & Feldman, 1992). Hence, it is not surprising that a large and persistent body of research has tried to understand the *causes* of felt ambivalence (Newby-Clark, McGregor, &

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3 Zanna, 2002; Priester & Petty, 1996, 2001; Priester, Petty, & Park, 2007; Thomson, Zanna, &
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5 Griffin, 1995).

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7 Originally, the causes of felt ambivalence have been sought in a single predictor: *evaluative*
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9 *incongruence*, defined as valence inconsistencies between attitude objects' attributes (Eagly &
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11 Chaiken, 1993; Olson & Zanna, 1993; Wegener, Downing, Krosnick, & Petty, 1995). The
12
13 measurement of evaluative incongruence clarifies its nature. Specifically, participants are typically
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15 instructed to report how positively they judge the positive attributes of an attitude object,
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17 *irrespective* of the attitude object's negative attributes. Participants are also instructed to report
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19 how negatively they judge the negative attributes of this attitude object, *irrespective* of the attitude
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21 object's positive attributes (Kaplan, 1972). Different mathematical models have been proposed to
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23 integrate these two responses (Breckler, 2004; Priester & Petty, 1996; Thomson et al., 1995).
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25 However, none of the models yield more than a moderate relation between evaluative
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27 incongruence and felt ambivalence. For example, Thompson et al. (1995) found relations up to
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29 only $r = .40$. Priester and Petty (1996) repeatedly found relations no higher than $r = .52$. In line
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31 with these findings, Riketta (2004) found an omnibus effect size of $r = .44$ in a meta-analysis
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33 including 27 independent studies.

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40 How can there only be a 19% overlap (based on Riketta's r) between evaluative
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42 incongruence and felt ambivalence? Attitude researchers have long puzzled over this question.
43
44 Newby-Clark et al. (2002) provided a theoretical and empirical attempt towards closing this gap
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46 between evaluative incongruence and felt ambivalence. These researchers showed that evaluative
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48 incongruence was a stronger predictor of felt ambivalence when the evaluatively incongruent
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50 attributes were rendered more accessible in consciousness. Further, this effect was pronounced
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52 among people high in preference for consistency (Cialdini, Trost, & Newsome, 1995).
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Priester and Petty (2001) took a different approach towards the same issue. Specifically, these researchers pointed out that past research had exclusively focused on evaluative incongruence *within* a given person in order to explain felt ambivalence. At the same time, they argued that felt ambivalence may also arise from evaluative conflict *between* a given person and other persons. According to this account, people can feel ambivalent towards an attitude object if they possess uniformly positive evaluations towards this attitude object, but a close other possesses negative evaluations towards the same attitude object.

Of importance, all of these approaches treated some form of evaluative incongruence as the *sole* cause of felt ambivalence. For example, Newby-Clark et al. (2002) focused on *evaluative* incongruence between consciously accessible attributes within an individual. Priester and Petty (2001) focused on *evaluative* incongruence between individuals, thereby relaxing the classic definition of ambivalence as an *intra*-psychic conflict (Kaplan, 1972). The present research takes a complementary approach, seeking additional origins of felt ambivalence in *non*-evaluative incongruence. Specifically, we examine whether semantic incongruence can increase felt ambivalence even after evaluative incongruence is taken into account. To be clear, we do *not* propose that semantic incongruence accounts for felt ambivalence any better than the previously revealed factors (e.g., accessibility, desire for evaluative consistency, interpersonal conflict). Instead, we suggest that semantic incongruence is a fundamentally different dimension, constituting an additional cause of felt ambivalence.

Semantic Incongruence and Felt Ambivalence

Evaluative incongruence is not the only type of incongruence that can exist between attitude objects' attributes. Research on person perception has long pointed towards a second type of incongruence, labeled descriptive or semantic incongruence (Peabody, 1970). Translated into the language of attitude research, semantic incongruence can be defined as *content* inconsistency

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3 between attitude objects' attributes, independent of these attributes' valence. In research on person
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5 perception, semantic incongruence is usually studied within the framework of Wiggins's
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7 interpersonal circumplex model (Abele & Wojciszke, 2007; Paulhus & John, 1998; Wiggins, 1979;
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9 Wiggins, Trapnell, & Phillips, 1988). The interpersonal circumplex is spanned by two orthogonal
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11 dimensions (Figure 1): agency (e.g., dominant, persistent, assertive) and communion (e.g., soft-
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13 hearted, charitable, kind). Wiggins's model can parsimoniously organize psychological attributes
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15 describing cultures (Oyserman, Coon, & Kimmelmeier, 2002), groups (Fiske, Cuddy, Glick, &
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17 Xu, 2002), other persons (Abele & Wojciszke, 2007), and self (i.e., personality traits; Gebauer,
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19 Paulhus, & Neberich, 2013).
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24 How does the model help to separate semantic incongruence from evaluative
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26 incongruence? The opening paragraph provides an illustrative example. Suppose that a person is
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28 high in both intelligence and humility. Intelligence is an agentic trait, while humility is a
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30 communal trait. To some extent, the possession of both attributes is incongruent in terms of their
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32 semantic content, as shown through their roughly 90° angle separation (i.e., orthogonality) in the
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34 circumplex model. In contrast, there is little content incongruence in a description of someone who
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36 is simultaneously high in intelligence and high in creativity (both agency traits with roughly 5°
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38 separation) or simultaneously high in humility and helpfulness (both communal traits with roughly
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40 5° separation). Note that, in each of these cases, all of the traits are evaluated very favorably
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42 (Abele, Uchronski, Suitner, & Wojciszke, 2008; Anderson, 1968) and thus evaluative
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44 incongruence is very low (or absent). That is, it is the meaning of the traits *per se* and not their
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46 evaluative tone that is incongruent.
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52 The main aim of the present research was to test whether semantic incongruence causes felt
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54 ambivalence independently of evaluative incongruence. Researchers have speculated that
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56 semantic incongruence might be even more prevalent as a source of felt ambivalence than is
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evaluative incongruence (Epstein, 1980; see also Thompson & Zanna, 1995). Yet, to the best of our knowledge, attitude research has never empirically tested whether semantic incongruence even contributes to felt ambivalence. We therefore sought to close this empirical gap. As such, the present research may also help to bridge research on person perception and attitudes. The former has distinguished between semantic and evaluative incongruence, whereas the latter has studied the causes of felt ambivalence. This integration may make an important step toward solving the longstanding puzzle about the elusive causes of felt ambivalence.

A second aim of the present research was to distinguish between two forms of evaluative incongruence as well as two forms of semantic incongruence. Specifically, past research has derived indicators of evaluative incongruence by either one of two means. One method capitalized on *valence norms* of attitude objects' attributes (e.g., Priester & Petty, 1996–Studies 2 and 3). The other method capitalized on participants' *idiosyncratic self-reports* of attributes' valences (e.g., Priester & Petty, 1996–Study 1). It is not yet clear whether both of these procedures are strictly interchangeable. An obvious psychological assumption is that *norm-based* incongruence is merely a (somewhat cruder) proxy for the latter *self-based* incongruence, which actually resides in the individual's thinking. If so, norm-based incongruence effects on felt ambivalence should vanish when self-based incongruence is additionally considered. In statistical terms – self-based incongruence should fully mediate the effect of norm-based incongruence on felt ambivalence.

However, there is also an important conceptual difference between norm-based and self-based incongruence. Specifically, *norm-based* incongruence largely reflects consensually held, culture-based incongruence, whereas *self-based* incongruence largely reflects consciously held, idiosyncrasy-based incongruence (cf. Olson & Fazio, 2004). Given this conceptual difference, there are at least two reasons that norm-based incongruence may predict felt ambivalence over and above self-based incongruence. First, norm-based incongruence includes extrapersonal

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3 representations, which can exert effects independently of intrapersonal representations (Gebauer,
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5 Nehrlich, Sedikides, & Neberich, in press). Second, norm-based incongruence may shape implicit
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7 associations in memory, which can exert effects independently of conscious, self-reported
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9 associations (Gebauer, G6ritz, Hofmann, & Sedikides, 2012). Both of these factors are likely to be
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11 important in the context of predicting felt ambivalence because, as noted earlier, the attitudes of
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13 others are important for predicting personal feelings of ambivalence (Priester & Petty, 2001), and
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15 the likelihood of simultaneous co-activation of opposing attributes is an important predictor of felt
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17 ambivalence (Newby-Clark et al., 1998). These possible roles become even more tangible in the
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19 light of the paradigm we use in the present research, which focuses on personal attributes. Our
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21 mental representations of personal attributes show a deep level of mental organization. There is
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23 evidence for implicit memory effects involving the Big Five personality traits (Edwards & Collins,
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25 2008) and social values (Pakizeh, Gebauer, & Maio, 2007), and the interpersonal circumplex can
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27 organize traits (Digman, 1997) and values (Trapnell & Paulhus, 2012). Agentic and communal
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29 traits can be distinguished even at very early stages of information processing – stages that hardly
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31 reach consciousness (Abele & Bruckm6ller, 2011). Finally, the implicit semantics of traits can
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33 predict behavior over and above the corresponding explicit semantics of these traits (Perkins &
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35 Forehand, 2006; Schnabel, Asendorpf, & Greenwald, 2008). Overall, then, felt ambivalence may
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37 well be independently caused by (a) norm-based evaluative incongruence, (b) self-based evaluative
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39 incongruence, (c) norm-based semantic incongruence, and (d) self-based semantic incongruence,
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41 albeit much – but not all – of the norm-based incongruence effects should be mediated by self-
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43 based incongruence effects. Figure 2 displays the resultant model.
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52 The final aim of the present research was to examine the role of *dissonant feelings*
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54 (Festinger, 1957) in evaluative and semantic incongruence effects on felt ambivalence. Dissonant
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56 feelings are affect-laden and aversive in nature, and they have been repeatedly linked to evaluative
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conflict between beliefs about personal actions (and their consequences) and personal attitudes (see Elliot & Devine, 1994). Consequently, we expected dissonant feelings to arise from evaluative incongruence. However, we are not aware of any research revealing a link between semantic incongruence and dissonant feelings. Although Festinger's (1957) cognitive dissonance theory was consistent with this possibility, subsequent research has repeatedly revealed the affect-laden and aversive nature of dissonant feelings (e.g., Cooper, Zanna, & Taves, 1978; Elliot & Devine, 1994; Zanna, Higgins, & Taves, 1978). This is theoretically different from the state elicited by semantic incongruence. As described in the aforementioned literature on person perception, semantic incongruence is theoretically more akin to a cognitive state of puzzlement from the lack of fit between different mental contents. For instance, a person who is highly intelligent yet humble might elicit a sense that "something is not quite right," but might not elicit an aversive arousal because, after all, the evaluative implications of both traits are quite favorable. Semantic incongruence does not entail a tension between different *feelings*, whereas evaluative incongruence inherently does. Felt ambivalence may arise from both the cognitive disquiet inherent in semantic incongruence and from the emotional tension inherent in evaluative incongruence, with feelings of dissonance mediating the effects of the latter.

These hypotheses were tested across four experiments. These experiments progressed from examining the independent effects of norm-based semantic incongruence and norm-based evaluative incongruence on felt ambivalence (Experiment 1) to examining the additional role of norm-based and self-based semantic and evaluative incongruence (Experiment 2) and examining the role of feelings of dissonance (Experiments 3a and 3b).

EXPERIMENT 1

We designed this experiment to resemble Priester and Petty's (1996) seminal experiments on the effect of evaluative incongruence on felt ambivalence. First, we aimed to replicate the

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3 effect of evaluative incongruence on felt ambivalence. Second, and more important, we aimed to
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5 show that semantic incongruence explains felt ambivalence independently of the effect of
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7 evaluative incongruence. We deem this a conservative test of the semantic incongruence
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9 hypothesis, because the present design was adapted from Priester and Petty (1996), who originally
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11 devised it to examine the effect of evaluative incongruence on felt ambivalence.
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14 15 **Method**

16 17 **Participants**

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19 32 Cardiff University undergraduate psychology students participated for course credit.
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21 Most participants were female (94%) and British (97%). Participants' mean age was 19.41 years
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23 ($SD = 2.54$).
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26 27 **Procedure and Measures**

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29 The experiment took place in large group sessions in the laboratory. Each participant
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31 completed the study individually on a computer. Following Priester and Petty (1996), we
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33 examined felt ambivalence towards different target persons, who varied in their personality traits.
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35 Thus, the target persons constituted the attitude objects and their personality traits constituted their
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37 (more or less incongruent) attributes. Also in line with Priester and Petty (1996), participants were
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39 instructed to rate their felt ambivalence towards each of 20 target persons, and for each target
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41 person, participants saw the target person's two "most descriptive and prevalent personality
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43 characteristics." These personality traits were randomly selected and paired from Wiggins's
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45 interpersonal circumplex (Wiggins et al., 1988; Figure 1; see Table 1's second and third column).
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47 Because the interpersonal circumplex has been found to accompany an exhaustive list of
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49 personality traits (McCrae & Costa, 1989; Wiggins, Phillips, & Trapnell, 1989), random selection
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51 and pairing of traits helps to guarantee that our findings are generally applicable, rather than valid
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3 only for a small and specific subset of traits. Demographic items preceded the rating of target
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5 persons, and the study concluded with a debriefing.
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7 **Norm-based manipulation of evaluative incongruence.** As described above, we
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9 randomly selected 40 personality traits (i.e., attitude objects' attributes) and randomly paired them,
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11 yielding 20 target persons (i.e., attitude objects). Because the selected personality traits naturally
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13 vary in their valence (Abele et al., 2008; Anderson, 1968), it follows that the degree of evaluative
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15 incongruence also varies naturally between each resultant pair of attributes. This variation leads to
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17 a natural manipulation of evaluative incongruence between target persons. We followed Priester
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19 and Petty's (1996) strategy to use valence-norms for each personality trait to derive an objective
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21 evaluative incongruence score for each target person. We obtained these valence norms via a
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23 pretest on $N = 55$ Cardiff University psychology undergraduate students (age: $M = 20.87$, $SD =$
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25 2.89 ; sex: 91% female; 100% British). Each pretest participant was instructed to indicate for each
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27 of the 40 personality traits "how positive or negative you perceive it when other people possess
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29 this trait." The rating scales ranged from -3 (I perceive it as very NEGATIVE when other people
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31 possess this trait) to +3 (I perceive it as very POSITIVE when other people possess this trait).¹ We
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33 calculated evaluative incongruence scores using the *intercomponent ambivalence model* (Maio,
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35 Esses, & Bell, 2000).²
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43 **Norm-based manipulation of semantic incongruence.** Random selection and pairing of
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45 personality traits yielded not only a natural manipulation of evaluative incongruence between
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47 target persons, it also yielded a natural manipulation of semantic incongruence between target
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49 persons. Wiggins' (1979; Wiggins et al., 1988) interpersonal circumplex of traits provides the
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51 angle of each trait on the circumplex. The discrepancies between the traits' angles served as
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53 semantic incongruence scores for each target person (see Table 1's fifth column) (cf. Pakizeh et al.,
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55 2008).
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3 **Felt ambivalence.** The measure of felt ambivalence was closely modeled after Priester and
4 Petty's (1996) measure (for similar approaches see Priester & Petty, 2001; Thompson et al., 1995).
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6 Specifically, for each target person participants completed the following three items: "I feel
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8 ambivalent towards this person," "I have mixed thoughts and feelings towards this person," and
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10 "My thoughts and feelings towards this person are conflicted." The first item was accompanied by
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12 Kaplan's (1972) definition of felt ambivalence (i.e., "ambivalence refers to the co-existence of both
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14 positive and negative emotions or attitudes [love and hatred] towards a person or thing at the same
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16 time"). Internal consistency of this three-item measure was high ($\alpha = .86$).
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22 **Results and Discussion**

23 **Analytic Strategy**

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26 As in Priester and Petty (1996), target persons were nested in participants. Hence, we
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28 examined our hypotheses using multi-level models with the software HLM 6.06 (Raudenbush,
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30 Bryk, & Congdon, 2004). All variables were situated at level 1 (target person level) and thus we
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32 centered all predictor variables around the grand mean (Raudenbush, 1989). HLM provides
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34 unstandardized effects (b). In order to obtain standardized effects (β), we z-standardized all level 1
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36 variables (i.e., all grand means = 0 and all $SDs = 1$) prior to calculating the multi-level models.
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38 This allowed us to interpret bs as βs .
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43 **Replication of Evaluative Incongruence Effects on Felt Ambivalence**

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45 Conceptually replicating the classic effect of evaluative incongruence on felt ambivalence,
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47 Table 2's first data column shows an effect of norm-based evaluative incongruence on felt
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49 ambivalence. This effect was similar in size to previous effects of evaluative incongruence on felt
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51 ambivalence (Priester & Petty, 1996; Riketta, 2004; Thompson et al., 1995). Thus, the present
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53 study's design was well-suited to replicating prior effects of evaluative incongruence and, hence,
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3 for using these effects as a baseline against which to compare the effects of semantic
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5 incongruence.
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7 **Dependence between Evaluative Incongruence and Semantic Incongruence**

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10 The design also allowed us to examine the dependence between evaluative incongruence
11 and semantic incongruence. Knowledge of this dependence is important for our further analyses.
12 Specifically, if the two types of incongruence are dependent, it becomes necessary to control for
13 one type of incongruence in the analyses of the other type in order to know which type of
14 incongruence actually causes a given effect.
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21 Past theory and research strongly suggests that evaluative and semantic incongruence are
22 partly dependent. This should be the case because evaluative and semantic content of traits are
23 related (Gebauer, Haddock, Broemer, & von Hecker, 2012; Gebauer, Wagner, Sedikides, &
24 Neberich, in press). The conflicting evaluations implied by traits at opposite ends of the same
25 semantic continuum are likely to also be evaluatively conflicting. Also, human thought and
26 behavior is fundamentally driven by the desire to maximize self-profitability, and other persons
27 who possess communal traits serve better to maximize self-profitability than other persons who
28 possess agentic traits (Abele & Wojciszke, 2007). Thus, communal traits are more positively
29 evaluated in others than are agentic traits (Gebauer, Leary, & Neberich, 2012; Wojciszke, Barylá,
30 Parzuchowski, Szymkow, & Abele, 2011).
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45 To examine the dependence between norm-based evaluative incongruence and norm-based
46 semantic incongruence, we correlated Table 1's evaluative and semantic incongruence indices
47 across the 20 target persons. As expected, there was a significant correlation between evaluative
48 and semantic incongruence, $r(20) = .53, p = .02$. Thus, it is important to control for the effects of
49 semantic incongruence when examining the effects of evaluative incongruence and to control for
50 the effects of evaluative incongruence when examining the effects of semantic incongruence.
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Semantic Incongruence Effects on Felt Ambivalence

Table 2's second data column shows the effect of norm-based semantic incongruence on felt ambivalence. Compared to our effect of norm-based evaluative incongruence (see also Priester & Petty, 1996; Riketta, 2004; Thompson et al., 1995), results indicated a stronger effect of norm-based semantic incongruence on felt ambivalence and this finding is in line with prior speculation (Epstein, 1980; see also Thompson & Zanna, 1995).

Table 2's third data column shows the effect of norm-based semantic incongruence on felt ambivalence, *while controlling for norm-based evaluative incongruence*. Results indicated a significant independent effect of norm-based semantic incongruence on felt ambivalence. In fact, the effect of norm-based semantic incongruence on felt ambivalence was very similar in size to prior effects of evaluative incongruence on felt ambivalence (Priester & Petty, 1996; Riketta, 2004; Thompson et al., 1995).

Table 2's fourth data column shows the effect of norm-based evaluative incongruence on felt ambivalence, while controlling for norm-based semantic incongruence. Controlling for norm-based semantic incongruence reduced the effect of norm-based evaluative incongruence on felt ambivalence, and this reduction was significant, $z = 7.92$, $SE = .03$, $p = .001$. Nevertheless, the effect of evaluative incongruence remained significant (see Table 2). Thus, adapting a classic design (Priester & Petty, 1996), the present research is the first to disentangle evaluative and semantic incongruence, showing that both types of incongruence have substantial effects on felt ambivalence.

EXPERIMENT 2

The design employed in the present research (see also Priester & Petty, 1996) can afford a small number of participants per experiment, because target persons constitute the level of analyses and each participant rates 20 target persons, yielding $N \times 20$ lines of data. However,

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3 small numbers of participants come with the risk that results can be highly influenced by the
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5 responses of a few atypical participants. For this reason, it is particularly important to demonstrate
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7 replicability of these results across several experiments. Such replications demonstrate the
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9 robustness of the uncovered effects even more strongly than a single experiment with a large
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11 number of participants (Fiedler & Kareev, 2006). Thus, the first aim of Experiment 2 was to
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13 replicate Experiment 1. The second aim of Experiment 2 was to examine the role of self-based
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15 semantic and evaluative incongruence in Experiment 1's effects. This enabled us to test whether
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17 norm-based and self-based semantic and evaluative incongruence each have independent effects on
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19 feelings of ambivalence.
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23 24 **Method**

25 26 **Participants**

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28 33 Cardiff University undergraduate psychology students participated for course credit.
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30 Most participants were female (91%) and British (94%). Participants' mean age was 19.97 years
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32 ($SD = 3.58$).
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35 36 **Procedure and Measures**

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38 This experiment took place in large group sessions in the laboratory. The experiment was
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40 identical to Experiment 1, with two additions. Specifically, after rating the 20 target persons,
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42 participants completed self-based measures of evaluative and semantic incongruence (at random).
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44 The norm-based manipulations of evaluative and semantic incongruence as well as the measure of
45
46 felt ambivalence ($\alpha = .89$) were described in Experiment 1. Hence, below we will only describe
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48 the self-based measures of evaluative and semantic incongruence.
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53 **Self-based measure of evaluative incongruence.** Each participant completed the same
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55 measure as did pretest participants in Experiment 1 (see description of norm-based manipulation of
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57 evaluative incongruence in Experiment 1's method section). For each participant, we calculated an
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idiosyncratic evaluative incongruence score, using the same mathematical model used in Experiment 1 to calculate norm-based evaluative incongruence (Maio et al., 2000).

Self-based measure of semantic incongruence. Each participant read the following instructions: "On this page you will find the same pairs of traits you have seen before. We differ in our perception of (a) how well certain traits fit together, (b) conflict with each other, and (c) are unrelated to each other (neither fit nor conflict). Using the scale beneath each trait pair, please indicate whether you generally perceive the two traits of each pair as fitting together, conflicting, or being unrelated to each other." The 20 pairs of traits followed, and for each pair participants read "I generally perceive the following two traits: [trait x] and [trait y]..." followed by a 9-point rating scale ranging from -4 "...as strongly CONFLICTING each other," via 0 "...as UNRELATED to each other," to +4 "...as strongly FITTING each other."

Results and Discussion

Validity Check

This experiment affords verification of the norm-based manipulations of evaluative and semantic incongruence as well as the self-based measures of evaluative and semantic incongruence. Following Cronbach and Meehl (1955), we should obtain support for a particular nomological net. Specifically, norm-based evaluative incongruence should be primarily related to self-based evaluative incongruence, but not to self-based semantic incongruence. In addition, norm-based semantic incongruence should be primarily related to self-based semantic incongruence, but not to self-based evaluative incongruence.

To test for these relations, we conducted two analyses. First, we simultaneously predicted self-based evaluative incongruence with norm-based evaluative incongruence and norm-based semantic incongruence, while controlling for self-based semantic incongruence. In line with predictions, Table 3's first data column shows that norm-based evaluative incongruence strongly

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2 predicted self-based evaluative incongruence, whereas Table 3's second data column shows that
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4 norm-based semantic incongruence did not predict self-based evaluative incongruence. Second,
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6 we simultaneously predicted self-based semantic incongruence with norm-based evaluative
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8 incongruence and norm-based semantic incongruence, while controlling for self-based evaluative
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10 incongruence. In line with predictions, Table 3's third data column shows that norm-based
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12 evaluative incongruence very weakly, and negatively, predicted self-based semantic incongruence,
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14 whereas Table 3's fourth data column shows that norm-based semantic incongruence strongly
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16 predicted self-based semantic incongruence. Thus, the suitability of our manipulations and self-
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18 report measures was supported.
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23 24 **Replication of Experiment 1**

25
26 Table 2's first data column shows that norm-based evaluative incongruence predicted felt
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28 ambivalence. Table 2's second data column shows that norm-based semantic incongruence
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30 predicted felt ambivalence even more strongly. Table 2's third data column shows that norm-based
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32 semantic incongruence predicted felt ambivalence, even when norm-based evaluative
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34 incongruence was controlled. Table 2's fourth data column shows that norm-based evaluative
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36 incongruence remained a predictor of felt ambivalence, even when norm-based semantic
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38 incongruence was controlled. However, as in Experiment 1, controlling for norm-based semantic
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40 incongruence significantly reduced the effect of norm-based evaluative incongruence on felt
41
42 ambivalence, $z = 7.76$, $SE = .03$, $p < .001$. Thus, the results of Experiment 1 were fully replicated.
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44 Norm-based evaluative and semantic incongruence independently elicited felt ambivalence.
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49 50 **Norm-Based Evaluative Incongruence, Self-Based Evaluative Incongruence, and Felt** 51 52 **Ambivalence**

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54 We tested whether norm-based evaluative incongruence remained a significant predictor of
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56 felt ambivalence, despite controlling for self-based evaluative incongruence. Table 4's first data
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3 column shows the results of this analysis. Specifically, the effect of norm-based evaluative
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5 incongruence on felt ambivalence remained significant, even when controlling for self-based
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7 evaluative incongruence. These results notwithstanding, a Sobel test (Sobel, 1982) revealed that
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9 controlling for self-based evaluative incongruence significantly reduced the effect of norm-based
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11 evaluative incongruence on felt ambivalence (Table 4's second data column), and self-based
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13 evaluative incongruence emerged as a comparatively stronger predictor of felt-ambivalence (Table
14
15 4's third data column). Overall then, self-based evaluative incongruence did play an important role
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17 in felt ambivalence effects, but norm-based evaluative incongruence partly caused felt
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19 ambivalence independent of self-based evaluative incongruence. (Following Experiment 1's
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21 results, we controlled for norm-based and self-based semantic incongruence throughout all
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23 analyses described in this paragraph.) Next, we tested for analogous effects regarding semantic
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25 incongruence.
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30 31 **Norm-Based Semantic Incongruence, Self-Based Semantic Incongruence, and Felt** 32 33 **Ambivalence**

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35 We tested whether norm-based semantic incongruence remained a significant predictor of
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37 felt ambivalence, despite controlling for self-based semantic incongruence. As shown in Table 5's
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39 first data column, the effect of norm-based semantic incongruence on felt ambivalence remained
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41 significant, even when controlling for self-based semantic incongruence. These results
42
43 notwithstanding, a Sobel test revealed that controlling for self-based semantic incongruence
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45 significantly reduced the effect of norm-based semantic incongruence on felt ambivalence (Table
46
47 5's second data column), and self-based semantic incongruence emerged as a comparatively
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49 stronger predictor of felt-ambivalence (Table 5's third data column). Overall then, self-based
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51 semantic incongruence did play an important role in felt ambivalence effects, but norm-based
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53 semantic incongruence also influenced felt ambivalence independent of self-based semantic
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3 incongruence. (Following Experiment 1 results we controlled for norm-based and self-based
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5 evaluative incongruence throughout all analyses described in this paragraph.)
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7 8 **EXPERIMENTS 3A AND 3B**

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10 Experiments 3a and 3b were identical and each study examined the role of dissonant
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12 feelings. As detailed in the introduction, we expected dissonant feelings to play a unique role in
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14 evaluative incongruence effects, but not in semantic incongruence effects. Semantic
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16 incongruence's independence of dissonant feelings would buttress the view that the effects of
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18 semantic incongruence are distinct from those of evaluative incongruence.
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21 22 **Method**

23 24 **Participants**

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26 **Experiment 3a.** 28 Cardiff University undergraduate psychology students participated for
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28 course credit. Most participants were female (93%) and all were British. Participants' mean age
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30 was 18.89 years ($SD = 1.50$).
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34 **Experiment 3b.** 56 Cardiff University undergraduate psychology students participated for
35
36 course credit. Most participants were female (93%) and British (98%). Participants' mean age was
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38 19.07 years ($SD = 1.44$).
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40 41 **Procedure and Measures**

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43 The experiments were identical to Experiment 2 with one addition. Specifically, at the
44
45 phase where participants were asked to rate their felt ambivalence towards each target person,
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47 participants were also asked to rate their dissonant feelings towards each target person. Items to
48
49 assess felt ambivalence and dissonant feelings were presented in a randomized order. Below, we
50
51 only describe the measure of dissonant feelings (because the remaining tasks were the same as in
52
53 the prior experiments). As in Experiments 1 and 2, the measure of felt ambivalence exhibited high
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55 internal consistency (Experiment 3a: $\alpha = .86$; Experiment 3b: $\alpha = .87$).
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3 **Dissonant feelings.** The measure of dissonant feelings was closely modeled after
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5 Festinger's (1957) description of dissonance (for a similar approach, see Elliot & Devine, 1994).
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7 Specifically, for each target person participants completed the following three items: "I feel an
8
9 unpleasant tension when imagining this person," "I experience a feeling of unease when thinking
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11 about this person," and "I experience an aversive feeling when thinking about this person."
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13 Internal consistency of this three-item measure was high (Experiment 3a: $\alpha = .89$; Experiment 3b:
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15 $\alpha = .90$).
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18 19 **Results and Discussion**

20 21 **Replication of Experiments 1 and 2**

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23 **Independent effects of norm-based evaluative and semantic incongruence.** Table 2's
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25 first data column shows that norm-based evaluative incongruence predicted felt ambivalence.
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27 Table 2's second data column shows that norm-based semantic incongruence predicted felt
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29 ambivalence even more strongly. Table 2's third data column shows that norm-based semantic
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31 incongruence predicted felt ambivalence, even when norm-based evaluative incongruence was
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33 controlled. Consistent with our past results, controlling for norm-based semantic incongruence
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35 significantly reduced the effect of norm-based evaluative incongruence on felt ambivalence in
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37 Experiment 3a, $z = 7.86$, $SE = .03$, $p < .001$, and in Experiment 3b, $z = 9.85$, $SE = .02$, $p < .001$.
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39 Nonetheless, Table 2's fourth data column shows that norm-based evaluative incongruence again
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41 remained a significant predictor of felt ambivalence, even when norm-based semantic
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43 incongruence was controlled. Thus, in both studies, norm-based evaluative incongruence and
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45 norm-based semantic incongruence independently caused felt ambivalence.
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53 **Validity of norm-based and self-based evaluative and semantic incongruence.** Table
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55 3's first data column shows that norm-based evaluative incongruence strongly predicted self-based
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57 evaluative incongruence, whereas Table 3's second data column shows that norm-based semantic
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2 incongruence did not predict self-based evaluative incongruence. At the same time, Table 3's third
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4 data column shows that norm-based evaluative incongruence very weakly (and negatively)
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6 predicted self-based semantic incongruence, whereas Table 3's fourth data column shows that
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8 norm-based semantic incongruence strongly predict self-reported semantic incongruence. This
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10 pattern replicated prior evidence supporting the suitability of our manipulations and self-report
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12 measures.
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17 **Examining the necessity of self-based evaluative and semantic incongruence.** Table 4's
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19 first data column shows a significant effect of norm-based evaluative incongruence on felt
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21 ambivalence, despite controlling for self-based evaluative incongruence. These results
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23 notwithstanding, controlling for self-based evaluative incongruence significantly reduced the effect
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25 of norm-based evaluative incongruence on felt ambivalence (Table 4's second data column), and
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27 self-based evaluative incongruence emerged as a comparatively stronger predictor of felt-
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29 ambivalence (Table 4's third data column). Analogously, Table 5's first data column shows a
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31 significant effect of norm-based semantic incongruence on felt ambivalence, despite controlling
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33 for self-based semantic incongruence. These results notwithstanding, controlling for self-based
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35 semantic incongruence significantly reduced the effect of norm-based semantic incongruence on
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37 felt ambivalence (Table 5's second data column), and self-based semantic incongruence emerged
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39 as a comparatively stronger predictor of felt-ambivalence (Table 5's third data column). Thus,
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41 across two studies, Experiment 2's results were fully replicated. (As in Experiment 2, the analyses
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43 described in this paragraph controlled for norm-based and self-based semantic incongruence in all
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45 analyses involving evaluative incongruence, and controlled for norm-based and self-based
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47 evaluative incongruence in all analyses involving semantic incongruence.)
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54 **The Role of Dissonant Feelings**

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3 Do aversive dissonant feelings play a role in evaluative incongruence effects, and are
4 semantic incongruence effects free from aversive dissonant feelings? We first tested whether
5 manipulated evaluative incongruence caused dissonant feelings, controlling for manipulated
6 semantic incongruence. As expected, this was the case in Experiment 3a, $\beta = .20$, $SE = .04$, $t(554)$
7 $= 5.39$, $p < .001$, and in Experiment 3b, $\beta = .20$, $SE = .02$, $t(1103) = 8.68$, $p < .001$. At the same
8 time, we examined whether manipulated semantic incongruence caused dissonant feelings,
9 controlling for manipulated evaluative incongruence. As expected, this was neither the case in
10 Experiment 3a, $\beta = .03$, $SE = .03$, $t(554) = .93$, $p = .35$, nor in Experiment 3b, $\beta = .04$, $SE = .02$,
11 $t(1103) = 1.59$, $p = .11$.

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Second, we examined the processing role of dissonant feelings using the meditational tests described by Baron and Kenny (1986) and Sobel (1982). Given that semantic incongruence was not a significant predictor of dissonant feelings, dissonant feelings could not mediate the effect of semantic incongruence on felt ambivalence in these analyses. In contrast, evaluative incongruence did significantly affect dissonant feelings, and this effect was similar in size to the effect of evaluative incongruence on felt ambivalence (see Table 2). Thus, dissonant feelings were a potential mediator of the effects of evaluative incongruence on felt ambivalence (Baron & Kenny, 1986). In support of this hypothesis, controlling for dissonant feelings reduced the direct effect of manipulated evaluative incongruence on felt ambivalence in Experiment 3a, $\beta = .15$, $SE = .04$, $t(553) = 3.74$, $p < .001$, and in Experiment 3b, $\beta = .15$, $SE = .02$, $t(1102) = 6.82$, $p < .001$. Furthermore, the meditational path was significant in Experiment 3a, $z = 3.47$, $SE = .01$, $p < .001$, and Experiment 3b, $z = 5.89$, $SE = .01$, $p < .001$.³

The results surrounding dissonant feelings make three relevant points. First, dissonant feelings played no role in the effect of manipulated semantic incongruence on felt ambivalence. In fact, manipulated semantic incongruence did not reliably affect dissonant feelings. Thus, dissonant

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3 feelings do not pose a validity-threat to the semantic incongruence hypothesis. Second, the finding
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5 that evaluative incongruence--but not semantic incongruence--caused dissonant feelings is
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7 interesting, considering that both types of incongruence predict felt ambivalence. This pattern
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9 suggests that there exists a clear functional difference between evaluative incongruence and
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11 semantic incongruence. This pattern also suggests that there is a clear functional difference
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13 between felt ambivalence and dissonant feelings, and the latter conclusion is corroborated by the
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15 fact that there was only small to moderate overlap between dissonant feelings and felt ambivalence
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17 in Experiment 3a, $\beta = .33$, $SE = .05$, $t(555) = 6.10$, $p < .001$, and in Experiment 3b, $\beta = .39$, $SE =$
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19 $.04$, $t(1104) = 10.73$, $p < .001$. Finally, although not focal to the present research, Experiments 3a
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21 and 3b consistently found that dissonant feelings play a (specific) processing role for evaluative
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23 incongruence effects on felt ambivalence.
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GENERAL DISCUSSION

People feel at least somewhat ambivalent towards most attitude objects (cf. Zaller & Feldmen, 1992). At the same time, such felt ambivalence exerts a variety of important effects on human cognition (Clark et al., 2008), emotion (Haddock & Gebauer, 2011), and behavior (Jonas et al., 1997). Not surprisingly then, understanding the causes of felt ambivalence is central in attitude research (Priester & Petty, 1996). Originally, attitude researchers hypothesized that felt ambivalence is largely—if not exclusively—caused by valence inconsistencies between attitude objects' attributes (i.e., evaluative incongruence; Eagly & Chaiken, 1993; Olson & Zanna, 1993; Wegener et al., 1995). Given the intuitive appeal of this hypothesis, it may seem paradoxical that study after study found that evaluative incongruence only explains a modest percentage of variance in felt ambivalence (Priester & Petty, 1996; Thompson et al., 1995). Echoing this, a meta-analysis across 27 samples estimated that evaluative incongruence only explains 19% of the variance in felt ambivalence (Riketta, 2004). Several influential studies have been conducted in response to this

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3 paradox. These studies either identified specific conditions under which valence inconsistencies
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5 between attitude objects' attributes are particularly predictive of felt ambivalence (Newby-Clark et
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7 al., 2002), or these studies identified alternative types of valence inconsistencies (i.e., between
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9 personal evaluations and evaluations by close others) that predict felt ambivalence (Priester &
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11 Petty, 2001). These attempts were successful in narrowing the gap between evaluative
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13 incongruence and felt ambivalence, but they also revealed the need to identify additional causes of
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15 felt ambivalence.
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19 The present research responded to this need. We built on the observation that all prior
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21 research sought the causes of felt ambivalence in *valence* inconsistencies, and we hypothesized
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23 that other types of inconsistencies may also cause felt ambivalence. We drew on classic person
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25 perception evidence for two major types of inconsistencies: evaluative incongruence and semantic
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27 incongruence (Peabody, 1970). Our main hypothesis was that semantic incongruence may cause
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29 felt ambivalence independently of the well-established—but modest—effect of evaluative
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31 incongruence on felt ambivalence. In addition, we had two ancillary hypotheses. First, we
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33 distinguished between self-based incongruence (reflecting consciously held, self-reported
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35 incongruence) and norm-based incongruence (reflecting norm-list derived, culture-based
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37 incongruence), and we hypothesized that norm-based evaluative incongruence, self-based
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39 evaluative incongruence, norm-based semantic incongruence, and self-based semantic
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41 incongruence all explain unique portions of variance in felt ambivalence. Second, we
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43 hypothesized that dissonant feelings play a unique processing role in the effect of evaluative
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45 incongruence on felt ambivalence, but that dissonant feelings are not involved in the effect of
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47 semantic incongruence on felt ambivalence.
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55 Four experiments fully supported our hypotheses. Each experiment consistently revealed
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57 that semantic incongruence helps to close the gap between incongruence and felt ambivalence (see
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3 Table 2). Additionally, Experiments 2, 3a, and 3b consistently revealed that self-based and norm-
4 based semantic incongruence are independently useful towards closing this gap (see Table 3 and
5 4). But how useful is the *collective* of norm-based evaluative incongruence, self-based evaluative
6 incongruence, norm-based semantic incongruence, and self-based semantic incongruence in
7 explaining felt ambivalence? To address this question, we aggregated the data from our three
8 relevant experiments (Experiments 2, 3a, and 3b). In close replication of Riketta's (2004) meta-
9 analytic results, norm-based evaluative incongruence alone only explained 17% of the variance in
10 felt ambivalence. In contrast, norm-based evaluative incongruence and norm-based semantic
11 incongruence together explained 28% of the variance in felt ambivalence. Finally, the collection
12 of all four types of incongruence (norm-based evaluative incongruence, self-based evaluative
13 incongruence, norm-based semantic incongruence, and self-based semantic incongruence)
14 explained 37% of the variance in felt ambivalence. This corresponds to an omnibus effect of $r \approx$
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33 Considering the different measurement methods underlying the different incongruence
34 scores and felt ambivalence scores, an omnibus effect of $r \approx .60$ is large. Further, past research has
35 identified conditions under which this omnibus effect should be even stronger. This should arise
36 when the cognitive accessibility of incongruent attributes is high (Newby-Clark et al., 2002),
37 individuals score highly on relevant personality factors (e.g., self-monitoring—Cowley & Czellar,
38 2012), and causes of felt ambivalence other than intrapersonal incongruence (i.e., interpersonal
39 incongruence) are included as predictors (Priester & Petty, 2001). Considering these additional
40 sources of variance, the omnibus effect size in the present experiments can even be described as
41 very large. Hence, the introduction of semantic incongruence (and to a lesser degree the
42 distinction between norm-based and self-based incongruence) considerably narrows the gap
43 between incongruence and felt ambivalence.
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3 The present research raises several interesting questions for future research. First, how
4 much variance may the tandem of evaluative and semantic incongruence explain in felt
5 ambivalence under conditions that favor incongruence effects on felt ambivalence--that is, under
6 conditions of high cognitive accessibility of incongruent attributes (Newby-Clark et al., 2002),
7 among individuals high in preference for consistency (Newby-Clark et al., 2002), and among
8 individuals high in self-monitoring (Cowley & Czellar, 2012)? May the tandem of evaluative and
9 semantic incongruence be able to fully close the gap between incongruence and felt ambivalence
10 under these conditions?
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21 Second, is the effect of semantic incongruence on felt ambivalence direct or mediated by
22 another psychological variable? Experiments 3a and 3b have revealed that aversive dissonant
23 feelings constituted a processing variable for the effect of evaluative incongruence on felt
24 ambivalence, while aversive dissonant feelings did not constitute a processing variable for the
25 effect on semantic incongruence on felt ambivalence. Analogously, there may be processing
26 variables that uniquely drive the effect of semantic incongruence on felt ambivalence. One
27 candidate variable is feelings of uncertainty, which predict feelings of ambivalence (Petrocelli,
28 Tormala, & Petty, 2007) . However, prior research has suggested links between uncertainty and
29 aversive feelings (Jonas et al., 1997; van Harreveld, Rutjens, Rotteveel, Nordgren, van der Pligt,
30 2009), and our results showed that aversive dissonant feelings played no role in the effect of
31 semantic incongruence on felt ambivalence. Another candidate variable is disfluency—the
32 difficulty with which the attributes of an attitude object can be integrated into a coherent whole
33 (Schwarz, in press; see also Brinol, Petty, & Tormala, 2006). Indeed, prior research has found that
34 semantic incongruence can slow processing time (Pakizeh et al., 2007), suggesting that semantic
35 incongruence causes disfluency.
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3 Third, the present research was largely built on Priester and Petty's (1996) study design
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5 (e.g., using persons as attitude objects). Yet, there is also one noteworthy difference between
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7 Priester and Petty's and our design. Specifically, the former design varied the relative number of
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9 positive vs. negative attributes of the target-persons. In contrast, our design described each target
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11 person via two attributes, which varied in their degree or extremity of evaluative (and semantic)
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13 incongruence. This deviation from Priester and Petty's design appeared necessary because it is not
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15 clear *a priori* how to calculate a suitable semantic incongruence index on the basis of more than
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17 two attributes. Of course, this is not to say that such an index cannot be derived, and future
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19 research could attend to this issue. Reminiscent of Priester and Petty's (1996) work, such research
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21 would probably have to compare the predictive validity of different semantic congruence formulae
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23 against each other. The results of the present research may serve as a benchmark for such a
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25 comparative approach.
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31 Fourth, by adapting Priester and Petty's (1996) classic incongruence design, we examined
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33 the effect of incongruence on felt ambivalence within the context of person perception. Although
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35 there is no reason to believe that incongruence effects are restricted to felt ambivalence in person
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37 perception (see Priester & Petty, 1996), future research could empirically ascertain the explanatory
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39 power of semantic incongruence for felt ambivalence utilizing other attitude objects. For example,
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41 Riketta and Ziegler (2007) have pointed towards the need to understand cause of *self*-ambivalence.
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43 Given that the interpersonal circumplex also organizes self-perception (i.e., personality traits;
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45 Paulhus & John, 1998) semantic incongruence between self-ambivalent individuals' personality
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47 traits (see Gebauer, Sedikides, Verplanken, & Maio, 2012) may be one such cause. Along similar
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49 lines, the interpersonal circumplex also organizes group perception (Fiske et al., 2002). Thus,
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51 semantic incongruence may well elicit ambivalent feelings towards groups such as housewives
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53 (high agency and high communion) or homeless people (low agency and low communion) (Fisk,
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3 Cuddy, & Glick, 2007). Such ambivalent feelings, in turn, may help to explain subtle and blunt
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5 prejudice against these groups (Pettigrew & Meertens, 1995).
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8 Fifth, are there conditions under which semantic incongruence does *not* predict felt
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10 ambivalence? An East-Asian cultural setting may be one such condition. Specifically, Peng and
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12 Nisbett (1999) suggested that the dialectic way of thinking in East-Asian cultures tolerates and
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14 even encourages semantically contradictory arguments. As such, semantic incongruence may be
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16 tolerated and even encouraged, thus reducing its effect on felt ambivalence.
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19 Finally, future research could also examine potential effects of semantic incongruence on
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21 non-human attitude objects, such as consumer products. For example, imagine a car that is not
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23 only fast and sporty, but also comfortable and spacious. Although these attributes are positive, we
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25 may not see them as associated in most vehicles; cars tend to be quick and easy to handle (e.g.,
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27 sports cars) *or* large and spacious (e.g., SUVs). In a sense, these attributes become semantically
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29 incongruent for vehicles, despite being evaluatively congruent. We expect that the (vehicle-
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31 specific) semantic incongruence should create feelings of ambivalence in the same way as we have
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33 observed for persons.
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37 38 **Conclusion**

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40 Evaluative incongruence constitutes only a modest cause of felt ambivalence. The present
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42 research introduced semantic incongruence as a complementary form of incongruence and as an
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44 additional cause of felt ambivalence. Four experiments consistently revealed that semantic
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46 incongruence elicits felt ambivalence independently of evaluative incongruence. In fact, our
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48 results suggested that semantic incongruence is at least as strong a predictor of felt ambivalence as
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50 is evaluative incongruence. Additionally, we consistently found that norm-based and self-based
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52 forms of incongruence independently predict felt ambivalence, and our results pointed towards
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54 different processes underlying the effects of evaluative incongruence and semantic incongruence
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2 on felt ambivalence: only the former elicited dissonant feelings, which mediated the effect of
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5 evaluative incongruence on felt ambivalence. Taken together, these findings indicate that
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8 evaluative incongruence and semantic incongruence jointly determine why people possess those
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10 familiar and consequential feelings of ambivalence. Further explorations of this tandem operation
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12 may help to better understand the antecedents and consequences of felt ambivalence.
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FOOTNOTES

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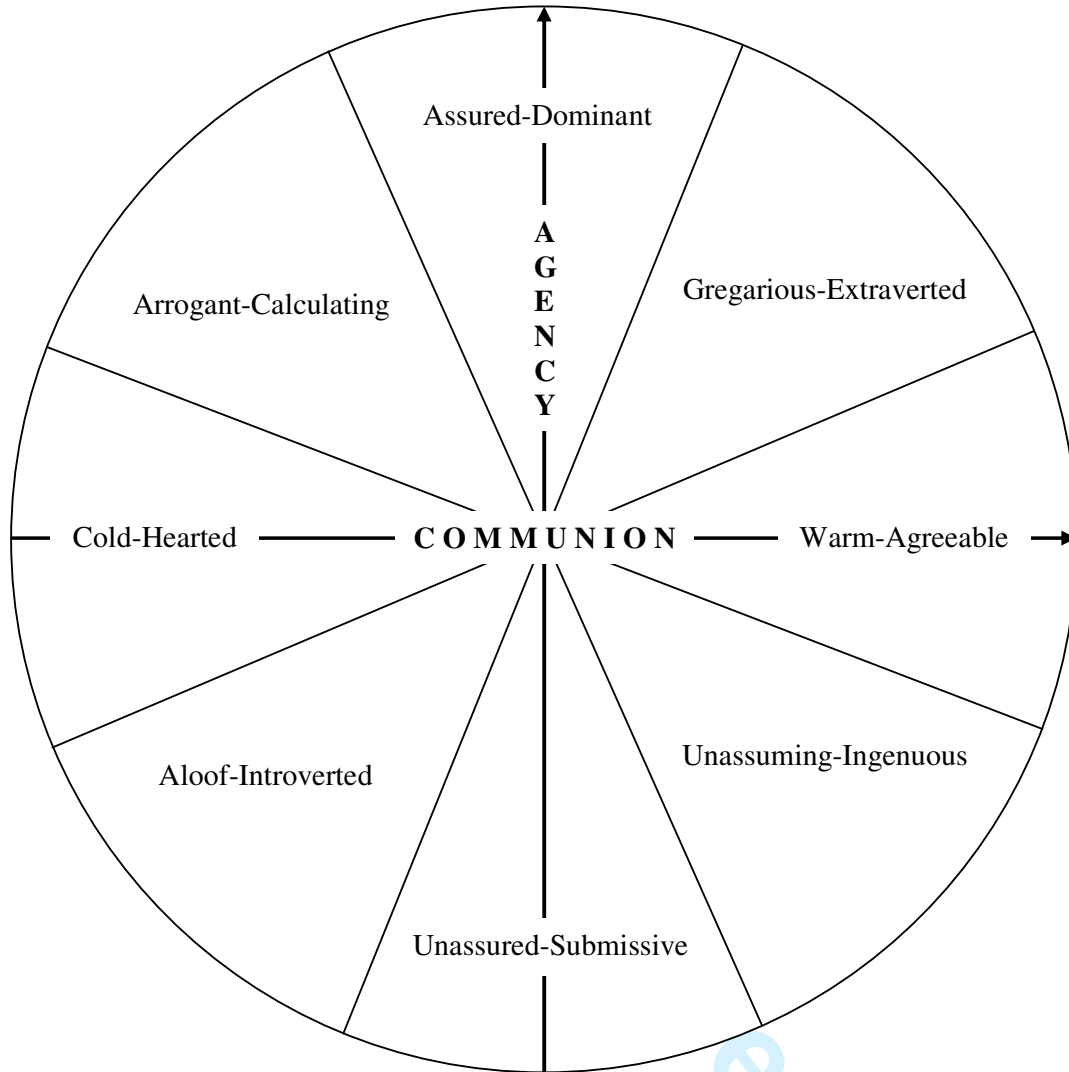
1 Priestler and Petty (1996) used valence norms from Anderson's (1968) norm list. Thus, in addition to our evaluative incongruence index based on Cardiff norms, we calculated an evaluative incongruence index based on Anderson norms. The two indices were strongly correlated, $r(20) = .71, p = .001$. Nonetheless, when utilizing Anderson norms, evaluative incongruence effects were somewhat smaller than when utilizing Cardiff norms. Correspondingly, when utilizing Anderson norms, *semantic* incongruence effects were *comparatively larger* than when utilizing Cardiff norms. This is not surprising, because Anderson's (1968) valence norms are based on ratings from American colleague students in the 1960's. Overall then, in order to pit semantic incongruence against the *most competitive* form of evaluative incongruence, we examine our hypotheses utilizing the Cardiff valence norms.

2 The intercomponent ambivalence model is calculated as follows: $|\text{trait A}| + |\text{trait B}| - 2 \times |\text{trait A} + \text{trait B}| + 72$. In this model, traits A and B are the valence ratings of each trait within a given target person. Importantly, this model is identical to Thompson et al.'s (1995) frequently used and well-validated similarity-intensity model (Priester & Petty, 1996), if one trait is positive and the other trait is negative. However, in contrast to the similarity-intensity model, the intercomponent ambivalence model yields meaningful evaluative incongruence scores even when both traits are univalent (e.g., trait A is slightly positive and trait B is extremely positive). Past research has established that such univalent evaluative incongruence is an important part of ambivalence (Petty, Tormala, Briñol, & Jarvis, 2006). Irrespective, we additionally calculated an evaluative incongruence index based on the discrepancy between the traits of each target person, while residualizing the absolute valences of each trait (see Ullrich, Schermelleh-Engel, & Böttcher, 2008). The resultant 'residualized discrepancy index' was strongly correlated with our index based on the intercomponent ambivalence model, $r(20) = .79, p = .001$. When utilizing the residualized

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4 discrepancy index, evaluative incongruence effects were somewhat smaller than when utilizing the
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6 intercomponent ambivalence index. Correspondingly, when utilizing the residualized discrepancy
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8 index, *semantic* incongruence effects were *comparatively larger* than when utilizing the
9
10 intercomponent ambivalence index. Thus, in order to pit semantic incongruence against the *most*
11
12 *competitive* form of evaluative incongruence, we examined our hypotheses utilizing the
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14 intercomponent ambivalence model. Thus, if anything, the decisions explained in this footnote
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16 and in Footnote 1 bias our results against semantic incongruence effects, rendering the present
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18 examination a particularly strong test of our hypotheses.
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23 3 According to these results, dissonant feelings may function similar to self-based evaluative
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25 incongruence. Perhaps then, our measures of dissonant feelings and self-based evaluative
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27 incongruence assess the same construct. Although inspection of the two measures' face-valid
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29 items does not suggest so, we additionally examined this question empirically. Supporting the
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31 distinctiveness of dissonant feelings and self-based evaluative incongruence, the two measures
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33 were only moderately related in Experiment 3a, $\beta = .18$, $SE = .03$, $t(555) = 5.65$, $p < .001$, and
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35 Experiment 3b, $\beta = .20$, $SE = .02$, $t(1104) = 9.10$, $p < .001$.
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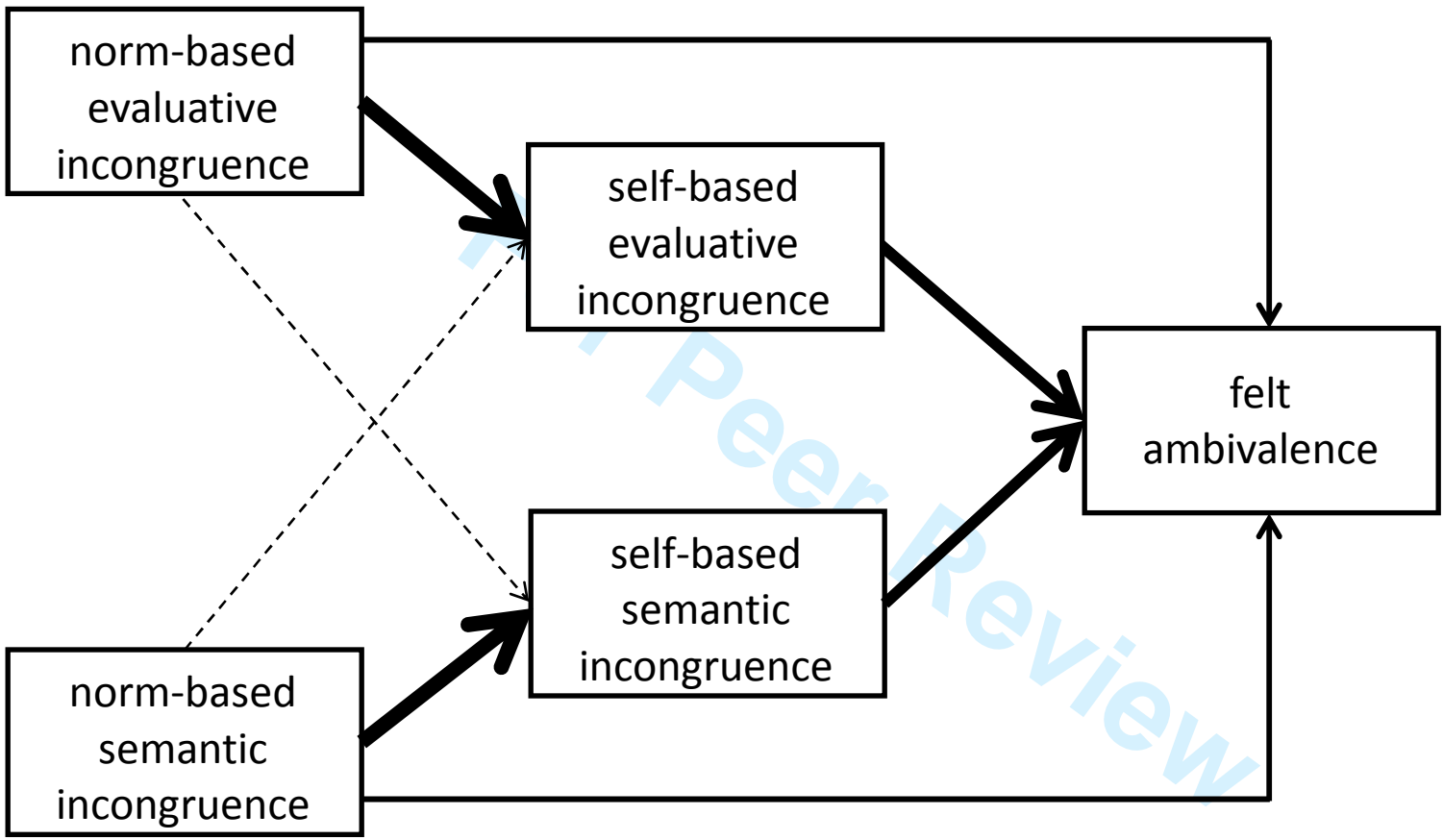
Figure 1. The interpersonal circumplex (Wiggins et al., 1988)



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Figure 2. A model depicting the hypothesized strength of predictors of felt ambivalence



Note. Straight lines indicate hypothesized effects of a substantial size, with thicker lines indicating larger effect sizes. Dashed lines indicate effects that are hypothesized to be non-substantial.

Table 1. The 20 target persons, their traits, and the degree of norm-based evaluative and norm-based semantic incongruence between these traits.

target person	trait 1	trait 2	norm-based evaluative incongruence	norm-based semantic incongruence
1	introverted	cheerful	70.53	174.40
2	ruthless	self-confident	74.99	75.40
3	extraverted	unwily	71.51	110.00
4	cocky	shy	69.95	129.90
5	cunning	coldhearted	68.49	48.60
6	cruel	uncrafty	70.93	131.20
7	outgoing	enthusiastic	67.16	7.10
8	antisocial	tricky	68.15	77.80
9	uncunning	tenderhearted	69.24	42.10
10	unaggressive	timid	71.69	27.70
11	softhearted	sly	74.69	157.60
12	tender	friendly	67.38	27.10
13	forceful	self-assured	73.82	27.20
14	sympathetic	unauthoritative	69.98	90.30
15	calculating	unargumentative	72.53	151.90
16	kind	ironhearted	73.04	166.70
17	unsympathetic	dissocial	68.40	31.10
18	distant	unsociable	68.56	3.60
19	domineering	boastless	73.06	160.40
20	forceless	dominant	71.27	164.50

Table 2. Norm-based incongruence effects on felt ambivalence.

Exp.	Norm-Based Evaluative Incongruence Effect					Norm-Based Semantic Incongruence Effect					Norm-Based Semantic Incongruence Effect (Norm-Based Evaluative Incongr. Controlled)					Norm-Based Evaluative Incongruence Effect (Norm-Based Semantic Incongr. Controlled)				
	β	<i>SE</i>	<i>t</i>	<i>df</i>	<i>p</i>	β	<i>SE</i>	<i>t</i>	<i>df</i>	<i>p</i>	β	<i>SE</i>	<i>t</i>	<i>df</i>	<i>p</i>	β	<i>SE</i>	<i>t</i>	<i>df</i>	<i>p</i>
1	.42	.04	10.02	634	<.001	.50	.05	10.25	634	<.001	.38	.05	7.92	633	<.001	.22	.04	5.75	633	<.001
2	.43	.04	12.25	646	<.001	.54	.05	10.31	646	<.001	.43	.06	7.79	645	<.001	.20	.03	6.54	645	<.001
3a	.40	.03	12.56	555	<.001	.50	.05	10.21	555	<.001	.40	.05	7.86	554	<.001	.19	.03	7.28	554	<.001
3b	.40	.02	17.43	1104	<.001	.48	.04	13.65	1104	<.001	.37	.04	9.87	1103	<.001	.20	.02	9.73	1103	<.001

Table 3. Effect-specificity of norm-based incongruence on self-based incongruence.

Exp	DV: Self-Based Eval. Incongr.					DV: Self-Based Eval. Incongr.					DV: Self-Based Sem. Incongr.					DV: Self-Based Sem. Incongr.					
	IV: Norm-Based Eval. Incongr.					IV: Norm-Based Sem. Incongr.					IV: Norm-Based Eval. Incongr.					IV: Norm-Based Sem. Incongr.					
	β	<i>SE</i>	<i>t</i>	<i>df</i>	<i>p</i>	β	<i>SE</i>	<i>t</i>	<i>df</i>	<i>p</i>	β	<i>SE</i>	<i>t</i>	<i>df</i>	<i>p</i>	β	<i>SE</i>	<i>t</i>	<i>df</i>	<i>p</i>	
1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2	.48	.03	14.69	644	<.001	-.007	.05	-.14	644	.89	-.18	.03	-7.22	644	<.001	.65	.04	15.76	644	<.001	
3a	.50	.04	11.94	553	<.001	-.04	.05	-.93	553	.35	-.18	.02	-7.89	553	<.001	.63	.04	15.84	553	<.001	
3b	.52	.03	16.68	1102	<.001	-.03	.04	-.74	1,102	.46	-.18	.02	-8.96	1102	<.001	.66	.03	22.41	1102	<.001	

Note. DV = dependent variable/criterion, IV = independent variable/predictor, Eval. Incongr. = Evaluative Incongruence, Sem. Incongr. = Semantic

Incongruence. The analysis predicting self-based evaluative incongruence (data columns 1 and 2) included self-based semantic incongruence as a covariate. Conversely, the analysis predicting self-based semantic incongruence (data columns 3 and 4) included self-based evaluative incongruence as a covariate.

Table 4. The role of self-based evaluative incongruence in the effect of norm-based evaluative incongruence on felt ambivalence.

Exp.	Norm-Based Evaluative Incongruence Effect (Self-Based Evaluative Incongruence Controlled)					Sobel Test			Self-Based Evaluative Incongruence Effect (Norm-Based Evaluative Incongruence Controlled)				
	β	<i>SE</i>	<i>t</i>	<i>df</i>	<i>p</i>	<i>z</i>	<i>SE</i>	<i>p</i>	β	<i>SE</i>	<i>t</i>	<i>df</i>	<i>p</i>
1	--	--	--	--	--	--	--	--	--	--	--	--	--
2	.12	.03	3.69	643	< .001	4.60	.02	< .001	.19	.04	4.84	643	< .001
3a	.11	.03	3.35	552	< .001	5.15	.02	< .001	.20	.04	5.71	552	< .001
3b	.12	.03	4.81	1101	< .001	6.43	.02	< .001	.19	.03	6.97	1101	< .001

Note. We controlled for norm-based and self-based semantic incongruence throughout all analyses provided in this table.

Table 5. The role of self-based semantic incongruence in the effect of norm-based semantic incongruence on felt ambivalence.

Exp.	Norm-Based Semantic Incongruence Effect (Self-Based Semantic Incongruence Controlled)					Sobel Test			Self-Based Semantic Incongruence Effect (Norm-Based Semantic Incongruence Controlled)				
	β	<i>SE</i>	<i>t</i>	<i>df</i>	<i>p</i>	<i>z</i>	<i>SE</i>	<i>p</i>	β	<i>SE</i>	<i>t</i>	<i>df</i>	<i>p</i>
1	--	--	--	--	--	--	--	--	--	--	--	--	--
2	.13	.05	2.59	643	.01	5.55	.04	< .001	.33	.06	5.94	643	< .001
3a	.17	.05	3.10	552	< .001	4.46	.04	< .001	.29	.06	4.65	552	< .001
3b	.10	.04	2.69	1101	.008	6.80	.03	< .001	.32	.04	7.14	1101	< .001

Note. We controlled for norm-based and self-based evaluative incongruence throughout all analyses provided in this table.