

Inconsistency in Belief: Rationality Norms Across Domains

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Abstract

Do people apply different standards of consistency to different kinds of beliefs? For instance, are religious beliefs judged more tolerant of inconsistency than factual beliefs? In two preregistered studies ($Ns=181, 195$), we investigated norms for consistency by asking participants to evaluate pairs of contradictory beliefs held simultaneously by a single person. In both studies, holding inconsistent beliefs was overwhelmingly judged to be irrational. Study 1 found differences in judgments across domains, and Study 2 identified features of beliefs likely to drive this variation: participants judged inconsistency as more rational when both beliefs were seen as containing some truth and when there was more uncertainty concerning which belief was correct. (In contrast to motivated reasoning accounts, belief desirability did not independently predict judgments). Participants also distinguished how inconsistencies should be resolved across domains, recommending obtaining more information to resolve factual and political inconsistencies, but thinking more for moral, religious, and preferential inconsistencies. Finally, explaining how a person could hold inconsistent beliefs reliably increased the perceived rationality of those beliefs. Together, these findings suggest that inconsistencies are generally viewed as irrational, but with some leeway governed by the epistemic characteristics of particular beliefs and whether inconsistencies are explained. Our results have implications for theories of the nature of belief, the folk psychology of belief attribution, and research on interpersonal disagreement.

Key words: Belief, Inconsistency, Rationality, Attitudes, Folk Psychology

1. Introduction

Consistency among beliefs is an important norm of rationality (e.g., Harman, 1986, p. 9; Spohn, 2012, p. 48). But are all beliefs equally subject to this norm? As early as 1859, Alexander Bain suggested that

we may swallow a great many inconsistencies without difficulty. So long as action is not entered on, we are not obliged to be consistent... Sovereign power, whether legal or social, has plenty of room in the outworks of belief, without affecting this inner sanctuary, of pressing and practical experience. The greatest despot stops short of the pence table; he knows that religion, political theories, and many other departments of belief are at his mercy (p. 504).

Indeed, several psychological theories propose that beliefs in Bain's outworks display a reduced propensity for consistency. Abelson (1986) suggests that motivated beliefs are checked for consistency in a non-rational way. Sperber (1982, 1985) proposes that certain beliefs (including symbolic/religious beliefs; Sperber, 1975, pp. 99-113) might be quarantined from automatic consistency checking due to the nature of their representation. And Van Leeuwen (2023) argues that religious and ideological beliefs could involve a different cognitive attitude from (factual) belief. Instead, these beliefs are closer to imaginings, which have greater tolerance for inconsistency (e.g., pp. 124, 202, 239).

Here, we investigated how people judge inconsistent beliefs held by others and whether other people's inconsistencies are granted additional leeway when they arise in Bain's "outworks." Participants viewed sets of inconsistent beliefs – comprising beliefs about facts, morality, politics, religion, or preferences – said to be held by a single person, and they evaluated the beliefs and the believer along multiple dimensions. As we elaborate below, these evaluations

shed light on epistemic norms in theory of mind (see also; Vesga, Van Leeuwen, & Lombrozo, 2025; Westra, 2023), and have potential implications for the nature of belief.

2. Background

Both philosophy and psychology stress the normative value of consistent beliefs (see Sommer et al., 2023 for a review). Inconsistencies are often viewed as irrational and lead to negative practical consequences, at least in theory. For instance, Dutch book arguments demonstrate that inconsistent beliefs can induce commitment to a series of bets that guarantees a loss (Ramsey, 1926; Earman, 1992, pp. 38-39). Moreover, *any* proposition can be derived from contradictory beliefs, which is a potential obstacle to inference. Beyond these consequences for the believer themselves, inconsistencies can also introduce challenges from a third-person perspective. For instance, if someone has inconsistent beliefs, it might be practically impossible for other people to predict their behavior (cf. Harmon-Jones, Amodio, & Harmon-Jones, 2009). Similarly, for an observer attempting to assess someone's reliability or anticipate cooperation, the absence of stable behavior can reduce trust. Despite the theoretical importance of consistency, however, little is known about whether and how laypeople apply norms of consistency across beliefs.

While social psychology has a long tradition of work on cognitive consistency (e.g., dissonance theory; Festinger, 1957; balance theory; Heider, 1958; congruity theory, Osgood & Tannenbaum, 1955), much of this work is not concerned with logical inconsistencies (McGuire, 1966). Instead, research often focuses on affective-cognitive consistency – i.e., (in)consistency between evaluative attitudes and beliefs (e.g., Chaiken & Baldwin, 1981) – or (in)consistency between attitudes and behaviors (Fishbein & Ajzen, 1977). Indeed, Festinger (1957, p. 2)

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explicitly introduced “dissonance” to have a less logical connotation than inconsistency, suggesting that dissonance occurs when the “obverse”¹ (p. 13) of one belief follows from another, or when relations among “cognitions” (by which Festinger meant attitudes, behaviors, and expectancies, in addition to beliefs; pp. 3, 10) are “nonfitting” (p. 3). This might occur for logical reasons (i.e., if not-q *logically* follows from p), but also allows “weaker” inconsistencies, such as failed expectancies. For example, if one is surrounded by friends but feels afraid, this would represent an obverse implication because under these circumstances, comfort, not fear, ought to follow (Festinger, 1957, p. 13). Similar social psychological theories posited that cognitive consistency did not reflect logic, but “psycho-logic” (Abelson & Rosenberg, 1958; Gawronski & Barron, 2019), which relied on different principles. In contrast to this prior research, the present work focuses more direct logical inconsistencies.²

Though many researchers – across a variety of fields – have assumed that logical inconsistency is intolerable (e.g., Converse, 1964, pp. 5-6; McGuire, 1968; Stalnaker, 1987, pp. 81-84), this might not always be true. Indeed, some philosophers and scientists have even suggested that inconsistencies can be useful (Chang, 2004, pp. 157-158, 232; Feyerabend, 1993; Stewart, 1925).³ For instance, inconsistencies can serve as probes to identify problematic assumptions among our beliefs. When it was first proposed that the Earth moved around the sun,

¹ This term has often been criticized as vague (e.g., Cooper & Fazio, 1984; McGuire, 1966; Pepitone, 1968).

² For an approach similar to the present study in the context of violated expectancies/attitudinal inconsistency, see Brannon et al. (2016). Also relevant are classic findings on responses to contradictions across cultures (Peng & Nisbett, 1999). Note, however, that the materials most closely related to the present study (Study 5) were deliberately designed to avoid true inconsistencies – to leave room for dialectic (p. 748). Similar work on cultural differences in a unified identity and behavior across situations (Kanagawa, Cross, & Markus, 2001; Suh, 2002; Spencer-Rodgers et al., 2009) are also related to differences in attitudes toward consistency, but does not address judgments of (logical) inconsistency among beliefs. Finally, see Collins (1968) for an explicit statement that while dissonance theorists often use the terms “X” and “not-X,” in practice, dissonance studies did not examine direct negations (as we do here).

³ The opposite point is also true: consistency is not necessarily desirable in itself. A set of consistent beliefs can all be false. It could, therefore, be preferable to believe some inconsistencies that are true than to persist in perfect consistency (Ramsey, 1926).

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this appeared to contradict obvious sensory experience. Rather than rejecting the possibility of the Earth moving, however, examining the implications of this hypothesis created a revolution in physics (Feyerabend, 1993, pp. 61-62).

Moreover, the normative force of consistency could vary depending on the type of attitude or belief involved. While contradictory factual beliefs – e.g., believing that gold is and isn't an element – seem clearly irrational, inconsistent *preferences* might be less problematic. For example, Elster (1989, p. 37) observes that people often hold preferences akin to: "I wish that I didn't wish that I didn't wish to eat cream cake." That is, one might wish to eat cake because they like it; wish to not wish to eat it because it will ruin their diet; and finally, wish to not be so vain as to care about the ruined diet. Unlike in belief, where if people realize their beliefs are inconsistent, they tend to give up one of the beliefs, under conditions of *akrasia* (weakness of will), there might be no such tendency (Pears, 1985; see also Elster, 1978, pp. 86-87). In general, one can prefer *p* and prefer to prefer not-*p* without inconsistency, but one cannot believe *p* and believe that one believes not-*p* without being inconsistent (Hintikka, 1962, p. 26; for similar discussions, see Sen, 1995; Williams, 1973, pp. 169-170; Searle, 2003, pp. 109, 234).

While beliefs and preferences might be expected to differ, several theorists have also proposed that beliefs themselves – especially beliefs from particular domains – could differ in their tolerance for inconsistency. One domain in which beliefs are often thought to permit some inconsistency is politics, where – as one influential work in political science noted:

One should, in particular, never... overlook the substantial extent to which most people's political ideas are *not* integrated into coherent mental structures, the extent to which opposing ideas and feelings regularly coexist comfortably within the same brain (Zaller, 1992, p. 280).

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Indeed, some views suggest that political beliefs might allow opposing ideas to coexist for functional reasons. If such beliefs are subject to motivated cognition or are very personally important, this could allow them to resist pressures toward consistency (Van Bavel & Pereira, 2018). Alternatively, political beliefs might be formed to forge alliances with various social groups. For instance, instead of believing based (only or primarily) on evidence, political partisans could form positive beliefs about groups they are allied with and negative beliefs about those they oppose, even if this risks inconsistency (Pinsof, Sears, & Haselton, 2023). For example, a Republican might believe that “poor people in America have no one to blame but themselves...unless they are working class white people, in which case they should blame immigration.” Or a Democrat could think that they should “tolerate and respect all groups... unless they are pro-life, devout Christians, businesspeople... or Republicans (p. 152).”

In the domain of religion, Van Leeuwen (2014, 2023) has argued that religious beliefs are actually an alternative cognitive attitude (a *credence*) that is more similar to attitudes such as imagination and supposition than to belief. These attitudes are more permissive of inconsistencies (but see Sommer, 2024). More generally, any beliefs that play important roles in defining people’s identities might be formed for the utility they provide, leaving them relatively immune from rational norms, including consistency checking (Abelson, 1986).

Generalizing these claims about the psychology of belief to third-person judgments, we might expect greater tolerance for inconsistency in some domains, such as politics and religion. In other words, if first-person psychology permits inconsistency in these domains, folk psychological judgments might reflect this – e.g., imputing less irrationality when inconsistencies are expected to offer political or motivational benefits. Importantly, if folk

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psychology applies different standards of consistency across domains, this could provide compelling evidence for these theories (see Vesga, Van Leeuwen, & Lombrozo, 2025).⁴

Relatedly, research on *interpersonal* disagreement has found that people treat disagreements among beliefs differently, depending on the domain (e.g., Kuhn et al., 2000). For example, Heiphetz et al. (2013) found that adults and children were inclined to say that only one person could be right in a factual disagreement, but that both parties could be right in disagreements of opinion or preference. Religious beliefs fell between opinions and factual beliefs. Similarly, Goodwin and Darley (2008) found that people treat many ethical beliefs as falling between matters of taste (both parties could be right) and factual beliefs (both parties can't be right). These results on interpersonal disagreement suggest that views about *intrapersonal* disagreement – i.e., inconsistency – might also vary by domain or other features of belief.

In different ways, these bodies of work all address facets of inconsistency: psychological inconsistency across beliefs, behavior, or attitudes; inconsistency among attitudes other than factual belief (such as preferences); and inconsistencies in beliefs *across* different agents. To our knowledge, however, no prior work has investigated judgments of logically inconsistent beliefs held by another person. This is an informative lacuna to fill for (at least) three reasons. First, investigating judgments of intrapersonal logical inconsistency sheds light on the role of consistency norms in folk epistemology, which in turn plays a role in how we evaluate and regulate belief. Second, reasoning about belief is critical in theory of mind (Sodian & Kristen, 2016), and so has implications for explaining and predicting others' behavior. And third, some accounts of belief (such as those by Abelson, 1986; Pinsof et al., 2023) predict that not all beliefs are equally subject to norms of consistency. Investigating potential variation in the application of

⁴ Of course, folk psychology might *mistakenly* treat beliefs differently across domains, but such findings are at least some evidence for a true difference among beliefs (see Westra, 2023 for related discussion).

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such norms can shed light on these claims about the nature of belief and adjacent cognitive attitudes.

Here, we examined how laypeople evaluate intrapersonal inconsistency across beliefs spanning five domains: *factual* beliefs, *religious* beliefs, *political* beliefs, *moral* beliefs, and *preferences*. In selecting these domains, we drew on work on interpersonal disagreement (Goodwin & Darley, 2008; Heiphetz et al., 2013) as well as theoretical proposals that religious and political beliefs might permit greater leeway for inconsistencies than factual beliefs (e.g., Pinsof et al., 2023).

Though this existing work suggests that domain might be a useful level of analysis at which we can draw generalizations about belief, we were also concerned with the possibility that domain is only a proxy for other dimensions affecting judgments about inconsistencies. For example, Sperber's (1997) account suggests that beliefs in certain domains could be more prone to inconsistency because they are meta-represented, and Van Leeuwen (2023) suggests that religious beliefs are a different attitude altogether. On these accounts, domain is merely correlated with other properties that are the true causes of inconsistent beliefs or of variation in norms for consistency. In addition to these more esoteric properties, beliefs from different domains tend to differ in more mundane ways, including how uncertain or desirable they are. For instance, political or religious beliefs might often be associated with less direct evidence and with greater desirability than factual beliefs. Again, these properties, rather than domain membership per se, could be what drives differences in judgments.

To investigate the possibility of domain differences in judgments of inconsistencies – as well as some of the properties that might give rise to them – we conducted two preregistered studies. In Study 1, to maintain continuity with prior work, we adapted items from existing experiments

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on interpersonal disagreement, allowing us to ask whether domain differences in interpersonal disagreement are mirrored in intrapersonal inconsistency judgments. In Study 2, we aimed for a more representative sample of beliefs by using claims from public opinion polls, and we measured several properties of the pair of inconsistent claims – including perceived compatibility, uncertainty, and desirability – that we suspected might underlie apparent domain effects. This design allowed us to test whether rationality judgments differ by domain as well as to gain some insight into the properties that might cause such domain differences to arise.

Across both studies, participants were presented with two inconsistent beliefs held simultaneously by a single person. Each inconsistency comprised a pair of statements, e.g., “God can do miracles;” “God cannot do miracles.” We investigated the extent to which people view these inconsistencies as irrational, how they explain their occurrence, and what they think a person who holds inconsistent beliefs ought to do. We also investigated (in Study 1) whether inconsistent beliefs are judged plausible and (in Study 2) which epistemic properties of inconsistencies predict judgments of irrationality.

3. Study 1

In Study 1, we investigated five questions:

1. Do people believe that *Violating Consistency Norms Is Irrational* across domains?
2. Do people believe *Violating Consistency Violations Is Implausible* across domains?
3. Do recommended *Resolutions of Inconsistency* differ across domains?
4. Do *Explanations of Inconsistency* differ across domains?
5. Does *Explaining Inconsistencies* reduce their irrationality?

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To address question 1, we elicited participants' ratings of the rationality of holding inconsistent beliefs, as we explain in the methods below. We further examined how plausible norm violations seem across domains (question 2) by eliciting plausibility ratings. To address question 3, we asked participants how the person holding an inconsistent pair of beliefs should resolve the inconsistency. Next, we investigated how participants believed inconsistencies might be explained. Finally, based on work suggesting that explanation can make inconsistencies harder to detect (Khemlani & Johnson-Laird, 2012), we evaluated whether explaining an inconsistency makes it appear more rational.

3. 1 Methods

3.1.1 Data availability

Data, stimuli, analysis code, and pre-registration are available at: https://osf.io/e9mzw/?view_only=2bed473775d94b08b9e289b23847c527

3.1.2 Participants

Data were collected from 219 adults (140 female, 87 male, 6 non-binary/other; mean age = 39.21, $SD = 13.70$), who were recruited through Prolific, provided informed consent, and compensated \$1.50 for participating. Of these, 38 participants were excluded from the final sample ($N=181$) for failing an attention check.

3.1.3 Procedure

Participants were presented with a pair of inconsistent statements said to be believed simultaneously by a single person (e.g., “George Washington was [not] the first president of the U.S.”). Inconsistencies were drawn from a set of 20 (see Table 1), comprising four inconsistencies from each of the five domains (facts, religion, politics, morality, and preferences). Each participant was randomly assigned to two inconsistencies from each domain.

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Stimuli were adapted from Heiphetz et al. (2013), Heiphetz et al. (2014), and Goodwin and Darley (2008), with supplemental items developed to complete our set of 20 stimuli. Participants provided judgments of each inconsistency on four dimensions:

Rationality To assess the rationality of consistency norms, we asked, “Would it be rational⁵ for someone to believe both of these statements at the same time?” Ratings were provided on a Likert scale from 1 (Highly Irrational) to 7 (Highly Rational).

Plausibility Even if inconsistencies are irrational, people might believe that such irrationality is more common in some domains than others. We therefore investigated how plausible participants judged violations of consistency: “Is it *plausible* for a single person to believe both of these statements at the same time?” Again, ratings were provided on a 7-point Likert scale.

Resolution Participants were asked how the person should resolve the inconsistency (“What do you think an individual who believes both of these statements at the same time should do?”). Participants could select one or more from:

1. Get more information about the issue.
2. Think more about the issue.
3. Nothing – it’s rational to believe both statements.
4. Nothing – it’s not rational to believe both statements, but there is nothing the person can do about it.
5. Other (Please specify):

⁵ Note that we did not provide participants with a specific definition of “rationality,” and our results cannot rule out heterogeneity in participants’ interpretations of this term. For instance, participants might have responded with a general judgment about the normative appropriateness of holding inconsistent beliefs, with an eye toward some inconsistent behaviors presumed to be guided by the inconsistency, or even based on a general negative attitude toward inconsistency. Though the similarity of responses (see Results) might offer some evidence against widespread heterogeneity, future work could investigate possible differences among interpretations of irrationality. Thanks to an anonymous reviewer for raising this issue.

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Explanation Participants were asked, “Suppose a given individual DOES believe both of these statements at the same time. How do you make sense of this?” We provided three options, designed to capture explanations related to the *mind*, *motivation*, and *world*, along with a write-in, Other⁶ response. Participants could select one or more from:

1. This reflects something about the person’s ignorance or uncertainty. [*mind*]
2. This reflects something about the person’s desires or motivations. [*motivation*]
3. This reflects something about the world: there’s a way both beliefs can be true at the same time or there’s no way to determine which belief is true. [*world*]

Explanation Order Manipulation To test whether explaining an inconsistency was associated with higher rationality ratings (cf. Khemlani & Johnson-Laird, 2012), participants were randomly assigned to answer the explanation question before or after rating rationality and plausibility.

Table 1

Sample Stimuli

Domain	Belief 1	Belief 2
Fact	Mars is the smallest planet in the solar system.	Mars is not the smallest planet in the solar system.
Fact	George Washington was the first president of the United States.	George Washington was not the first president of the United States.
Religion	God can do miracles.	God cannot do miracles.
Religion	After people die and are buried, they go to heaven or hell.	After people die and are buried, there is no heaven or hell for them to go to.
Politics	Taxes for wealthy people should be raised.	Taxes for wealthy people should not be raised.

⁶ “Other” responses to resolution and explanation questions comprised less than 2% and 3% of responses, respectively. We therefore do not consider them further.

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Politics	The federal government should allow the death penalty.	The federal government should not allow the death penalty.
Moral	Spanking a child is morally acceptable as a form of punishment.	Spanking a child is not morally acceptable as a form of punishment.
Moral	Eating factory farmed animals is morally permissible.	Eating factory farmed animals is not morally permissible.
Preference	Classical music is better than rock music.	Classical music is not better than rock music.
Preference	Schindler's List is a better film than the Avengers.	Schindler's List is not a better film than the Avengers.

Note. This Table presents two inconsistencies from each domain. For the full set of stimuli, see https://osf.io/e9mzw/?view_only=2bed473775d94b08b9e289b23847c527

3.2 Results

3.2.1 Rationality and Plausibility Ratings

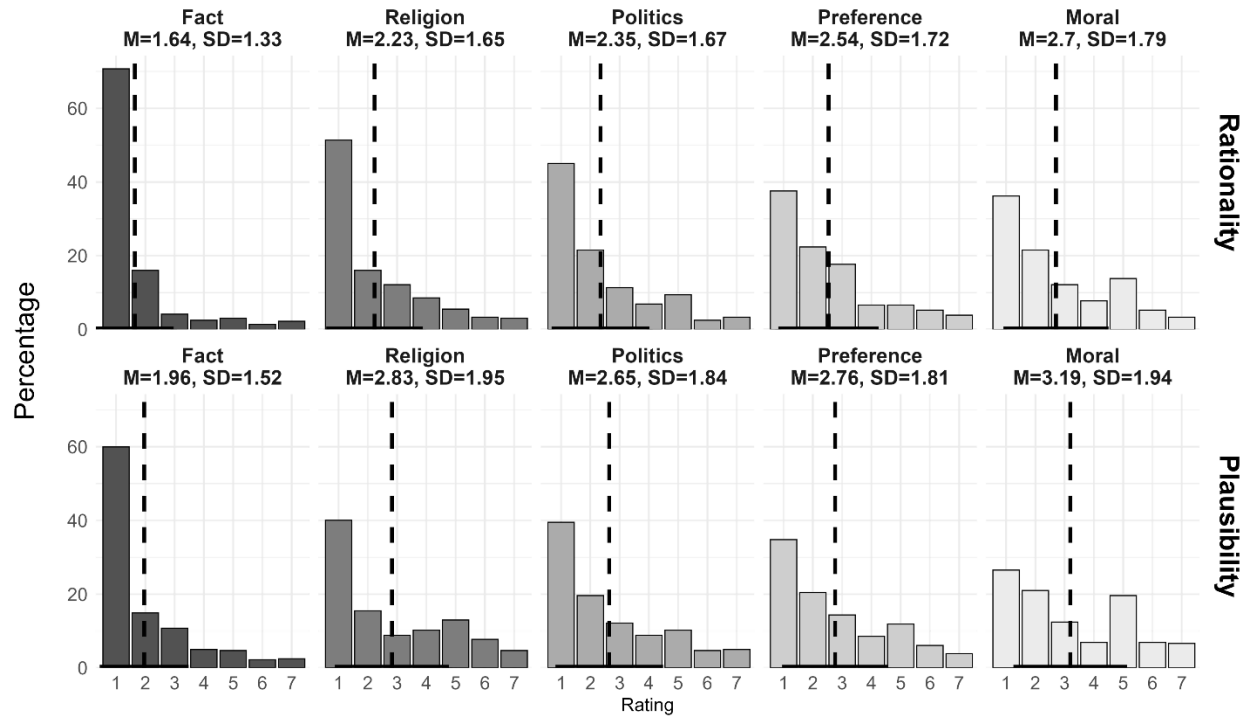
Distributions of rationality and plausibility ratings, along with descriptive statistics, are displayed in Figure 1. Across domains, mean ratings were low, indicating that participants judged inconsistency irrational, and an exploratory analysis confirmed that estimated marginal means for all domains fell significantly below the scale midpoint (all p s < 0.001 after Holm-adjustment for multiple tests). However, there were also domain differences. A sum-coded linear mixed-effects model (fit using the *afex* package in R; Singmann et al., 2015) predicting rationality ratings from domain, with random intercepts for participants and items found a significant main effect of domain ($F(4, 14.82) = 7.04, p < 0.002$).

Compared to the grand mean (intercept = 2.29, SE = 0.10), factual inconsistencies were rated significantly less rational ($\beta = -0.65, SE = 0.14, p < 0.001$), while moral inconsistencies were rated significantly more rational ($\beta = 0.41, SE = 0.14, p = 0.009$). Religious ($\beta = 0.06, p = 0.66$) and preferential ($\beta = 0.24, p = 0.09$) ratings did not differ significantly from the grand mean.

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Pairwise comparisons (Bonferroni corrected; using *emmeans*, Lenth, 2025) revealed that factual inconsistencies were rated as significantly less rational than moral ($p = 0.002$) and preferential inconsistencies ($p = 0.009$). The difference between facts and politics was suggestive, but not significant ($p = 0.055$). No other comparisons (including between fact and religion; $p = 0.16$) were statistically significant after correction for multiple tests.

An additional model predicting plausibility ratings revealed a significant effect of domain, $F(4, 14.96) = 6.63, p = 0.003$. Relative to the grand mean (intercept = 2.68, SE = 0.12), facts again received significantly lower ratings ($\beta = -0.71, SE = 0.16, p < 0.001$) and moral significantly higher ratings ($\beta = 0.52, SE = 0.16, p < 0.004$). Preference and religion did not differ from the grand mean ($ps > 0.35$). Pairwise comparisons revealed that facts were again rated significantly lower than moral inconsistencies ($p = 0.002$), though differences between facts and preferences and between facts and politics were reduced, the former no longer being significant ($ps = 0.06$ and 0.15 , respectively). Unlike rationality ratings, the difference in plausibility between facts and religious inconsistencies was significant ($p = 0.033$). No other contrasts were significant after Bonferroni correction.

Figure 1

Note. Figure 1 displays histograms of ratings for rationality (top) and plausibility (bottom) by domain. Descriptive statistics appear above each plot. Dotted lines represent the mean of each domain and the horizontal line at the x-axis displays one standard deviation around the mean.

3.2.2 Correlations Between Rationality and Plausibility

Do rationality ratings fully explain differences in the plausibility of inconsistencies? Or might inconsistencies in some domains be more plausible, even if they remain irrational? To address these questions, we examined Kendall's tau-b rank correlations between rationality and plausibility (see Figure S1). Ratings were strongly correlated across all domains (fact: $\tau_b = 0.66$; religion $\tau_b = 0.66$; politics: $\tau_b = 0.75$; moral: $\tau_b = 0.73$; preference $\tau_b = 0.77$; all $ps < 0.001$). A linear mixed-effects model predicting plausibility from rationality ratings with fixed effects for domain and random effects for participants found a significant relationship, $\beta = 0.82$, $SE = 0.02$, $p < 0.001$, but no interaction between rationality and domain ($p = 0.32$), indicating a consistent relationship across domains.

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These results suggest that participants find inconsistency irrational and implausible across domains. However, both dimensions show domain differences, with factual inconsistencies rated most irrational and implausible overall.

3.2.3 Resolutions

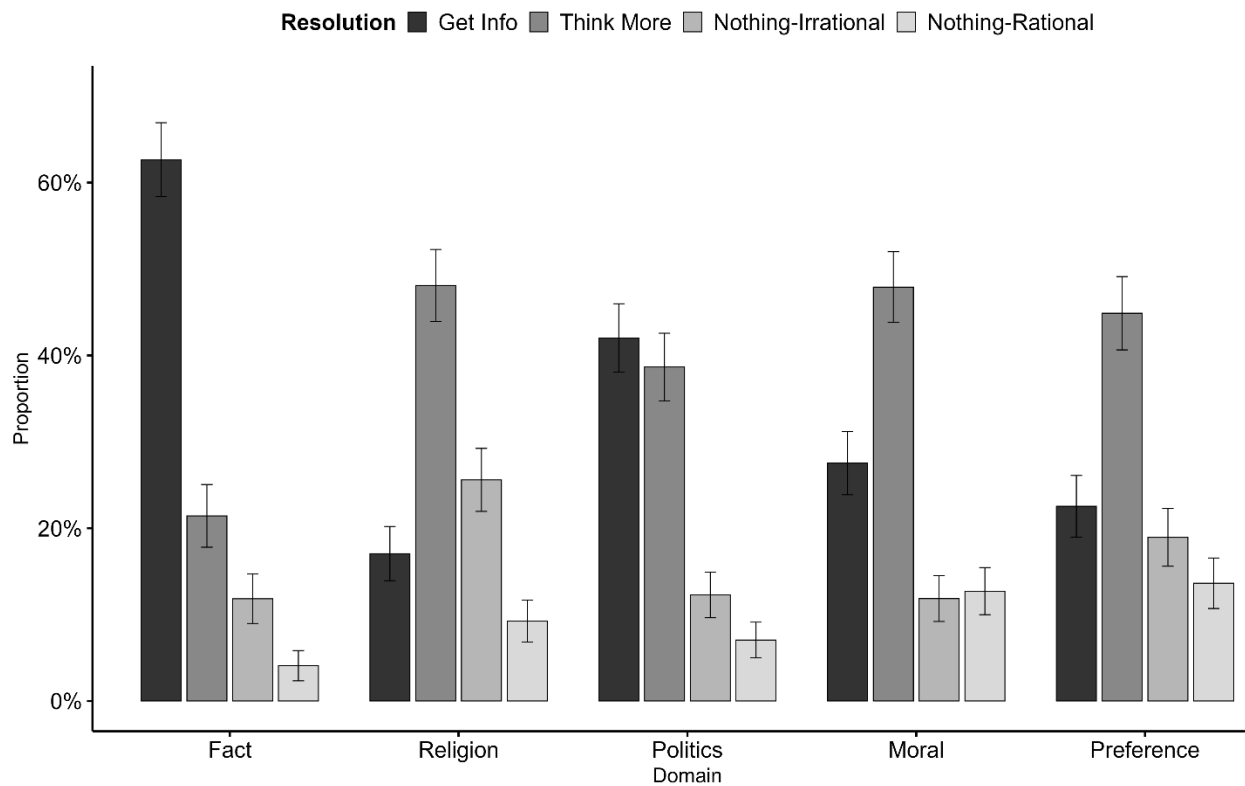
Figure 2 presents participants' recommended resolutions of inconsistencies by domain. We modeled responses with a (sum-coded) multinomial mixed-effects model using *brms* (Bürkner, 2017) with domain as a fixed effect and random intercepts for participants and items. Overall, participants were significantly more likely to choose "Think More" and less likely to select Nothing-Rational or Nothing-Irrational. Facts were significantly less likely to receive Think More ($\beta = -1.33$, 95% CI [-1.64, -1.03]), Nothing-Rational ($\beta = -1.66$, [-2.48, -0.85]) or Nothing-Irrational ($\beta = -1.15$, [-1.58, -0.71]) responses (i.e., most facts received "Get Info" – see Figure 2). Preferences showed the reverse pattern, with greater likelihoods of Think More ($\beta = 0.48$, [0.19, 0.78]), Nothing-Irrational ($\beta = 0.59$, [0.17, 1.03]), and Nothing-Rational ($\beta = 0.84$, [0.10, 1.57]) responses. Religious inconsistencies similarly elicited significantly more Think More ($\beta = 0.82$, [0.50, 1.12]) and Nothing-Irrational responses ($\beta = 1.35$, [0.92, 1.78]), and not significantly more Nothing-Rational responses ($\beta = 0.71$, [-0.04, 1.47]). Finally, moral inconsistencies were associated only with a greater likelihood of Think More responses ($\beta = 0.35$, [0.07, 0.64]).

In short, resolution strategies differed across domains. Participants most frequently recommended getting more information for factual and political inconsistencies, but thinking more in other domains. This pattern might reflect information availability: when information is available, Get Info is recommended; otherwise, participants advise Think[ing] More. This

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information availability explanation might also explain the increase in “Nothing-Irrational” responses, especially for religion, where there is arguably no dispositive information available.

Figure 2



Note. Figure 2 displays the proportion of recommended modes of resolving inconsistencies by domain in Study 1. Error bars represent 95% confidence intervals.

3.2.4 Explanations

Figure 3 displays explanations by domain. A multinomial mixed-effects model predicting explanations by domain, with random intercepts for participant and item, found that participants endorsed mind-based explanations most often, with motivation-based and world-based

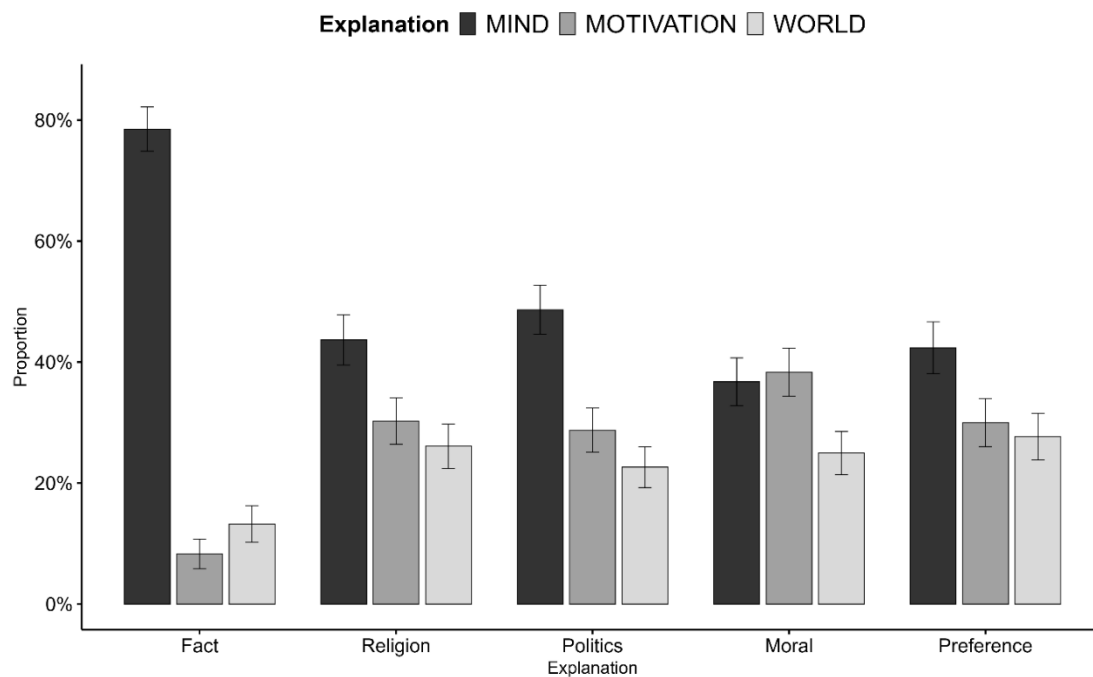
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explanations endorsed less often overall (intercepts = -0.85, 95% CI [-0.64, -1.07] and -1.17, [-0.82, -1.16] respectively).

Relative to the grand mean, facts were significantly less likely to receive motivation-based ($\beta = -1.79$, [-2.19, -1.43]) and world-based ($\beta = -1.27$, [-1.78, -0.75]) explanations. In contrast, moral ($\beta = 0.86$, [0.57, 1.17]), religious ($\beta = 0.35$, [0.05, 0.67]), and preferential ($\beta = 0.38$, [0.07, 0.68]) inconsistencies were more likely to receive motivation-based explanations, with non-significant increases in the likelihood of world-based explanations.

In sum, while mind-based explanations (i.e., ignorance or uncertainty) are most common across domains, this pattern is stronger for factual inconsistencies, whereas motivational (and possibly world-based) explanations are relatively more likely for non-factual inconsistencies.

Figure 3



Note. Figure 3 depicts the proportion of responses reflecting how participants would make sense of someone holding a pair of inconsistent beliefs across domains. Error bars represent 95% confidence intervals.

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3.2.5 Interactions Between Explanation and Rationality

We assessed whether explanations of inconsistencies were related to rationality judgments. For example, inconsistencies might be judged less rational if they are explained by the believer's motivation. We fit a linear mixed-effects model predicting rationality ratings from explanation and domain, with random intercepts for participants and items. Mind-based explanations were associated with significantly lower rationality ratings ($\beta = -0.60$, $SE = 0.03$, $p < 0.001$), as were motivation-based explanations, though to a lesser extent ($\beta = -0.16$, $SE = 0.04$, $p < 0.001$). We also found a significant interaction between mind-based explanations and moral beliefs ($\beta = -0.22$, $SE = 0.06$, $p < 0.001$), indicating that the reduction in rationality ratings for mind-based explanations was more pronounced for moral beliefs. Other interactions were not significant.

Post-hoc comparisons within domains revealed consistent differences among explanation types (see Table 2). For all domains apart from facts, mind-based explanations for inconsistencies were associated with lower rationality ratings than either motivation-based or world-based explanations (all Bonferroni-adjusted $ps < 0.002$), and motivation-based explanations were associated with lower rationality than world-based explanations (all $ps < 0.002$). This relationship (i.e., mind < motivation < world) was preserved for facts. However, while two of these differences were significant (mind < world and motivation < world; $ps < 0.0001$), mind-based and motivation-based explanations did not differ from each other.

Table 2*Rationality Ratings × Explanations Across Domains*

Domain	Explanation		
	Mind	Motivation	World
Fact	1.46 (SD = 1)	1.78 (SD = 1.48)	3.06 (SD = 2.04)
Religion	1.83 (SD = 1.28)	2.32 (SD = 1.59)	3.11 (SD = 1.86)
Politics	1.72 (SD = 1.15)	2.34 (SD = 1.52)	3.48 (SD = 1.73)
Moral	1.78 (SD = 1.12)	2.52 (SD = 1.46)	4.01 (SD = 1.76)
Preference	1.95 (SD = 1.18)	2.53 (SD = 1.53)	3.45 (SD = 1.97)

Note. Table 2 presents mean ratings and standard deviations of rationality ratings across domains for each explanation type.

3.2.6 Explanation Order

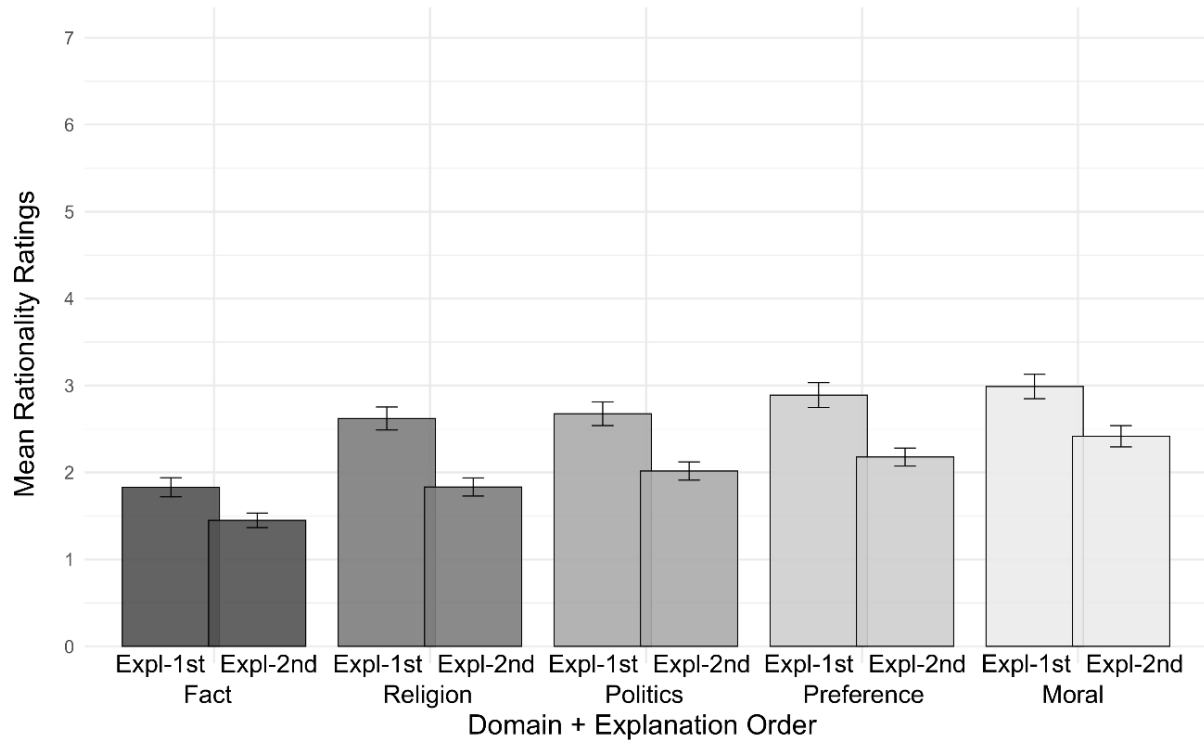
We randomly assigned participants to explain inconsistencies before (Explain-First condition) vs. after (Explain-Second) rating their rationality (and plausibility). Figure 4 displays rationality ratings by condition across domains. We fit a linear mixed-effects model predicting rationality ratings from the fully crossed interactions of condition (Explain-First vs. Explain-Second), explanation (mind, motivation, world), and domain, with random effects for participant.

We found a significant main effect of condition, with Explain-First participants providing higher rationality ratings ($\beta = 0.37$, $SE = 0.07$, $p < 0.001$). However, this effect was attenuated

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for mind-based explanations, which received less benefit from explaining first ($\beta = -0.19$, $SE = 0.03$, $p < 0.001$). No other interactions reached significance. These results suggest that explanation timing influenced how participants evaluated inconsistencies, and that this effect was largely consistent across domains.

Figure 4



Note. This figure displays mean rationality ratings across domains by explanation order, i.e., whether participants rated rationality before (Explain-First) or after (Explain-Second) explaining how a person could hold the pair of inconsistent beliefs.

3.3 Discussion of Study 1

Are inconsistent beliefs considered irrational? For the five domains tested, the answer is yes: most participants judged inconsistencies to be both irrational and implausible. This suggests that beliefs are generally held to norms of consistency, and that people expect others to follow such

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norms. However, we also found differences across beliefs, with factual inconsistencies rated as most irrational and implausible.

Participants also recommended different strategies for resolving inconsistencies for different beliefs, with recommendations appearing sensitive to domain differences in the sources of relevant information. Getting more information might resolve factual and political inconsistencies more readily than moral beliefs and preferences, which might be viewed as less grounded in objective information. In these domains, thinking more about the issue could be more appropriate, and indeed we found that “think more” was a more common recommendation.

We also found differences in explanations of inconsistencies. While all domains except moral beliefs received mind-based explanations most frequently, this tendency was sharply increased for facts. Other domains were more balanced, implying that participants see a larger role for motivation and world-based considerations outside of the factual domain.

Finally, we found a small, but robust increase in rationality ratings when inconsistencies were explained before they were evaluated in terms of their rationality. These results are in line with Khemlani and Johnson-Laird (2012), who found that explaining inconsistencies before judging their consistency reduced detection of inconsistencies. An important difference, however, is that our participants still tended to judge inconsistent beliefs irrational even after explaining, only less so. This suggests that they didn’t fail to detect the inconsistency, but rather that explaining allowed them to construct an account of how a (mostly) rational person might hold inconsistent beliefs.⁷

⁷ For example, suppose someone believes that Mars both is and isn’t the smallest planet in the solar system. Upon reflection, one might think this person believes: (a) Pluto is the smallest planet; (b) Mars is the next smallest planet; (c) Pluto isn’t a real planet. This set of beliefs would merit a mind-based explanation (i.e., failing to draw the relevant inferences), but is arguably more rational than believing an explicit contradiction.

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These domain differences raise important interpretive questions. While it is possible that beliefs show varying sensitivity to consistency requirements depending on domain, we suspected instead that domains are a proxy for other factors that influence judgments about inconsistency. One such factor might be the “univocality” of an inconsistency. For example, our preference item “Schindler’s List is [not] a better film than The Avengers” might equivocate between different senses of “better” – i.e., Schindler’s List could be higher quality or more meaningful, while it might not be “better” than The Avengers on the dimension of being an entertaining popcorn flick. Our factual inconsistencies appear less permissive of such ambiguity. That is, what looks like a domain effect could instead reflect differences in how univocal or context-dependent beliefs are judged to be (see Goodwin & Darley, 2008, fn 5).

Several additional features of our stimuli might have contributed to the domain differences observed in Study 1. First, items differed in the “obviousness” of one of the two beliefs – that is, in how certain participants could be that one belief was true or false. For example, we suspect that few participants would doubt that George Washington was the first U.S. president, so pairing this belief with its negation might have produced an unusually stark contradiction – regardless of domain – simply because the false belief on its own (that George Washington was not the first U.S. president) was judged irrational. If so, domain differences might partly reflect differences in the perceived probability of one of the two beliefs, rather than domain per se. Second, domains might differ systematically in the desirability of the beliefs involved. Motivated accounts of belief (e.g., Abelson, 1986) predict that people might tolerate inconsistency more readily when one of the beliefs is something they want to be true, and motivation is often suggested to differ across domains. Finally, our stimuli were mainly adapted from previous studies on interpersonal disagreement, and might not be representative of the full range of inconsistencies across

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domains. It is possible that a more representative sampling of items could reveal different patterns. Study 2 addressed these possibilities.

4. Study 2

Study 2 further investigated the robustness of domain differences in Study 1. We hypothesized that our results could have resulted from specific features of the stimuli. In this regard, Brunswik (e.g., 1955) recommended that psychological experiments use a *representative design*. That is, in addition to randomly sampling participants, one should also randomly sample *stimuli*, to ensure that presented stimuli are representative of the environment. In a step toward Brunswik's proposal, we broadened the sampled distribution of inconsistencies by generating an additional six inconsistencies per domain. These new stimuli were selected from public opinion polls and – to allow for the possibility that the obviousness of some of Study 1's stimuli affected ratings – new items were chosen to span a range of levels of consensus (i.e., some issues were ~90/10 agreement vs. disagreement, while others were closer to 75/25 and 50/50).

Furthermore, Study 2 sought to identify which properties of beliefs influenced participants' assessment of the rationality of inconsistency. First, we hypothesized that the extent to which participants judged that both beliefs could be (partially or completely) true at the same time could affect their ratings of the rationality of the inconsistency. Second, we considered whether participants' uncertainty about which belief in the contradictory pair was true altered their view of the inconsistency. Finally, in light of existing theories suggesting that desirable beliefs could be less subject to consistency pressure (e.g., Abelson, 1986), we assessed whether the desirability of holding one of the beliefs altered the rationality of inconsistency.

4.1 Methods

4.1.1 Data availability

Data, stimuli, analysis code, and pre-registration are available

at: https://osf.io/e9mzw/?view_only=2bed473775d94b08b9e289b23847c527

4.1.2 Participants

Data were collected from 221 adults (126 female, 92 male, 3 preferred not to say; mean age = 38.2, $SD = 11.8$), who were recruited through Prolific and compensated \$1.50 for participating. Of these, 26 participants were excluded from the final sample for failing an attention check, leaving 195.

4.1.3 Procedure

As in Study 1, participants were presented with pairs of contradictory statements said to be believed simultaneously by a single person. Inconsistencies were drawn from a new set of 30 (see Table 3 for sample items), comprising six inconsistencies from each of the five domains from Study 1 (facts, religion, politics, morality, and preferences). Each participant was randomly assigned to one inconsistency from each domain.

Stimuli for all domains except preferences were selected from public opinion polls collected by Oktar and Lombrozo (2025), to fall within a range of levels of consensus; preference items were selected from additional polls with the same goal of attaining a range of levels of disagreement. We retained our measures of rationality and resolution from Study 1 (“What do you think an individual who believes both of these statements at the same time should do?”). Unlike Study 1, however, participants could select only one option for resolution.⁸

⁸ In Study 2, the resolution measure provides a check on the extent to which our new stimuli differed from items used in Study 1. That is, if rationality ratings differ dramatically between studies – and recommended resolutions also differ – this could suggest that our new items represented a dramatic change (e.g., upsetting the relationship

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We also added three new measures. First, to address the possibility of differences in univocality – i.e., that some inconsistencies strictly required only one belief to be true, while others might have been ambiguous or allowed for partial truth (e.g., Schindler’s List being better in some ways than The Avengers, but not in others) – we asked participants to complete the following measure, which we call compatibility⁹:

Compatibility “Which of the following best describes these two statements?”

1. They are both completely true.
2. They are both partially true.
3. Only one is completely true.
4. Only one is partially true.¹⁰

This compatibility measure contains two different components: the possibility that both beliefs can coexist and whether each belief is partially or completely true. We might call the first logical compatibility (i.e., the two do not contradict each other) and the second *verisimilitude* (degree or amount of truth; see fn 10). In fact, both dimensions appear to influence participants’ judgments (see Figure 8 below). As a shorthand, we will refer to compatibility in general.

between information availability and domain). However, if resolution patterns remain similar to Study 1, this implies that items are relatively similar, and that differences in rationality are attributable to minor changes in the items.

⁹ This measure was inspired by work in the philosophy of science which recognizes a distinction between the subjective probability one assigns to a belief and its degree of truth or similarity to truth, sometimes called *verisimilitude* (Popper, 1962; Meehl, 1990a, b). As Meehl (1990a, p. 113) illustrates:

If a newspaper account describes an automobile accident and gets everything right except the middle initial of one of the participants, we say that it has very high verisimilitude. If it describes an accident that occurred, but gets one of the names wrong, as well as the numbering of the intersection, we think of it as a poor story but still containing some truth. If it’s totally made up out of whole cloth... we say it has zero verisimilitude.

Note, though, that compatibility was not a pure measure of verisimilitude, as we did not solicit the degree of truth each belief possessed. Additionally, while we asked whether the beliefs were completely or partially true, part of our measure also taps into how logically compatible the two beliefs were. For example, both (1) “apples are fruit” and (2) “grass is green” are true, but not because they each possess partial truth. Instead, they simply do not contradict each other. Future research might further tease these two dimensions apart to examine their impact on judgments of inconsistency.

¹⁰ In a pilot study, we also included an “Other” option, but this was rarely selected and was dropped here.

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Beyond compatibility, we hypothesized that participants' uncertainty about which of the beliefs was true might moderate their rationality judgments. That is, if it is unclear which of the two beliefs is true, holding both might seem less irrational. Additionally – as discussed above – we were concerned that some propositions from Study 1 were very obvious (e.g., “George Washington was the first president of the U.S.”). This could reflect an extreme case of (un)certainty, where it is completely certain that one belief can be ruled out. To address these issues, we asked participants to provide subjective probability judgments for *both* beliefs, and considered the rating they offered for the lower probability belief. For example, the belief that George Washington was *not* the first president might receive a probability judgment of 0%, due to its obviousness. In contrast, a more complex or obscure inconsistency, such as whether the universe began with a big bang, might receive a higher probability for the lower probability belief.

Subjective Probability To examine participants' uncertainty about each belief, we asked, “What do you think is the probability of each statement being correct?” Ratings were provided on a 0-100 scale, anchored by “0% likely to be correct” and “100% likely to be correct.”

Finally, as several researchers have suggested that motivated cognition or functional utility could allow inconsistent beliefs to arise and/or resist revision (e.g., Abelson, 1986, Katz, 1968; Rosenberg, 1968), we were interested in whether the desirability of holding a belief might affect rationality judgements. Put another way, certain theorists have been inclined to offer beliefs from certain domains some leeway in their tolerance for inconsistency, in part because they are highly desirable. It is possible that laypeople might also apply consistency norms less stringently for inconsistencies involving desirable beliefs. One might also think that the (instrumental)

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irrationality of continuing to believe an inconsistency is reduced if the believer is strongly motivated to hold one or both of the beliefs. We therefore included a measure of desirability:

Desirability “How desirable would it be for each of the two statements to be correct?”

Ratings were provided on a 0-100 scale, anchored by “Not desirable at all” and “Extremely desirable.”

Table 3
Sample Stimuli from Study 2

Domain	Belief 1	Belief 2
Fact	Vaccines have mostly been a benefit to human health.	Vaccines have not mostly been a benefit to human health.
Fact	The universe began with a big explosion.	The universe did not begin with a big explosion.
Religion	Witches and spells exist.	Witches and spells do not exist.
Religion	Sex outside of traditional marriage is not a sin.	Sex outside of traditional marriage is a sin.
Politics	Public health officials (e.g., at the CDC) did an excellent job of responding to COVID.	Public health officials (e.g., at the CDC) did not do an excellent job of responding to COVID.
Politics	The national debt is not a problem at all.	The national debt is a problem.
Moral	Cheating in a relationship is immoral.	Cheating in a relationship is not immoral.
Moral	Buying or wearing clothing made of animal fur is morally wrong.	Buying or wearing clothing made of animal fur is not morally wrong.
Preference	Having children is better than remaining childfree.	Having children is not better than remaining childfree.
Preference	Owning a home is preferable to renting.	Owning a home is not preferable to renting.

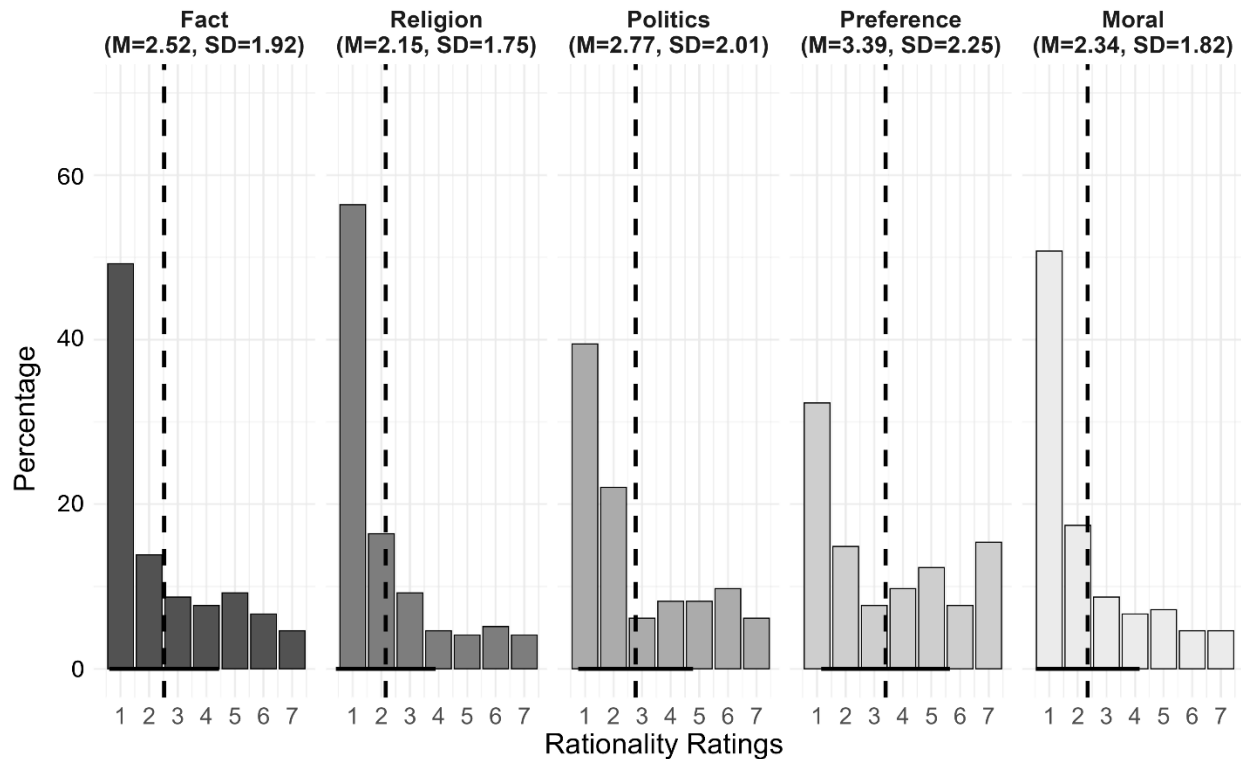
Note. This Table presents two inconsistencies from each domain. For the full set of stimuli, see https://osf.io/e9mzw/?view_only=2bed473775d94b08b9e289b23847c527

4.2 Results

4.2.1 Rationality

Distributions of rationality ratings are displayed in Figure 5. Like Study 1, mean ratings were low across domains, indicating that participants judged inconsistency irrational overall. We fit a sum-coded linear mixed-effects model (using the afex package) predicting rationality ratings from domain, with random intercepts for participants and items. The model found a significant main effect of domain, $F(4, 27.18) = 5.32, p = 0.003$. Compared to the grand mean (intercept = 2.63, SE = 0.11), preferential inconsistencies were rated significantly more rational ($\beta = 0.75$, SE = 0.20, $p = 0.004$), and religious inconsistencies were actually rated (non-significantly) *less* rational ($\beta = -0.48$, SE = 0.20, $p = 0.058$). Factual ($\beta = -0.11$, $p = 0.59$). moral ($\beta = -0.28$, $p = 0.28$), and political ($\beta = 0.13$, $p = 0.59$) inconsistencies did not differ significantly from the grand mean. These results fail to match the patterns of domain differences from Study 1, where facts received the lowest rationality ratings and neither religion nor preference differed from the grand mean.

As preregistered, we tested whether inconsistency was judged irrational across domains by comparing each domain's estimated marginal mean against the scale midpoint (Holm-corrected, one-sided). All domain means were significantly below the midpoint (fact: $M = 2.52$, religion: $M = 2.15$, moral: $M = 2.35$, politics: $M = 2.76$, preference: $M = 3.39$; all $ps < .014$), indicating that inconsistency was judged irrational across all domains.

Figure 5

Note. This figure displays distributions of rationality ratings by domain. Dotted vertical lines represent the means of each domain, error bars depict one standard deviation around the mean.

We predicted that Study 2's more representative items would involve no – or relatively modest – domain differences. To test this prediction, we conducted a preregistered TOST (two one-sided t-test) equivalence test across domains (with bounds ± 0.5). In line with the results of the model, fact and politics were found to be statistically equivalent to the grand mean, while religion (90% CI [-0.78, -0.18]) was rejected as falling *below* the grand mean. In other words, religious inconsistencies were rated as most irrational. Preference was also rejected, though in the opposite direction, with preferential inconsistencies rated as more rational (90% CI [0.42, 1.08]). Considered alongside Study 1, this pattern of domain effects appears more consistent with sampling variability than with genuine psychological differences across domains. This

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interpretation is strengthened by results from our compatibility and uncertainty measures, as discussed presently.

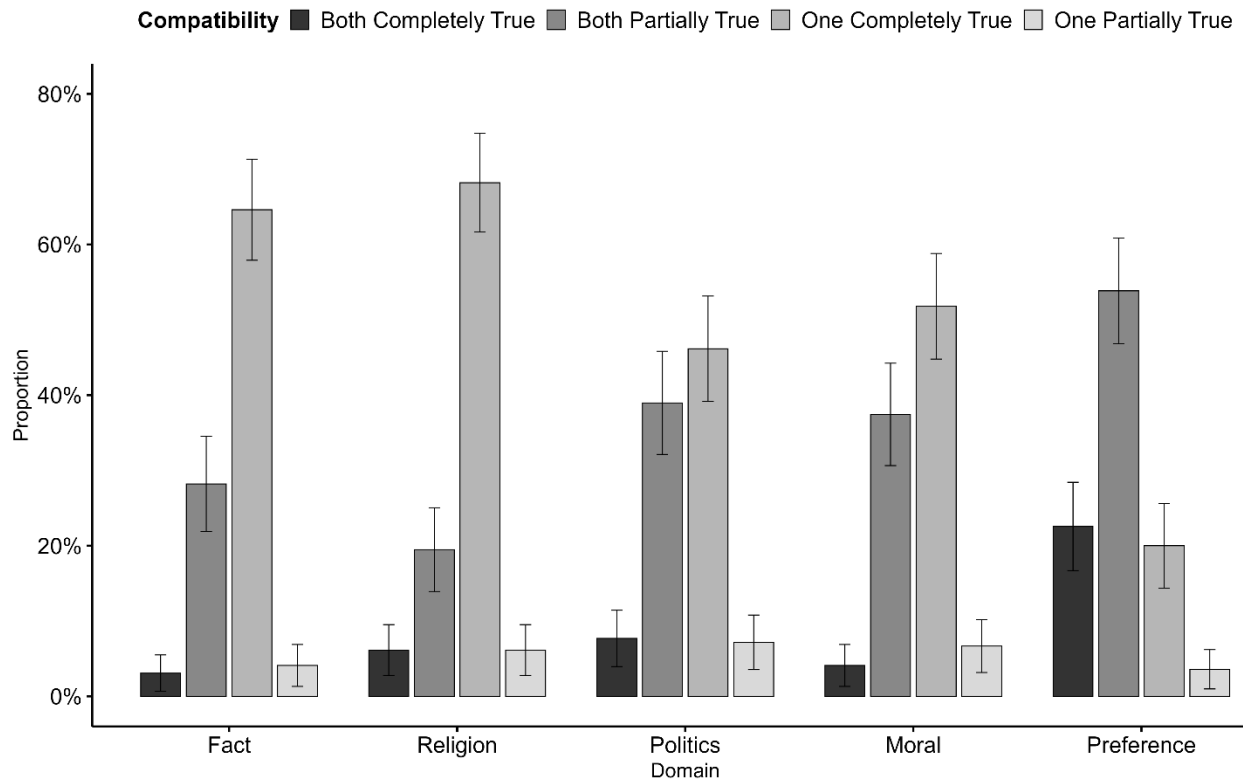
4.2.2 Compatibility

Next, we investigated compatibility, or whether participants thought both beliefs could be partially or completely true at the same time. Figure 6 displays responses to our compatibility measure by domain. The figure indicates – and a chi-square test of independence confirmed – that responses differed significantly by domain ($\chi^2(12) = 153.21, p < 0.0001$). More participants indicated that only one of the two beliefs was completely true for fact and religion, whereas politics, moral, and preference received more responses indicating that both beliefs were partially true. It is also noteworthy, considering the higher rationality ratings for preference, that this domain received by far the most frequent evaluations that both beliefs can be completely true. Of course, if the beliefs can both be true, it is probably not irrational to hold them.¹¹

¹¹ This intuitive pattern was obtained in our data – there was a step-wise relationship between rationality ratings and compatibility (see Figure 7 below).

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Figure 6



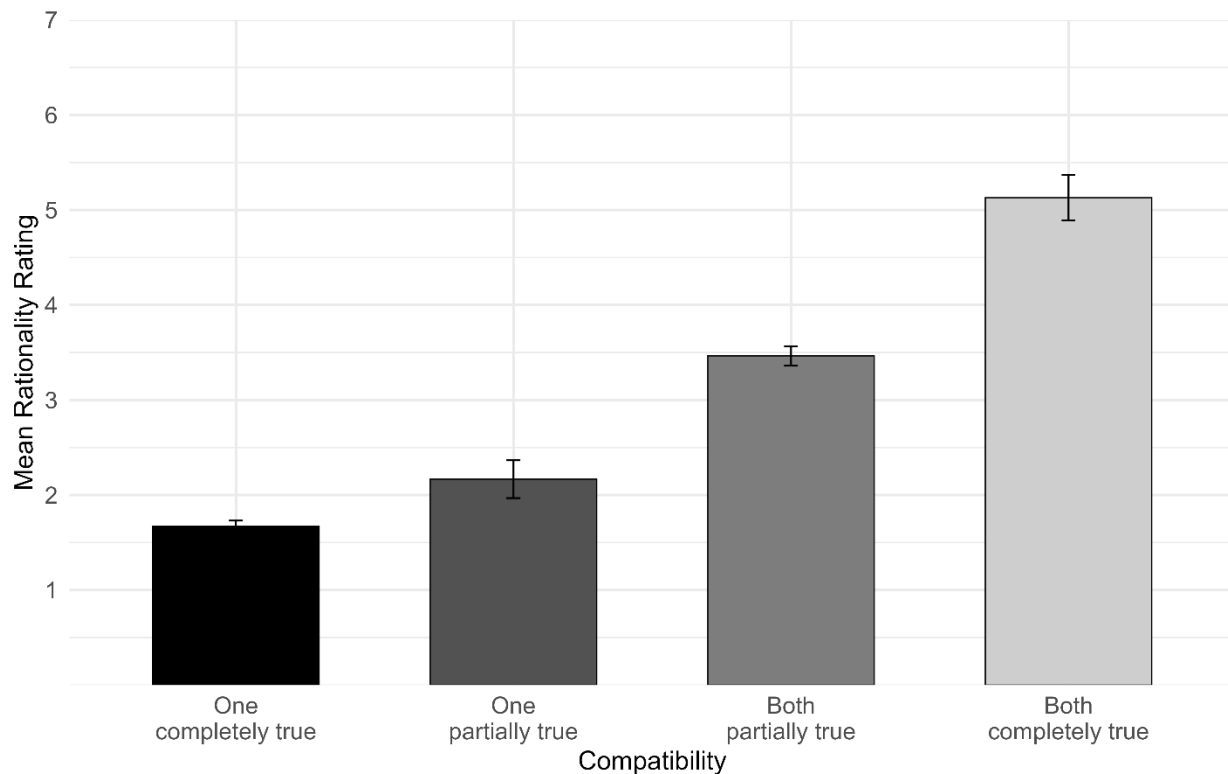
Note. Figure 6 represents the proportion of responses reflecting participants' views of the truth status (compatibility) of the contradictory beliefs.

To examine whether responses on our compatibility measure were related to rationality judgments, we added compatibility to the domain model, as preregistered. Compatibility significantly improved model fit, $\chi^2(3) = 310.57, p < 0.0001$. More importantly, compatibility attenuated all domain effects – including the trend for religion ($\beta = -0.12, p = 0.66$) and the significant preference effect ($\beta = -0.0009, p = 0.99$) – from the domain-only model (all domain $ps > 0.52$). Additionally, compatibility showed a strong relationship with rationality across each of the measure's four levels (see Figure 7). Inconsistencies selected as involving only one completely true belief received the lowest rationality ratings ($M = 1.67, SD = 1.33$), followed by inconsistencies where only one belief was partially true ($M = 2.17, SD = 1.46$), then inconsistencies where both beliefs were partially true ($M = 3.46, SD = 1.91$), and the greatest

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rationality ratings were associated with cases where participants judged that both beliefs were completely true ($M = 5.13$, $SD = 2.21$). Consistent with our hypothesis, the perceived truth status of the beliefs – rather than domain itself – appears to be a strong predictor of how rational the inconsistency is judged to be.

Figure 7



Note. This figure presents mean rationality ratings by compatibility responses. Error bars represent standard errors.

4.2.3 Subjective Probability

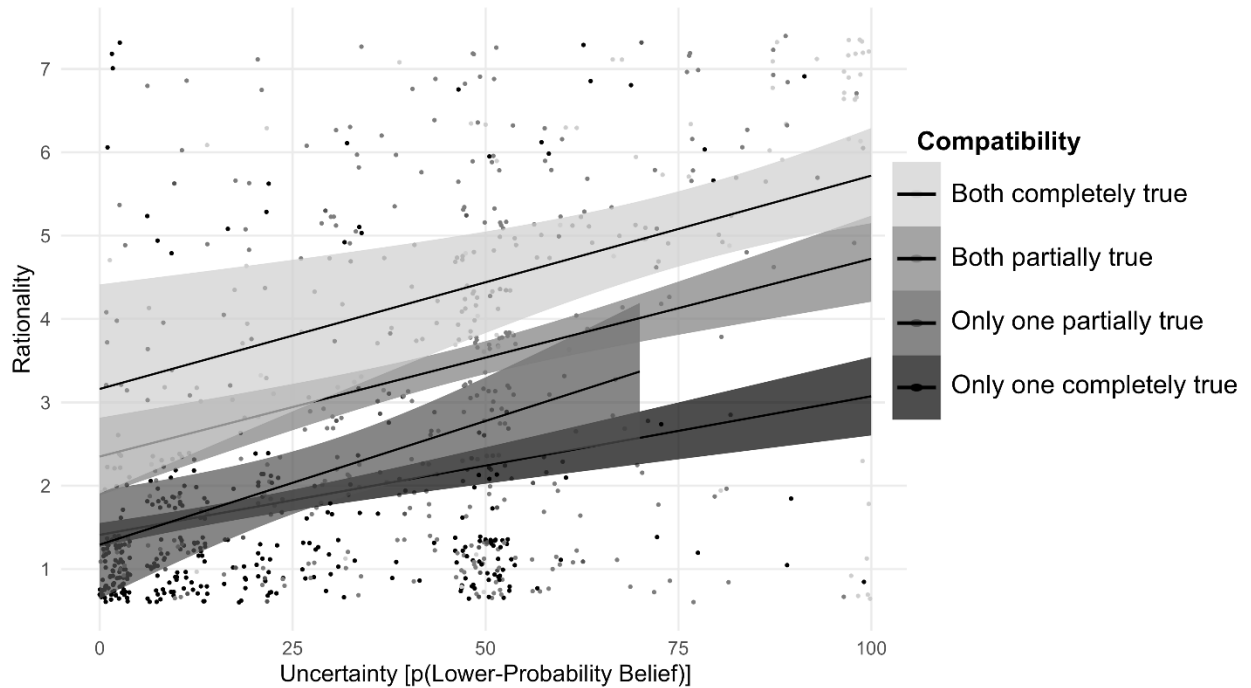
We also hypothesized that greater uncertainty about which belief is true would predict participants' rationality ratings. In other words, participants might assume that if they are uncertain, the person holding the inconsistent beliefs is also uncertain, and that believing a

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contradiction is more reasonable when one is not sure which belief is true. To examine the role of uncertainty, we included the subjective probability participants assigned to the lower probability belief in each inconsistency to the model (e.g., if the probability of belief 1 was 60% and belief 2 was 40%, we considered the latter value).

We first added this measure of uncertainty to the domain-only model. Including uncertainty significantly improved model fit ($\chi^2(1) = 294.45, p < 0.0001$), and again reduced domain effects to non-significance (all $ps > 0.68$). Confirming our prediction, a stronger degree of belief in the lower-probability belief was associated with significantly higher rationality ratings ($\beta = 1.07, SE = 0.57, p < 0.0001$).

Next, we examined a model including domain, compatibility, and uncertainty (retaining the random intercepts for participants and items; see Figure 8). Adding uncertainty further improved model fit from the domain + compatibility model ($\chi^2(1) = 81.29, p < 0.0001$). Uncertainty remained associated with significantly higher rationality ratings ($\beta = 0.64, SE = 0.07, p < 0.0001$). Importantly, compatibility remained significant after controlling for probability (all $ps < 0.002$), though the marginal means were attenuated relative to the compatibility-only model, reflecting shared variance between the two predictors. The finding that both remained significant suggests that compatibility and uncertainty make independent contributions to rationality judgments. As in the previous models, all domain effects remained non-significant ($ps > 0.48$).

Figure 8

Note. This figure depicts the impact of uncertainty and compatibility on rationality ratings.

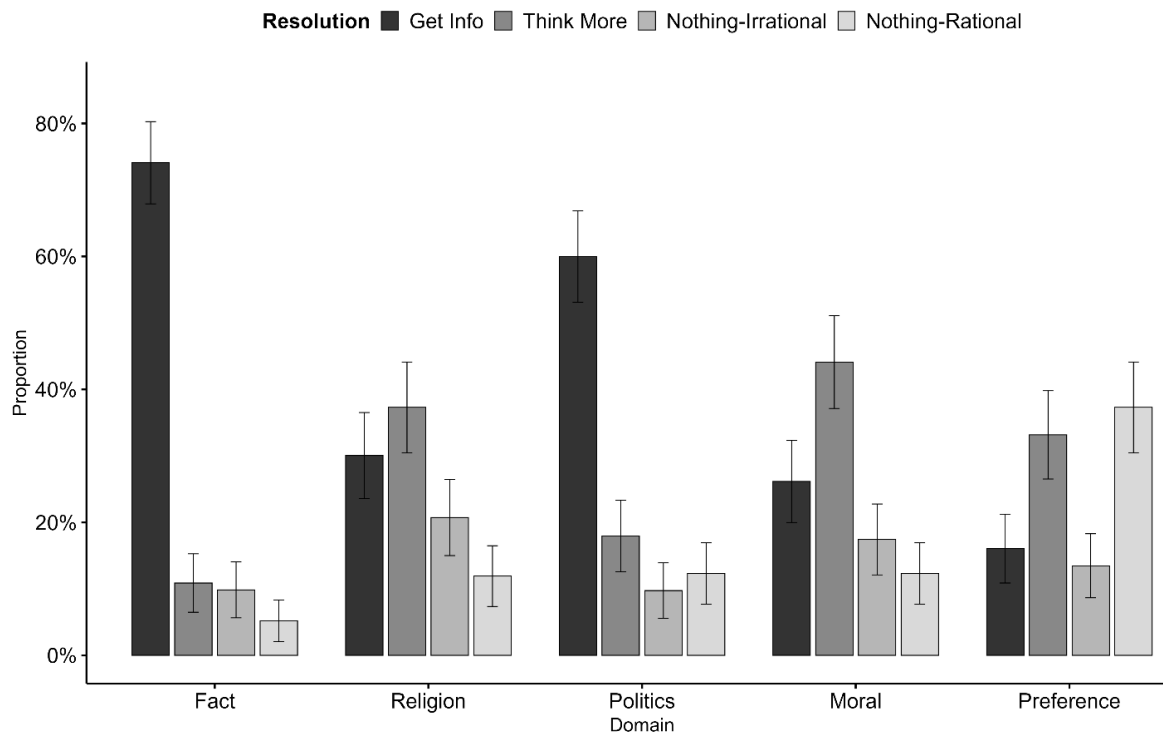
4.2.4 Desirability

In addition to measuring the subjective probability of each belief, we also collected desirability ratings for both beliefs. We considered the possibility that motivated reasoning might allow unlikely beliefs to get a “boost” if they are highly desirable, potentially reducing the (instrumental) irrationality of continuing to believe them. Along similar lines, if lay judgments parallel theorists who attribute less consistency pressure to wishful beliefs (e.g., Abelson, 1986; Katz, 1968), judgments of rationality might be associated with the desirability of (one or both of) the beliefs in an inconsistency. As in the case of uncertainty, we considered whether the desirability of the lower-probability belief predicted rationality ratings. However, adding this measure of desirability to the full model did not improve fit, $\chi^2(1) = 0$, $p = 1$, and the desirability

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coefficient was small and non-significant ($\beta = 0.02$, $SE = 0.06$, $p = 0.70$). This null result suggests that desiring a belief to be true does not independently drive judgments of the rationality of inconsistency once compatibility and uncertainty are accounted for, providing little support for motivated reasoning as an explanation of third-person rationality judgments in this paradigm.¹²

Figure 9



Note. This figure presents the proportion of recommended modes of resolving inconsistent beliefs across domains in Study 2. Error bars represent 95% confidence intervals

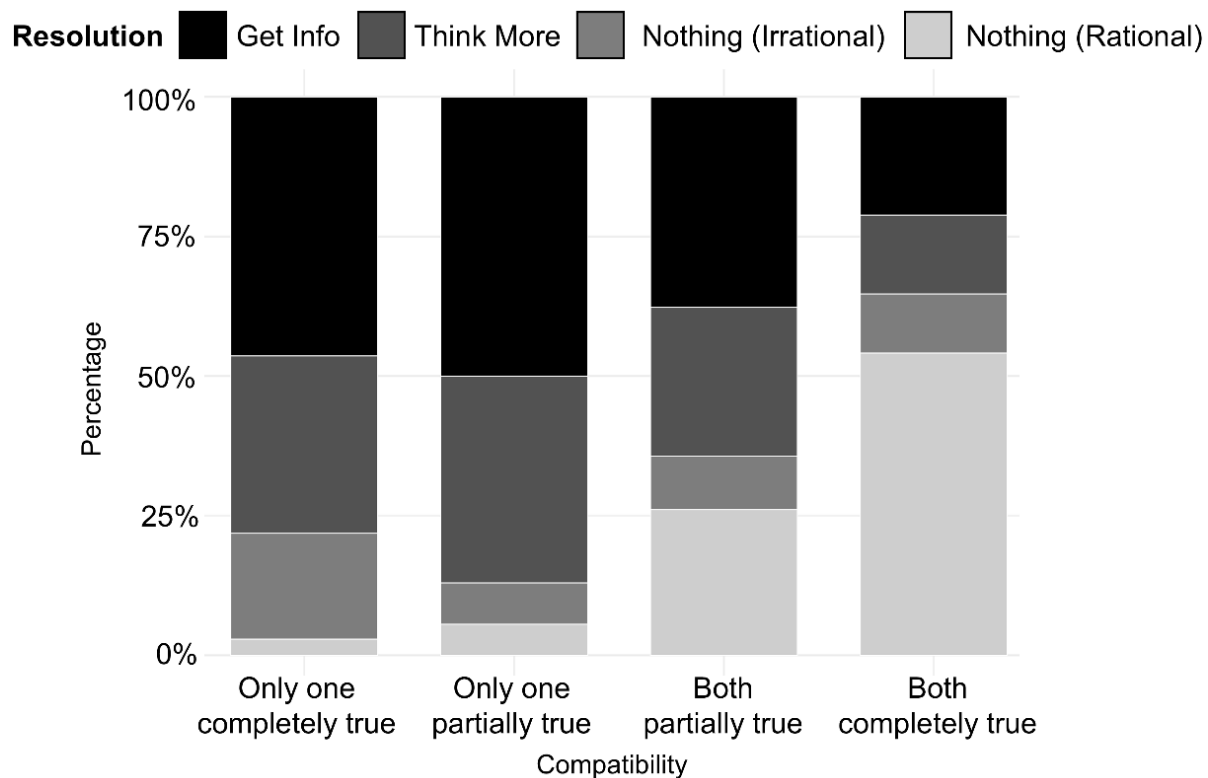
¹² One might expect desirability to matter in some domains (e.g., politics or religion), but not others. This could explain the absence of an overall effect of desirability. To maximize the chances of revealing a desirability effect, we ran an exploratory model predicting rationality from the interaction of the desirability of the low probability belief and domain (with no other fixed effects, and random effects for item and participant). While this model did find a significant main effect of desirability ($\beta = 0.54$, $SE = 0.14$, $p < 0.0001$), there were no significant domain interactions, though there were non-significant trends for political ($\beta = -0.21$, $p = 0.062$) and moral inconsistencies ($\beta = 0.26$, $p = 0.052$).

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4.2.5 Resolution

To examine whether our new stimuli produced convergent results with Study 1, and to examine whether compatibility was reflected in participants' recommended resolutions, we again asked participants, "What should the person do about the inconsistency?". Results are displayed by domain in Figure 9 and by compatibility in Figure 10.

Figure 10



Note. Figure 10 displays recommended resolutions by compatibility.

Resolution patterns by domain were broadly convergent with Study 1 (Figure 9). Factual and political inconsistencies again received more recommendations to get more information (Get Info), whereas Think More responses were more common for religion, moral, and preference. Preference received the most frequent Nothing-Rational recommendations (i.e., to do nothing,

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because it is rational to hold both beliefs; this is consistent with Figure 10, where Nothing-Rational responses are associated with viewing both beliefs as completely true).¹³ Finally, as in Study 1, religion showed the highest rate of Nothing-Irrational (it is not rational to hold the beliefs, but there is nothing that can be done about it) responses, which would make sense if the truth of religious beliefs is viewed as so hard to discover that getting more information or thinking more is unlikely to be of much help.

We fit an (exploratory) sum-coded Bayesian multinomial mixed-effects model predicting resolution from domain, with random intercepts for items and participants. Like Study 1, which found that facts are associated with Get Info, facts were substantially below the grand mean for all other resolutions (Think More: $\beta = -1.89$, $[-2.76, -1.13]$; Nothing-Irrational: $\beta = -1.23$, $[-2.09, -0.39]$; Nothing-Rational: $\beta = -2.04$, $[-3.01, -1.18]$). Politics showed a similar pattern (Think More: $\beta = -1.00$, $[-1.75, -0.27]$; Nothing-Irrational: $\beta = -1.02$, $[-1.90, -0.19]$; Nothing-Rational: $\beta = -0.69$, $[-1.49, 0.08]$), suggesting that factual and political inconsistencies are seen as resolvable by obtaining more information.

Again, similar to Study 1's findings, religion showed nonsignificant increases in recommendations to Think More ($\beta = 0.67$, $[-0.03, 1.43]$) and Nothing-Irrational ($\beta = 0.79$, $[-0.00, 1.63]$); and preference was associated with more Think More ($\beta = 1.21$, $[0.47, 1.98]$) and Nothing-Rational ($\beta = 2.31$, $[1.59, 3.12]$) consistent with preferential inconsistencies being judged most rational overall.

Resolutions also pattern coherently with compatibility (Figure 10), with cases where only one belief can be (partially or completely) true predominantly receiving Get Info or Think More resolutions, and Nothing-Rational responses increasing when both beliefs can be partially true,

¹³ Inconsistencies with Nothing-Rational resolutions also receive higher rationality ratings, on average ($M = 4.92$; Get Info = 2.34; Think More = 2.12; Nothing-Irrational = 2.06).

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and even more so when both beliefs are completely true. This pattern provides convergent evidence that compatibility plays a role in people's evaluations of inconsistencies.

The similarity of resolution patterns across both studies indicates that, despite the shift in rationality ratings between studies, our new items are not producing qualitatively different judgments about how inconsistencies should be handled across domains. Instead, rationality ratings might have shifted due to changes in the univocality of contradiction or in the obviousness of one proposition's being true. These changes, however, do not appear to alter the substantive patterns of how participants advocate figuring out what is true (i.e., how to resolve the inconsistencies) across domains. This convergence of resolution results across studies increases confidence that the expanded stimulus set preserved participants' intuitive understanding of the domains while varying the epistemic characteristics of the individual inconsistencies.

4.3 Study 2 Discussion

Study 2 was convergent with Study 1's central finding: inconsistency is judged irrational across all domains. At the same time, Study 2 substantially clarified – and in key respects overturned – Study 1's pattern of domain differences. When the space of inconsistencies was expanded, with the aim of sampling more representative items, factual inconsistencies were no longer judged especially irrational. Factual inconsistencies in Study 2 fell within equivalence bounds relative to the grand mean. In fact, the domain that trended most toward irrationality was religion, in the direction *opposite* to what accounts predicting reduced consistency norms for religious beliefs might anticipate (Abelson, 1986; Van Leeuwen, 2023). The instability of domain effects across studies – with different domains standing out, including in theoretically

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unexpected directions – suggests that domain might be a poor predictor of consistency judgments. Instead, apparent domain effects from Study 1 might be better understood as a reflection of features which tend to correlate with canonical or common beliefs in a domain, but which do not reflect the domain when sampled more broadly. Thus, factual items might have happened to possess epistemic properties that predict irrationality regardless of domain.

A key contribution of Study 2 was to identify (some of) those properties and to demonstrate their role in predicting judgments of the irrationality of holding inconsistent beliefs. Both compatibility and uncertainty independently predicted rationality judgments and (individually) sufficed to eliminate all domain effects. Compatibility was intended to reflect whether it is possible for both beliefs to be partially or completely true at the same time, and our uncertainty measure assesses how likely the lower probability belief was to be true. While these two variables appear closely related to each other (i.e., one way the lower probability belief can be likely to be true is that both beliefs can be true at once), they are conceptually distinct. Additionally, the fact that both provide independent contributions in the joint model suggests that they capture distinct aspects of rationality judgments. Together, compatibility and probability accounted for substantial variance in rationality ratings (marginal $R^2 = 36.2$). Desirability, by contrast, was not significant once these epistemic features were accounted for, suggesting that motivated reasoning does not offer inconsistencies additional rational leeway in third-person evaluations, at least as assessed in the current studies.

The similar patterns of recommended resolutions of inconsistency across studies provides a useful check of convergent validity for our new stimuli. One concern which might arise from the shift in rationality ratings across domains is that Study 2's items differed dramatically from those in Study 1, potentially upsetting all conclusions. However, resolutions in Study 2 were broadly

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convergent with those from Study 1, suggesting that our expanded item set did not produce qualitatively different behavior, and that the resolution strategies participants recommend – i.e., getting more information when facts are in dispute and thinking more when facts cannot readily settle the matter – reflect stable judgments about inconsistency resolution across domains. In other words, the fact that resolutions are similar across studies provides some evidence that differences in rationality ratings reflect the expanded sample of items revealing additional leeway in judgments, rather than dramatically skewed items that no longer reflect their target domains.

Taken together, the two studies indicate that people apply a remarkably uniform norm of consistency across belief domains, and that apparent exceptions to this norm reflect the epistemic character of the beliefs themselves.

5. General Discussion

In two preregistered studies, we investigated how people evaluate inconsistent beliefs held by others, spanning factual, religious, political, moral, and preferential domains. Our findings support three main conclusions.

First, inconsistency is judged irrational across domains. Every domain mean fell well below the scale midpoint in both studies, and this pattern held regardless of item sampling strategy. While there were some domain differences, these were unstable across studies and did not predict rationality judgments once epistemic factors (compatibility and uncertainty) were accounted for. These results suggest that even if certain domains of belief are less sensitive to consistency norms, lay judgments do not reflect these differences. That said, it's worth noting that within each domain, a non-negligible proportion of participants departed from the modal

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response of declaring inconsistent beliefs strongly irrational. So while inconsistency is judged irrational across domains, there is heterogeneity in judgments that demands some explanation (and our additional findings suggest that part of this explanation lies in the perceived epistemic features of particular sets of beliefs, as we summarize below).

Second, apparent domain differences might be explained by epistemic features of the beliefs themselves. Study 2 identified two candidate properties of beliefs that influence rationality judgments: compatibility and uncertainty (operationalized as the perceived probability of the less likely belief). Desirability, by contrast, did not predict rationality once the other two measures were included, offering little support for motivated reasoning accounts of domain differences. These findings suggest that the relevant factors in judgments of inconsistency are epistemic rather than motivational. People appear to judge the rationality of inconsistencies by asking whether both beliefs can plausibly be true and how certain they are about each one – not by whether someone might want one of the beliefs to be true.

Third – and notwithstanding the points above – domain does not appear to be unrelated to judgments about inconsistency. Patterns of explanations of inconsistency (Study 1), recommended resolutions of inconsistency (Studies 1-2), and – to a lesser extent – compatibility, suggest that participants were sensitive to differences among beliefs from different domains. For example, people often think that factual inconsistencies are best resolved by getting more information, while moral inconsistencies require thinking more, and religious inconsistencies might be unresolvable.

Thus, people do appear to make some distinctions between domains when judging inconsistencies. However, most extant accounts of domain differences appeal to either motivational, functional, or esoteric properties of beliefs to explain resistance to consistency

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norms. For example, Abelson's (1986) *distal beliefs* are held for the utility they provide; political beliefs might be inconsistent because their purpose is to facilitate alliances between different groups (Pinsof et al., 2023); religious beliefs might be a different attitude – closer to imagination or supposition, which tolerate inconsistency – than to belief (Van Leeuwen, 2023); or perhaps religious beliefs are immunized from consistency checking due to the nature of their representational format (Sperber, 1997). These views propose that domain effects are mediated by people's goals or complex features of people's propositional attitudes. In contrast, while we similarly find an indirect role of domain, this role appears to arise from an association between domain and epistemic dimensions. Put another way, our results do not indicate that domain is unrelated to consistency judgments, but they do suggest that the factors underlying this relation are more mundane than most existing accounts propose.

An indirect epistemic domain effect could also explain item-wise patterns from Study 1 (see Figure S1 in the Supplement). For example, the inconsistency involving the belief that George Washington was not the first U.S. president received the lowest rationality and plausibility ratings. This item (as well as other factual items in Study 1) included beliefs where one proposition was almost certainly false. The implied compatibility and uncertainty values might suggest an explanation for lower ratings for factual inconsistencies in Study 1. Here too, domain might have served as a proxy for these epistemic properties.

In addition to shedding light on the cues people use to judge inconsistencies, our findings inform ongoing debates about whether belief is a unified cognitive kind. Proposals that religious (Van Leeuwen, 2023) or motivated beliefs (Abelson, 1986) differ fundamentally from factual beliefs often cite differential tolerance for inconsistency as an important characteristic of non-factual beliefs. Our results suggest that laypeople's judgments about inconsistencies do not show

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this pattern. Of course, this does not rule out the possibility that there are genuine differences between cognitive attitudes – especially from the first-person perspective. However, at minimum, these results suggest that any genuine differences in consistency norms that might exist across belief types are not transparently reflected in lay intuitions.

Beyond their implications for *intrapersonal* inconsistency, our results could inform findings on interpersonal disagreement. Our compatibility results are consistent with findings that people are inclined to say only one person can be right in a factual disagreement, while both parties can be right in opinion or preference disagreements, with religious and ethical beliefs falling in the middle (Goodwin & Darley, 2008; Heiphetz et al., 2013). If factual inconsistencies more often involve beliefs where only one can be true, while moral and preferential inconsistencies can coexist, this would explain why both parties in a disagreement could be right. However, it is less clear how to square intermediate values of both people being right for religious disagreements with our compatibility results in that domain. We find that most religious inconsistencies are thought to contain only one (completely) true belief. It is possible that people are sensitive to different cues for the interpersonal case, or perhaps they just prefer to avoid casting judgment on people who disagree over religion, even when they believe only one side is correct. Future research might investigate possible differences between interpersonal and intrapersonal religious contradictions.

Additionally, these findings suggest a methodological caution for research on interpersonal disagreement. Much of that literature compares disagreement across broad belief domains (e.g., factual, moral, and religious beliefs). Our results suggest that differences attributed to domains might instead arise due to epistemic properties of the individual items. Many of our items in Study 1 were adapted from the interpersonal disagreement literature – and expanding the sample

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of items (as we did in Study 2) in future work on interpersonal disagreement could yield different results. Likewise, examining epistemic dimensions such as our compatibility and uncertainty, rather than treating domain membership itself as the psychologically relevant variable, might offer new insights into when and why both parties in a disagreement can be correct.

Beyond disagreement research, our results might also speak to work in cognitive science on how inconsistency is represented and processed more generally. Network models of belief, such as Thagard's (1989) ECHO, implement logical inconsistency as mutual inhibition between nodes, modeling how competing hypotheses are evaluated in light of constraints from other hypotheses and new evidence; this is a different kind of question from the one we ask here, but the two projects might be complementary.

Closer to the present work is research in the mental models framework (Johnson-Laird, 1983), which has investigated how people detect inconsistencies in text and how they reason toward resolving contradictions (e.g., Johnson-Laird, Legrenzi, & Girotto, 2004; Johnson-Laird, Girotto, & Legrenzi, 2004). For example, Khemlani and Johnson-Laird (2012) found that explaining how two (apparently) contradictory premises could coexist before judging whether they were inconsistent made the inconsistency harder to detect. We built on this work by examining how participants evaluate explicit inconsistencies among other people's beliefs and (in Study 1) how explaining these inconsistencies affects their judgments across belief domains.

Other work finds that prediction errors – which might be viewed as an inconsistency between an expectancy and a belief about an outcome – spark curiosity and searching for new information (Gottlieb et al., 2013; Proulx, Inzlicht, & Harmon-Jones, 2012). We did not investigate whether participants were puzzled by the presented inconsistencies, but future research could examine the impact of learning that someone has inconsistent beliefs on curiosity and subsequent inquiry.

5.1 Limitations

Our paradigm examined third-person evaluations of others' inconsistencies, which might very well differ from first-person tolerance for one's *own* inconsistencies. While third-person data sheds light on how people evaluate inconsistency in others, and can provide some evidence regarding first-person belief, there is a large gap between belief itself and judgments about others' beliefs (Waskan, 2006, p. 83). It remains possible that people's actual beliefs differ in their tolerance to inconsistency across domains (Sommer & Lombrozo, 2026). In fact, according to the *argumentative theory of reasoning* (Mercier & Sperber, 2011, 2017), consistency-checking and other reasoning mechanisms evolved primarily to evaluate other people's arguments rather than to police one's own beliefs. This account predicts that people will be better at detecting and penalizing inconsistency in others than in themselves (see Luptáková et al., 2025 for some evidence for this result), which could suggest that our studies underestimate the prevalence of first-person tolerance toward inconsistency.

Additionally, our studies examined explicit contradictions (P and not-P), which are arguably a special case. In this sense, our paradigm is best understood as measuring a competence for evaluating inconsistency under close-to-ideal conditions. This limits the ecological validity of our results, though studying competence is often an important goal in its own right (Pylyshyn, 1973). Weaker inconsistencies of the kind often studied in social psychological research might show different patterns. Such research often stresses the role of ambiguity in motivated reasoning (e.g., Janis & Mann, 1977, p. 94; Kunda, 1990). That is, motivated reasoning is thought to have more leeway to operate as it becomes less clear which belief is true, though it is worth noting

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that such lack of clarity also means that genuine evidence can be found on the other side (i.e., that there is no true inconsistency).

In this regard, it is worth noting that there is some evidence for relatively straightforward contradictions in the literature. In interviews about the origin of humanity, Metz, Weisberg, and Weisberg (2020) report cases in which respondents move between mutually inconsistent accounts within a single response – e.g., religious individuals responding in accordance with both intelligent design and evolutionary theory without integrating the two explanations. That said, in everyday life, contradictions are more often spread across contexts, softened by hedges, or never placed side by side at all (see Sommer & Lombrozo, 2025). Future research might investigate more realistic inconsistencies, perhaps with vignettes indicating that the contradictory beliefs are not brought together as obviously as in our stimuli.

Another limitation that could be explored in future work concerns the potential costs and benefits of tolerating inconsistent beliefs. Research on *explanatory coexistence* (e.g., Legare et al., 2012), for instance, finds that people occasionally appeal to competing explanations of the same phenomena (e.g., appealing to both evolution and creationism, as mentioned above). It is possible that these different explanations are useful in different circumstances, in different social groups (e.g., in interacting with scientific or religious communities), or for drawing different inferences. If so, then when both explanations are cognitively useful, it might make sense to retain both, despite their inconsistency (Shtulman & Lombrozo, 2016).

Feyerabend (1993) makes a related point about scientific beliefs or theories. Retaining beliefs that seem inconsistent with current theory can allow ideas to be developed further, used to interpret new data, and occasionally vindicated later (p. 119)¹⁴. Instead of viewing knowledge as

¹⁴ Lakatos (1978, pp. 55-58) offers an example of Bohr developing a research program which was explicitly inconsistent an existing, well-corroborated theory. Lakatos observes that new lines of research are often inconsistent

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a series of consistent theories that converge toward truth, Feyerabend recommends a perspective of knowledge as “an ever increasing *ocean of mutually incompatible alternatives*” (p. 21, emphasis in original) competing with one another, rather than through the steady elimination of inconsistency.

Our paradigm was not designed to distinguish inconsistencies that serve various functions from those that do not, and future work might examine whether functional considerations of this kind – which need not track domain in any straightforward way – shape third-person tolerance for inconsistency.

Finally, this work remains a preliminary investigation of third-person judgments of inconsistency. Effects of item differences between Study 1 and Study 2 suggest that properties of individual beliefs matter, but we have only begun to explore the full sample space of possible inconsistencies. Furthermore, while our compatibility and uncertainty measures successfully predicted rationality judgments, they are unlikely to represent the only cues that people use in judging inconsistencies. Future research might identify additional cues.

One possibility, in this regard, is *truth-aptness*, or the degree to which a statement permits truth judgment at all. Recent research on intuitive theories of truth (Oktar et al., 2026) suggests that objectivity (whether a claim concerns a matter of fact) and knowability (whether one can in principle determine whether a belief is true) might be important factors underling truth-aptness. Both dimensions are related to our measures, but could be subtly different. For example, *moral antirealists* believe that moral beliefs cannot be true or false at all. Our compatibility and uncertainty measures do not account for such possibilities, which might affect people’s

with existing theories or data, and suggests that inconsistency should remain an important deficiency of theories as a regulative principle, but that the discovery of an inconsistency should not require the immediate halt of a research program. Instead, it can be rational to temporarily quarantine the inconsistency and continue work on the research to allow it time to develop (see also Conant, 1947, e.g., p. 90, and Wimsatt, 2007, p. 51, for very similar observations).

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understanding of inconsistencies among beliefs of various kinds. Other factors, such as vagueness, degrees of partial truth, and referential ambiguity (Smith, 2008) might also play a role in evaluating inconsistencies.

6. Conclusions

We investigated whether laypeople apply norms of consistency to beliefs, and whether those norms vary across factual, moral, political, religious, and preferential domains. Results suggest that people find inconsistency irrational everywhere, judging it so across all five domains.

Though Study 1 found that factual inconsistencies were judged especially irrational, consistent with theoretical proposals that some beliefs (e.g., religious, ideological, preferential) are held to looser consistency standards, Study 2 found that this domain difference was not robust to more representative item sampling. Additionally, variation in rationality judgments was predicted by epistemic properties of the specific beliefs involved. The apparent special status of factual inconsistencies in Study 1 appears to have reflected the fact that factual items happened to involve beliefs with clear asymmetries in their epistemic properties.

These findings suggest that folk epistemology might be more unified than domain-based theories of belief imply. In short, while Bain might have been right that we “swallow a great many inconsistencies... in the outworks of belief,” it is less clear that we do so “without difficulty.”

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Supplemental Materials

To further examine the relationship between our inconsistencies and participants' ratings, we plotted each inconsistency by mean ratings of rationality and plausibility. Figure S1 further emphasizes the correlations between rationality and plausibility discussed in the main text. Additionally, it provides a sense of the separation between domains.

Facts (dark black) appear clustered together at the bottom left, indicating lower rationality and plausibility ratings. Most other domains are clustered together, though still toward the lower end of the ratings scales. Moral inconsistencies (especially Lie and Violence) are somewhat higher than inconsistencies from the other domains. Figure S1 might also suggest some hypotheses for which factors underlie our “domain” effects. For example, Washington might appear least rational/plausible not because it is a factual inconsistency, but only because believing that George Washington was not the first president of the United States seems very odd, given the widespread knowledge of who George Washington was (in the U.S.). This belief might be irrational and implausible regardless of whether or not one also holds the inconsistent belief that Washington *was* the first president. A similar case might be made for Spanking – an

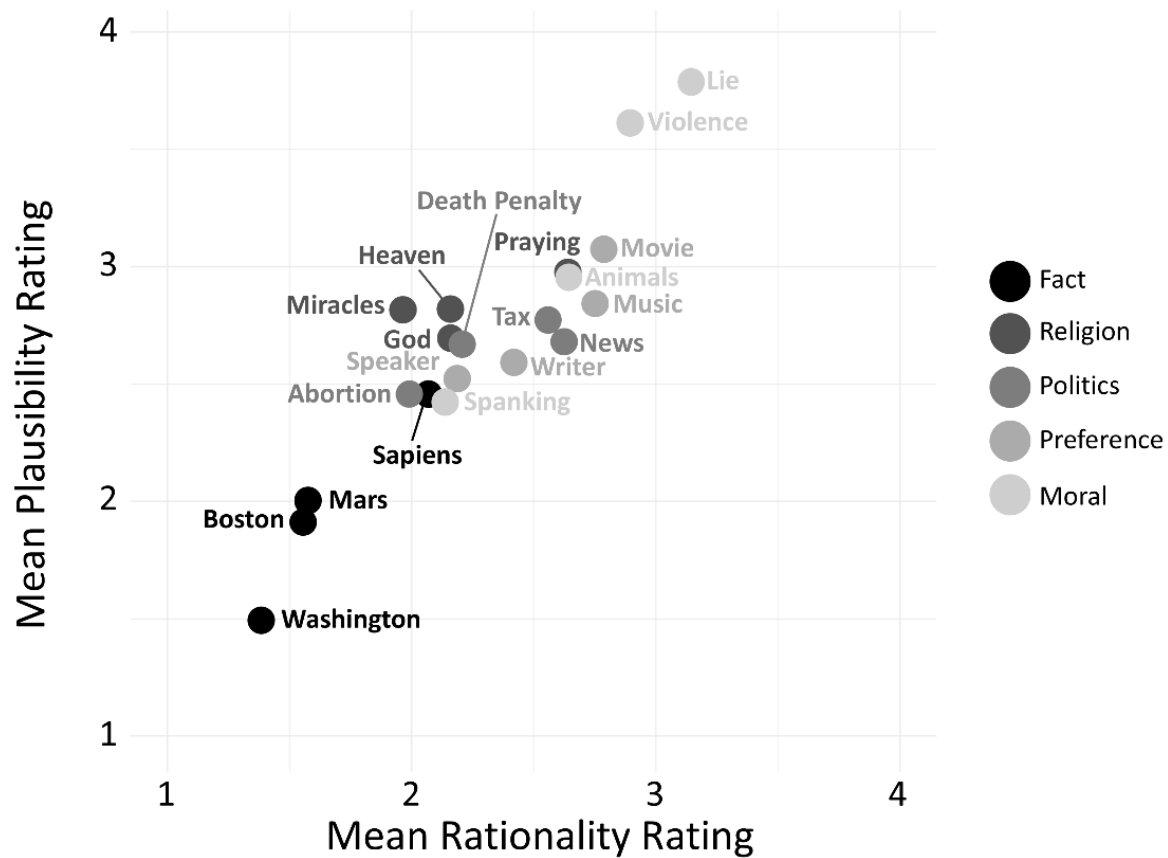
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outlier moral item – which could also be due to the widespread consensus against this mode of punishment being morally acceptable. Alternatively, the best performing factual inconsistency, which falls closer to other domains, is Sapiens. This item concerned humans evolving from other species and seems much more uncertain than the other factual inconsistencies. Lie and Violence, the best-performing items, could also be uncertain, though perhaps in a different way. These items involve conflicts of beliefs over whether lying or violence are ever justified. Depending on the circumstances, people might find themselves of two minds about these issues, which could lead to higher ratings of rationality and plausibility.

However, many other hypotheses might explain these results – beliefs in our domains might vary in how much evidence supports them, whether they are concrete or abstract, subject to controversy or not, objective or subjective, etc. The domains studied here are only a fuzzy proxy for these various factors, which future research should investigate further.

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Figure S1



Note. Figure S1 plots each item by mean rationality and plausibility ratings, with domains represented by shading.

Study 1: Rationality ratings

Rationality ~ Domain + (1 | Item) + (1 | Participant)

<i>Predictors</i>	Rationality			
	<i>Estimates</i>	<i>std. Error</i>	<i>t</i>	<i>p</i>
(Intercept)	2.29	0.10	22.80	<0.001
Fact	-0.65	0.14	-4.75	<0.001
Moral	0.41	0.14	3.02	0.009
Preference	0.24	0.14	1.79	0.094
Religion	-0.06	0.14	-0.45	0.657

Random Effects

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σ^2	1.65
τ_{00} Participant	0.98
τ_{00} Question	0.08
ICC	0.39
N _{Question}	20
N _{Participant}	181
Observations	1810
Marginal R ² / Conditional R ²	0.046 / 0.419

Study 1: Plausibility ratings

Plausibility ~ Domain + (1 | Item) + (1 | Participant)

<i>Predictors</i>	Plausibility			
	<i>Estimates</i>	<i>std. Error</i>	<i>t</i>	<i>p</i>
(Intercept)	2.68	0.12	22.92	<0.001
Fact	-0.71	0.16	-4.58	<0.001
Moral	0.52	0.16	3.31	0.005
Preference	0.08	0.16	0.52	0.608
Religion	0.15	0.16	0.95	0.357

Random Effects

σ^2	1.87
τ_{00} Participant	1.37
τ_{00} Question	0.10
ICC	0.44
N _{Question}	20
N _{Participant}	181
Observations	1810
Marginal R ² / Conditional R ²	0.046 / 0.467

Study 1: Plausibility ~ Rationality

Plausibility ~ Rationality * Domain + (1 | Participant)

<i>Predictors</i>	Plausibility			
	<i>Estimates</i>	<i>std. Error</i>	<i>t</i>	<i>p</i>

RATIONALITY NORMS ACROSS DOMAINS

(Intercept)	0.80	0.07	12.12	<0.001
Rationality	0.82	0.02	48.59	<0.001
Fact	-0.15	0.07	-2.15	0.032
Moral	0.16	0.08	2.03	0.042
Preference	-0.16	0.08	-2.08	0.038
Religion	0.31	0.07	4.19	<0.001
Rationality × Fact	-0.01	0.03	-0.46	0.646
Rationality × Moral	0.01	0.03	0.32	0.746
Rationality × Preference	0.02	0.03	0.74	0.458
Rationality × Religion	-0.05	0.03	-1.79	0.074

Random Effects

σ^2	0.85
τ_{00} Participant	0.44
ICC	0.34
N Participant	181
Observations	1810
Marginal R^2 / Conditional R^2	0.604 / 0.740

Study 1: Resolutions

Resolution ~ Domain + (1 | Item) + (1 | Participant)

	Think More		Nothing-Irrational		Nothing-Rational	
<i>Predictors</i>	<i>Estimate CI (95%)</i>		<i>Estimate CI (95%)</i>		<i>Estimate CI (95%)</i>	
Intercept	0.23	0.08 – 0.38	-1.39	-1.79 – -1.02	-2.03	-2.53 – -1.57
Fact	-1.33	-1.64 – -1.03	-1.15	-1.58 – -0.71	-1.66	-2.48 – -0.85
Moral	0.35	0.07 – 0.64	-0.20	-0.65 – 0.24	0.63	-0.11 – 1.37
Religion	0.82	0.50 – 1.12	1.35	0.92 – 1.78	0.71	-0.04 – 1.47
Preference	0.48	0.19 – 0.78	0.59	0.17 – 1.03	0.84	0.10 – 1.57

Random Effects

σ^2	-0.19
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RATIONALITY NORMS ACROSS DOMAINS

τ_{00}	1.93
ICC	-0.11
N _{Question}	20
N _{Participant}	181
Observations	2738

Study 1: Explanations

Explanation ~ Domain + (1 | Item) + (1 | Participant)

	MOTIVATION			WORLD	
<i>Predictors</i>	<i>Estimate</i>	<i>CI (95%)</i>		<i>Estimate</i>	<i>CI (95%)</i>
Intercept	-0.85	-1.07 – -0.64		-1.16	-1.50 – -0.82
Fact	-1.79	-2.19 – -1.41		-1.27	-1.78 – -0.76
Moral	0.86	0.56 – 1.17		0.44	-0.08 – 0.93
Religion	0.35	0.05 – 0.67		0.34	-0.14 – 0.81
Preference	0.38	0.05 – 0.68		0.42	-0.08 – 0.93

Random Effects

σ^2	0.06
τ_{00}	0.60
ICC	0.09
N _{Question}	20
N _{Participant}	181
Observations	2710

Study 1: Rationality ~ Explanations

Rationality ~ Explanation * Domain + (1 | Item) + (1 | Participant)

	Rationality			
<i>Predictors</i>	<i>Estimates std. Error Statistic</i>			<i>p</i>
(Intercept)	2.43	0.09	27.66	<0.001
Mind	-0.59	0.03	-17.12	<0.001
Motivation	-0.16	0.04	-3.82	<0.001
Fact	-0.47	0.12	-3.97	<0.001

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Moral	0.32	0.11	3.02	0.008
Politics	0.00	0.11	0.03	0.661
Preference	0.19	0.11	1.78	0.094
Mind × Fact	0.13	0.08	1.68	0.094
Motivation × Fact	-0.13	0.11	-1.21	0.226
Mind × Moral	-0.22	0.06	-3.50	<0.001
Motivation × Moral	-0.07	0.07	-1.10	0.272
Mind × Politics	0.01	0.06	0.19	0.156
Motivation × Politics	0.07	0.07	0.97	0.422
Mind × Preference	-0.01	0.06	-0.13	0.900
Motivation × Preference	0.09	0.07	1.21	0.225
Random Effects				
σ^2	1.27			
τ_{00} Participant	0.84			
τ_{00} Question	0.05			
ICC	0.41			
N Question	20			
N Participant	181			
Observations	2710			
Marginal R ² / Conditional R ²	0.154 / 0.501			

Study 1: Rationality ~ Explanation-Order

Rationality ~ Condition * Domain * Explanation + (1 | Participant)

Rationality

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<i>Predictors</i>	<i>Estimates</i>	<i>Std. Error</i>	<i>t</i>	<i>p</i>
(Intercept)	2.43	0.07	2.30 – 2.56	<0.001
Explain-1st	0.37	0.07	0.24 – 0.51	<0.001
Mind	-0.62	0.03	-0.69 – -0.55	<0.001
Motivation	-0.16	0.04	-0.24 – -0.08	<0.001
Fact	-0.46	0.07	-0.60 – -0.32	<0.001
Moral	0.32	0.05	0.23 – 0.41	<0.001
Politics	0.00	0.05	-0.09 – 0.09	0.992
Preference	0.19	0.05	0.10 – 0.29	<0.001
Explain-1st × Mind	-0.19	0.03	-0.26 – -0.12	<0.001
Explain-1st × Motivation	-0.04	0.04	-0.13 – 0.04	0.299
Explain-1st × Fact	-0.06	0.07	-0.20 – 0.08	0.415
Explain-1st × Moral	-0.03	0.05	-0.12 – 0.07	0.582
Explain-1st × Politics	0.04	0.05	-0.06 – 0.13	0.437
Explain-1st × Preference	-0.03	0.05	-0.12 – 0.07	0.580
Mind × Fact	0.14	0.08	-0.02 – 0.30	0.077
Motivation × Fact	-0.14	0.12	-0.37 – 0.10	0.243
Mind × Moral	-0.26	0.06	-0.39 – -0.14	<0.001
Motivation × Moral	-0.06	0.07	-0.19 – 0.07	0.389
Mind × Politics	0.04	0.06	-0.08 – 0.15	0.542
Motivation × Politics	0.07	0.07	-0.07 – 0.21	0.315
Mind × Preference	-0.01	0.06	-0.13 – 0.12	0.922
Motivation × Preference	0.05	0.07	-0.09 – 0.19	0.468
Explain-1st × Mind × Fact	-0.02	0.08	-0.18 – 0.13	0.783
Explain-1st × Motivation × Fact	-0.01	0.12	-0.25 – 0.22	0.909

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Explain-1st × Mind × Moral	0.02	0.06	-0.10 – 0.14	0.706
Explain-1st × Motivation × Moral	-0.12	0.07	-0.25 – 0.01	0.650
Explain-1st × Mind × Politics	-0.06	0.06	-0.18 – 0.06	0.303
Explain-1st × Motivation × Politics	0.02	0.07	-0.12 – 0.16	0.759
Explain-1st × Mind × Preference	-0.09	0.06	-0.21 – 0.03	0.149
Explain-1st × Motivation × Preference	0.03	0.07	-0.11 – 0.17	0.641
σ^2			1.27	
τ_{00} Participant			0.70	
ICC			0.36	
$N_{\text{Participant}}$			181	
Marginal R^2 / Conditional R^2			0.211 / 0.492	

Pairwise Contrasts for Resolutions (Study 1)

Resolution	Domain1	Domain2	mean_diff	ci_low	ci_high	prob	significance
Get Info	fact	moral	0.39	0.30	0.47	1.00	*
Get Info	fact	politics	0.23	0.13	0.31	1.00	*
Get Info	fact	religion	0.50	0.41	0.57	1.00	*
Get Info	fact	preference	0.43	0.34	0.51	1.00	*
Get Info	religion	moral	-0.11	-0.19	-0.03	0.00	*
Get Info	religion	politics	-0.27	-0.35	-0.19	0.00	*
Get Info	religion	preference	-0.07	-0.14	0.01	0.04	NS
Get Info	politics	preference	0.21	0.12	0.29	1.00	*

RATIONALITY NORMS ACROSS DOMAINS

Resolution	Domain1	Domain2	mean_diff	ci_low	ci_high	prob	significance
Get Info	politics	moral	0.16	0.07	0.25	1.00	*
Get Info	moral	preference	0.05	-0.04	0.13	0.85	NS
Noth-Irr	fact	moral	-0.01	-0.05	0.03	0.34	NS
Noth-Irr	fact	politics	-0.01	-0.05	0.03	0.31	NS
Noth-Irr	fact	religion	-0.13	-0.22	-0.06	0.00	*
Noth-Irr	fact	preference	-0.06	-0.13	-0.01	0.01	*
Noth-Irr	religion	moral	0.13	0.05	0.22	1.00	*
Noth-Irr	religion	politics	0.13	0.05	0.22	1.00	*
Noth-Irr	religion	preference	0.07	-0.02	0.17	0.95	NS
Noth-Irr	politics	preference	-0.05	-0.12	0.00	0.03	NS
Noth-Irr	politics	moral	0.00	-0.04	0.04	0.54	NS
Noth-Irr	moral	preference	-0.06	-0.12	0.00	0.02	*
Noth-Rat	fact	moral	-0.06	-0.15	-0.01	0.01	*
Noth-Rat	fact	politics	-0.02	-0.07	0.01	0.11	NS
Noth-Rat	fact	religion	-0.04	-0.09	0.00	0.04	NS
Noth-Rat	fact	preference	-0.07	-0.15	-0.01	0.01	*
Noth-Rat	religion	moral	-0.02	-0.11	0.05	0.24	NS
Noth-Rat	religion	politics	0.02	-0.03	0.08	0.74	NS
Noth-Rat	religion	preference	-0.03	-0.12	0.05	0.20	NS
Noth-Rat	politics	preference	-0.05	-0.13	0.02	0.08	NS
Noth-Rat	politics	moral	-0.04	-0.13	0.02	0.09	NS
Noth-Rat	moral	preference	0.00	-0.10	0.09	0.46	NS
Think More	fact	moral	-0.32	-0.42	-0.21	0.00	*
Think More	fact	politics	-0.20	-0.29	-0.10	0.00	*
Think More	fact	religion	-0.33	-0.43	-0.21	0.00	*

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Resolution	Domain1	Domain2	mean_diff	ci_low	ci_high	prob	significance
Think More	fact	preference	-0.30	-0.41	-0.19	0.00	*
Think More	religion	moral	0.01	-0.11	0.13	0.57	NS
Think More	religion	politics	0.13	0.01	0.24	0.98	*
Think More	religion	preference	0.02	-0.10	0.15	0.66	NS
Think More	politics	preference	-0.10	-0.22	0.02	0.04	NS
Think More	politics	moral	-0.12	-0.23	-0.01	0.02	*
Think More	moral	preference	0.02	-0.10	0.14	0.60	NS

Pairwise Contrasts for Explanations (Study 1)

Explanation	Domain1	Domain2	mean_diff	ci_low	ci_high	prob	significance
MIND	fact	moral	0.46	0.37	0.55	1.00	*
MIND	fact	politics	0.32	0.23	0.42	1.00	*
MIND	fact	religion	0.37	0.28	0.47	1.00	*
MIND	fact	preference	0.39	0.29	0.48	1.00	*
MIND	religion	moral	0.09	-0.03	0.19	0.94	NS
MIND	religion	politics	-0.05	-0.16	0.06	0.19	NS
MIND	religion	preference	0.01	-0.10	0.13	0.59	NS
MIND	politics	preference	0.06	-0.05	0.18	0.87	NS
MIND	politics	moral	0.14	0.03	0.24	0.99	*
MIND	moral	preference	-0.07	-0.19	0.04	0.09	NS
MOTIVATION	fact	moral	-0.34	-0.44	-0.24	0.00	*
MOTIVATION	fact	politics	-0.22	-0.30	-0.14	0.00	*
MOTIVATION	fact	religion	-0.23	-0.33	-0.16	0.00	*
MOTIVATION	fact	preference	-0.23	-0.32	-0.15	0.00	*

RATIONALITY NORMS ACROSS DOMAINS

Explanation	Domain1	Domain2	mean_diff	ci_low	ci_high	prob	significance
MOTIVATION	religion	moral	-0.11	-0.22	0.02	0.04	NS
MOTIVATION	religion	politics	0.02	-0.09	0.12	0.64	NS
MOTIVATION	religion	preference	0.00	-0.11	0.11	0.51	NS
MOTIVATION	politics	preference	-0.02	-0.12	0.09	0.37	NS
MOTIVATION	politics	moral	-0.12	-0.24	-0.01	0.02	*
MOTIVATION	moral	preference	0.11	-0.02	0.23	0.96	NS
WORLD	fact	moral	-0.12	-0.23	-0.03	0.01	*
WORLD	fact	politics	-0.11	-0.21	-0.02	0.01	*
WORLD	fact	religion	-0.14	-0.25	-0.05	0.00	*
WORLD	fact	preference	-0.15	-0.26	-0.06	0.00	*
WORLD	religion	moral	0.02	-0.11	0.14	0.63	NS
WORLD	religion	politics	0.03	-0.09	0.16	0.71	NS
WORLD	religion	preference	-0.01	-0.15	0.12	0.42	NS
WORLD	politics	preference	-0.05	-0.17	0.07	0.22	NS
WORLD	politics	moral	-0.01	-0.14	0.11	0.41	NS
WORLD	moral	preference	-0.03	-0.16	0.10	0.30	NS

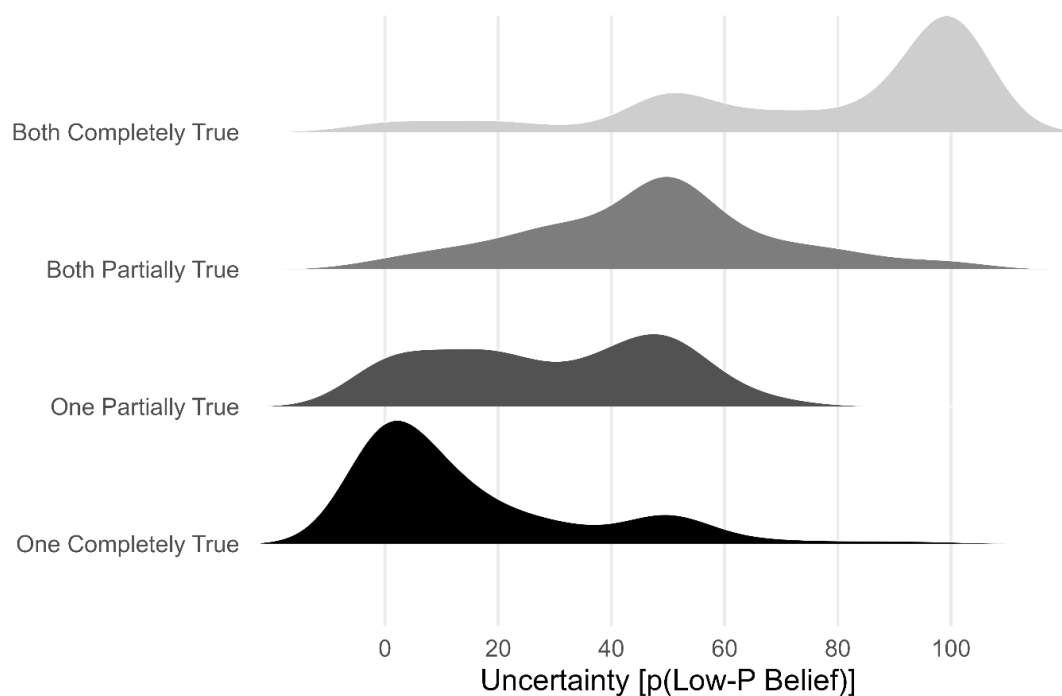
Study 2

In an exploratory analysis, we examined the relationship between compatibility and uncertainty. Figure S2 displays the distribution of probability ratings for the lower-probability belief across compatibility categories. The distributions are quite different across compatibility categories, with inconsistencies rated as involving only one completely true belief associated with low probability ratings for the less-likely belief, while inconsistencies rated as involving both completely true or both partially true beliefs showed substantially higher and more

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dispersed probability ratings. A Kruskal-Wallis test confirmed that uncertainty differed significantly across compatibility categories ($H(3) = 409.20, p < 0.0001$), and Dunn's pairwise comparisons (Bonferroni-corrected) revealed significant differences between each pair of categories (all $ps < 0.001$). Overall patterns appear intuitive: when a participant judges that only one belief can be completely true, they are more likely to assign the other belief a low probability. In contrast, when they judge both beliefs as partially or completely true, even the less probable belief should receive more probability mass. It is noteworthy that both measures independently predict rationality despite the substantial overlap between them.

Figure S2



Note. This figure depicts the distributions of probability ratings for the lower probability belief across levels of compatibility.

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Study 2: Domain effects

Rationality ~ Domain + (1 | Participant) + (1|Item)

<i>Predictors</i>	Rationality		<i>t</i>	<i>p</i>
	<i>Estimates</i>	<i>std. Error</i>		
(Intercept)	2.63	0.12	21.57	<0.001
Fact	-0.11	0.20	-0.55	0.589
Religion	-0.48	0.20	-2.38	0.026
Moral	-0.28	0.20	-1.40	0.176
Preference	0.13	0.20	0.62	0.544

Random Effects

σ^2	2.75
τ_{00} Participant	0.91
τ_{00} Item	0.22
ICC	0.29
N_{Item}	30
$N_{\text{Participant}}$	195
Marginal R^2 / Conditional R^2	0.044 / 0.323

Study 2: Compatibility

Rationality ~ Domain + Compatibility + (1 | Participant) + (1|Item)

<i>Predictors</i>	Rationality		<i>t</i>	<i>p</i>
	<i>Estimates</i>	<i>std. Error</i>		
(Intercept)	3.07	0.11	28.87	<0.001
Fact	0.21	0.14	1.47	0.156
Religion	-0.12	0.14	-0.81	0.427
Moral	-0.18	0.14	-1.29	0.210
Preference	0.09	0.15	0.64	0.529
Both Completely True	1.82	0.15	12.17	<0.001
Both Partially True	0.4	0.097	4.13	<0.001

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One Partially True	-1.38	0.095	-14.56	<0.001
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Random Effects

σ^2	2.02
τ_{00} Participant	0.65
τ_{00} Item	0.09
ICC	0.27
N _{Item}	30
N _{Participant}	195
Marginal R ² / Conditional R ²	0.299 / 0.486

Study 2: Uncertainty

Rationality ~ Domain + Compatibility + (1 | Participant) + (1|Item)

<i>Predictors</i>	Rationality			
	<i>Estimates</i>	<i>std. Error</i>	<i>t</i>	<i>p</i>
(Intercept)	2.89	0.11	26.22	<0.001
Fact	0.25	0.15	1.65	0.156
Religion	-0.01	0.15	-0.05	0.427
Moral	-0.15	0.15	-0.98	0.210
Preference	0.11	0.15	0.75	0.529
Both Completely True	1.18	0.16	7.43	<0.001
Both Partially True	0.29	0.09	3.16	0.002
One Partially True	-0.87	0.11	-8.22	<0.001
Uncertainty	0.64	0.07	9.44	<0.001

Random Effects

σ^2	1.85
τ_{00} Participant	0.57
τ_{00} Item	0.11
ICC	0.27
N _{Item}	30
N _{Participant}	195

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Marginal R^2 / Conditional R^2 0.359 / 0.530

Study 2: Desirability

Rationality ~ Domain + Compatibility + Desirability + (1 | Participant) + (1|Item)

<i>Predictors</i>	Rationality			
	<i>Estimates</i>	<i>std. Error</i>	<i>t</i>	<i>p</i>
(Intercept)	2.89	0.11	26.81	<0.001
Fact	0.25	0.15	1.68	0.107
Religion	-0.01	0.15	-0.06	0.950
Moral	-0.15	0.15	-0.97	0.343
Preference	0.11	0.15	0.74	0.464
Both Completely True	1.18	0.16	7.43	<0.001
Both Partially True	0.29	0.09	3.14	0.002
One Partially True	-0.87	0.11	-8.19	<0.001
Uncertainty	0.63	0.07	8.77	<0.001
Desirability	0.02	0.06	0.38	0.703

Random Effects

σ^2	1.85
τ_{00} Participant	0.56
τ_{00} Item	0.11
ICC	0.27
N_{Item}	30
$N_{\text{Participant}}$	195
Marginal R^2 / Conditional R^2	0.359 / 0.530

Study 2: Resolutions

Resolution ~ Domain + (1 | Item) + (1 | Participant)

<i>Predictors</i>	Think More		Nothing-Irrational		Nothing-Rational	
	<i>Estimate</i>	<i>CI (95%)</i>	<i>Estimate</i>	<i>CI (95%)</i>	<i>Estimate</i>	<i>CI (95%)</i>
Intercept	-0.45	-0.86 – -0.07	-1.64	-2.22 – -1.11	-1.53	-2.08 – -1.06

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Fact	-1.89	-2.76 – -1.13	-1.23	-2.09 – -0.39	-2.04	-3.03 – -1.18
Religion	0.67	-0.03 – 1.43	0.79	-0.00 – 1.63	0.12	-0.66 – 0.92
Politics	-1.00	-1.75 – -0.27	-1.02	-1.90 – -0.19	-0.69	-1.49 – 0.08
Preference	1.21	0.47 – 1.98	0.80	-0.09 – 1.70	2.31	1.59 – 3.12

Random Effects

σ^2	-0.14
τ_{00}	1.75
ICC	-0.09
N _{Question}	30
N _{Participant}	195
Observations	969