

*Religious beliefs are factual beliefs: Content does not correlate with context sensitivity.*

## 0. Introduction.

People apparently believe all kinds of bizarre things. They assert that spirits communicate with us, that it is unlucky if a black cat cross one's path, and that angels may intervene in our lives. In the face of the apparent absurdity of such beliefs, some people have denied that these attitudes belong to the same class as factual beliefs. In a recent paper, Neil Van Leeuwen (2014) presents the first systematic and fully elaborated account of what he calls the secondary cognitive attitudes. According to Van Leeuwen, to believe *that God is watching us* is (typically) to take a different attitude to the proposition than the attitude we take to a proposition like 'dogs have fur'.

Van Leeuwen claims that factual beliefs have functional roles that religious beliefs lack. They drive behaviour and inference broadly, in a manner that is insensitive to context. Religious beliefs typically fail to govern behaviour and inference outside of ritual contexts (and contexts in which the person's religious identity is made salient). Van Leeuwen is surely right in thinking that some propositions are context-bound to a much greater degree than others (clinical delusions, for instance, often seem to be active only in very circumscribed contexts).<sup>1</sup> In this paper, however, I will argue that this kind of sensitivity to context does not correlate with content. We self-attribute beliefs and behave in ways consistent with them when they are intuitive for us, but intuitiveness is often context sensitive. It is sensitive, in particular, to the fluency with which information is processed, and processing fluency is in turn sensitive to a variety of contextual features. Because processing fluency is sensitive to features of context, but processing fluency is a very significant determinant of intuitiveness, beliefs – regardless of their contents – are liable to shift as these features shift. There may be a set of very mundane beliefs that resist such contextual shifts, but this stability in functional role is best explained by reference to processing fluency, not to the attitude agents take to their contents. Mundane beliefs that are stable across contexts owe their stability to fluent processing, and they are

<sup>1</sup> It bears emphasising that what is at issue is the extent to which attitudes exhibit sensitivity to context in a manner that is not under the control of agents. Cohen (1992) introduced the term 'acceptances' to refer to attitudes that agents assume in a particular context. For instance, I might accept a scientific proposition in which my actual credence is low, in order to see what its implications are.

processed fluently because they are so familiar. Their familiarity entails sufficient ease of processing to ensure that they are relatively resistant to manipulation of cues to fluency (such as cues to consensuality, narrative coherence, and so on). Other beliefs, with equally mundane contents, exhibit the same kind of context-sensitivity that is for Van Leeuwen the hallmark of religious beliefs (and some religious beliefs are highly stable); again, it is the fluency with which they are processed that explains their (in)stability.

### 1. Van Leeuwen on Religious Credence

Van Leeuwen argues that mundane beliefs have three distinctive properties that religious credences lack. They are (a) practical setting independent; (b) have broad cognitive governance and (c) are evidentially vulnerable. Religious beliefs have different properties. For instance, they provide agents with a normative orientation. Mundane beliefs and religious credences are distinguished from one another by attitude and not by content: it is entirely possible to (factually) believe *that God is watching us*, and it is entirely possible to maintain a religious attitude to the proposition *that vaccines prevent disease*. However, attitudes and content are nevertheless highly correlated: agents almost always take one kind of attitude to propositions with religious and normative contents, while taking another to mundane propositions (this fact justifies Van Leeuwen's strategy of looking to data on religious belief for evidence that the attitude agents take to these propositions is different to the attitude they take to mundane propositions). Van Leeuwen thinks of the properties distinctive of factual beliefs as continuous rather than binary, but maintains that they tend to cluster together: belief and religious credence specify attractor positions within a multi-dimensional property space (2014: 700).

Van Leeuwen's case for the claim that religious and factual beliefs have different functional roles is built on evidence from the cognitive science of religion. For instance, he cites anthropological evidence for practical setting dependence, such as Astuti and Harris (2008). These authors described the death of a man to their Vezo participants, priming either a medical or a ritual context. To prime the medical context, they described the man as falling ill and being hospitalized, but dying despite the doctors' efforts. To prime the ritual context, they described the man as dying at home and subsequently appearing to his relatives in dreams after completion of the rituals for remembering the dead. Both groups of participants were then asked questions about the dead person's body (for instance, do his eyes work?), his emotions (does he miss his children?) and his cognition (does he know his wife's name?)

In both conditions, participants were more likely to think that functions that are not (intuitively) closely linked to the body continue after death, while those more closely linked cease. But the manipulation made a significant difference to the ascription of continued function. Participants were more likely to judge that the person's cognitive and emotional functions continued after death in the ritual context than in the medical context. For instance, 43% of participants in the medical condition judged that all 7 mental processes probed ceased to function, compared to 13% of participants in the ritual condition. Astuti and Harris claim that their data match their observations of Vezo life. Similarly, Harris & Giménez (2005) provide evidence that Spanish children have two conceptions of death, one biological and one religious, with children switching between them depending on the context. For Van Leeuwen, this kind of evidence shows that religious beliefs are sensitive to setting. Whereas factual beliefs are practical setting independent – they guide inference and behaviour in (almost) any setting to which their content is relevant – religious credences guide behaviour and inference only in limited and very special contexts.

Van Leeuwen holds that religious beliefs also differ from mundane beliefs in lacking general cognitive governance. A representational state has general cognitive governance when it forms a background assumption for behaviour and inference, without its needing to be activated or made salient. Van Leeuwen cites evidence that suggests an asymmetry with regard to cognitive governance: factual beliefs serve as background assumptions in religious and non-religious contexts alike, but religious credences do not serve as background outside their own limited contexts. It is a commonplace in the cognitive science of religion that the cognition of ordinary believers departs from what has come to be called “theological correctness” (Barrett 1999). Despite knowing the tenets of their religion, when these tenets conflict with their common sense beliefs it is these latter beliefs that have cognitive governance. For instance, though Christians are aware that their religion holds that God is omnipresent and omniscient, their interpretation of religious narratives involves a god acting sequentially and with limited awareness. Their factual beliefs cognitively govern how they ‘fill in’ narratives.

Finally, religious credences lack evidential vulnerability, Van Leeuwen maintains. For example, when apocalyptic predictions fail to come to pass, cult members may come to be more committed to the group than before, rather than less (Festinger, Riecken & Schacter 1956). People exit cults when they can no longer reconcile their values with the normative

orientation of the group, not when factual anomalies pile up, he argues. All going well, however, factual beliefs are highly vulnerable to evidence. My belief *that it is raining* or that *Chicago is the capital of Illinois* is automatically and instantly abandoned when I am presented with evidence sufficient to show that it is false.

Van Leeuwen claims that though there are some people who take the factual attitude toward theological propositions, this attitude is held toward religious contents only by ‘extremists’ (he restricts the extension of this term more narrowly than many other theorists would, since he maintains that typical creationists are not extremists; rather they take the religious attitude toward propositions like *the world was created 5600 years ago*). In responding to Van Leeuwen, Boudry and Coyne (2016) argue that the professed beliefs of the faithful guide their behaviour and inference much more broadly than Van Leeuwen thinks. Any inconsistency between the putative contents of their religious credences and their behaviour is explained by the lack of clarity of theological propositions, which (due to their bizarre nature) are often obscure, they claim (following Boyer; see Boyer 2013; Baumgard & Boyer 2013). I will argue, with Boudry and Coyne, that religious beliefs govern behaviour (including assertion) in the same way as mundane beliefs. But it is not because the former have the stability that all sides seem to attribute to the latter: it is because *both* are liable to shifts, depending on context.

## 2. Shifting Beliefs

Agents tend to accept claims when these claims are intuitive for them. For a claim to be intuitive is just for it to seem to be true to an agent. We do not accept every intuitive claim; sometimes we override our intuitions (for example, those acquainted with the Müller-Lyer illusion find it intuitive – have the perceptual seeming that – the lines are different lengths, but don’t accept that proposition). When we lack the time or cognitive resources for effortful override, or when we fail to see the need to engage in it, we are disposed to accept claims that are intuitive as true. Both the property of seeming to be true and the recognition of a need for effortful override are influenced by metacognitive signals. In particular, processing fluency powerfully influences the intuitiveness of a claim. Processing fluency is an experiential property: a claim is processed fluently when comprehension or manipulation of the claim is

experienced as easy (Oppenheimer 2008).<sup>2</sup> Subjective ease of processing (perhaps together with other metacognitive signals) renders a claim intuitive (Proust 2014). When information is processed fluently, we are disposed to accept it, behave in accordance with it and self-attribute a corresponding belief (Reber & Schwarz 1999; Oppenheimer 2008). Disfluency, on the other hand, is a metacognitive signal that something is not right, and triggers analytic processing (Alter, Oppenheimer, Epley & Eyre 2007; Thompson; Prowse Turner & Pennycook 2011). We reject fluently processed representations only when they trigger disfluency elsewhere in cognition (due to a conflict with other representations) or because we have overlearned a disposition to inhibit a particular fluently processed representation. Cross-situational consistency in the functional role of beliefs is the product of cross-situational intuitiveness, which is in turn very significantly dependent on cross-situational fluency, or of analytic processing which imposes consistency through effortful override. If a representation is processed fluently in one context and disfluently in another, and a conflicting representation is processed fluently in the context in which the first is processed disfluently, we ought to expect cross-situational inconsistency of beliefs and behavior.

That is, a representation is cross-situationally consistent as a function (in important part) of the extent to which it is processed fluently across contexts. We should therefore expect religious attitudes to exhibit greater cross-situational inconsistency than mundane ones only if they are less likely to be processed fluently across contexts. I will argue that religious (or, more broadly, supernatural) representations are often processed fluently across a range of contexts, such that we are strongly disposed to self-attribute them and act in accordance with them. Many of them are processed fluently in a broader range of contexts than many mundane beliefs and their practical setting dependence is therefore more restricted.

## 2.1 Practical setting dependence.

Factual beliefs are practical setting independent, Van Leeuwen claims. A representation  $x$  is practical setting independent “if and only if  $x$  guides behavior in all practical settings in which

<sup>2</sup> This standard definition may not be entirely adequate. Some people deny that there is any phenomenology associated with some of the kinds of cases in which fluency affects cognition (see Bayne and Montague 2011 for discussion). If they are correct, fluency should be understood to encompass absence of a (personally or subpersonally) expected phenomenology of difficulty.

x's content is relevant" (Van Leeuwen 2014: 702); if it fails to guide behaviour in some practical settings despite its content being relevant and despite the agent continuing to hold it, it is practical setting dependent. Van Leeuwen cites evidence for the practical setting dependence of religious credences. The Vezo seem to have two competing representations of death, and contextual factors explain which will dominate. Closer to home, Van Leeuwen cites Dennett's (2006) observation that Christians who profess to believe that God is always watching them engage in behaviors that it seems they would not perform if they took the factual attitude to the proposition. But practical setting dependence occurs with a range of factual beliefs.

For instance, adults with college level education in evolution often invoke a competing essentialist theory of species transformation (Shtulman 2006) and adults with college level education in mechanics invoke folk physics to explain and predict motion (Halloun & Hestenes 1985). This exhibits the practical setting dependence of factual beliefs: beliefs that guide behaviour (including verbal behaviour) in one setting fail to guide it in another, despite the relevance of the content of the beliefs to the second setting. These instances of practical setting dependence presumably arise because the agents fail to notice the conflict between the intuitive response and the one that is justified by the theory they accept. Since the essentialist theory is processed fluently across all contexts, the need to engage in analytic thinking of the kind that might detect conflict with what the person believes in other contexts is not triggered. Even when college students know that they are being tested on what they have learned in a course on or organized around evolution – a context which ought to prime scientific thinking – students who have been taught scientific theories may revert to naïve essentialist explanations of speciation and other biological phenomena (Shtulman & Calabi 2013).

I will say that when one representation wins out over another in the competition to guide behavior, without the person effortfully inhibiting the losing representation, the first *trumps* the second. At least sometimes, a representation with a religious content trumps a scientific representation in a context in which neither ritual nor identity is salient. Adults who accept evolution may also invoke creationism to explain the origin or the traits of organisms (Shtulman 2015). Preston, Ritter & Hepler (2012) provide evidence that a supernatural explanatory framework is the default presupposed by agents, at least when certain topics are raised. In their experiments, belief in and concern for the soul fall when neuroscientific explanations of love or morality were mentioned but rose when the experience of love or the

importance of morality were mentioned. The different cues may make associated representations more or less accessible and thereby alter the extent to which one or other framework is intuitive. But they do not seem to be cues for religious contexts.

Again, this evidence seems to indicate the practical setting dependence of *factual* beliefs. Indeed, the evidence suggests that it is the scientific theory that is limited to a narrow context. It is only in formal contexts – confronting multiple choice tests, for instance – that the adults tested by Shtulman & Lombrozo (2016) responded consistently with scientific concepts; in informal contexts, they defaulted to naïve concepts. Since informal contexts are much more routine than formal, it seems that it is only in very specific settings that scientific representations govern inference and behavior. Even professional scientists show evidence of the persistence of non-scientific representations that conflict with scientific beliefs: they take longer to verify true but intuition-inconsistent scientific claims than intuition-consistent claims (Shtulman & Harrington 2016).<sup>3</sup>

Van Leeuwen might respond by suggesting that the practical setting dependence of factual beliefs is limited to cases in which factual beliefs conflict with a set of representations that are highly intuitive, a set of representations that Van Leeuwen explicitly distinguishes from mundane beliefs. Intuitive representations might be innate or developmentally canalized and exercise a powerful influence over cognition unless they are inhibited. Perhaps there is a continuum of representations. At one end of the continuum are highly intuitive representations which tend to trump others. At the other end are religious representations, which almost never trump others. In the middle are mundane beliefs, which trump religious and are trumped by the highly intuitive.

On my view, the extent to which a belief is intuitive is significantly influenced by how fluently it is processed, and processing fluency will depend on matters like situational primes, the relative accessibility of conflicting information, and so on. On the alternative suggestion, there is instead a set of representations that have the property of being highly intuitive across all or

<sup>3</sup> Van Leeuwen suggests that sometimes scientists may merely *accept* their theories, where an acceptance is something like a supposition (2014: 705). This evidence might not show that scientific *beliefs* are context-sensitive. However, there is no reason to think that acceptance is the norm among scientists with regard to the core theories of their discipline (Van Leeuwen himself expresses scepticism that all scientists merely accept their theories; 705).

most contexts, such that mundane beliefs are trumped only when they conflict with representations that belong to this set. While there may be representations which tends to be intuitive across a large number of contexts, not all representations that trump mundane beliefs belong to this set. Further, intuitive representations that belong to this set of representations are sometimes themselves trumped.

Trumping beliefs have nothing in common beyond the fact that they are intuitive in a context. Many seem to be acquired effortfully (rather than being innate or developmentally canalized), and may routinely trump representations that themselves are developmentally canalized. For instance, there is evidence that adults who lack any special scientific training have conflicting conceptions of life and other biological categories which they *routinely* and *nonconsciously* inhibit. Alzheimer's patients endorse a conception of 'life' that attributes it to animate but not inanimate entities, such that plants are not alive but the sun is (Zaitchik & Solomon 2008). It is likely that this pattern reflects problems with inhibiting a naïve theory, rather than the development of a new one in the patient group (Shtulman & Lombrozo 2016). This conception of life might be developmentally canalized and highly intuitive; hence its persistence across the lifespan. But it does not guide the behaviour or cognition of healthy people in routine contexts.

Attempts to identify a special class of highly intuitive trumping attitudes founder in the face of the huge variety in the cases in which agents inhibit a recently acquired mundane representation in favour of another. For example, cognitive dissonance experiments often use an induced compliance paradigm, in which participants are brought to perform an action (say writing an essay arguing that college tuition fees should rise) that is counterattitudinal. The oft-replicated finding is that participants who are paid a non-trivial amount of money to write the essay are much more likely to reject its conclusions than participants who are paid little or nothing (see Cooper 2007 for review). A plausible interpretation of the evidence is that agents who are not paid a sufficient amount to express a view that conflicts with their own are unable to account for the disfluency engendered. They therefore confabulate an explanation: that they wanted to argue for the position expressed. The upshot is a shift in the belief professed, due to a relatively trivial manipulation of the agent's context. Whatever proposition best explains the agent's behaviour to herself will be adopted. Belief content is predicted by the agent's *other* beliefs:



the confabulated belief is the one that best explains the behaviour given what else she believes. Sometimes the trumping belief is a supernatural one; sometimes it is entirely mundane.<sup>4</sup>

Practical setting dependence is a distinct phenomenon from belief update in response to evidence: whereas with belief update, the old attitude is *replaced* by a new one, in these cases the old attitude may coexist (at least for a time) with the new. Cognitive dissonance experiments demonstrate the practical setting dependence of mundane beliefs: using an induced compliance paradigm, Gawronski and Strack (2004) changed explicit attitudes while leaving implicit attitudes unaltered. It should be noted, too, that neither the trumped attitude nor the trumping need belong to the set of developmentally canalized intuitive representations. Rather, either or both may be novel. In Festinger and Carlsmith's (1959) classic study, participants who had engaged in a very boring task for an hour were paid to tell a confederate (ostensibly another student) that the task was fun. Those paid a small sum rated the task significantly more positively than those in other conditions. The trumped belief ("the task was dull") was a recently acquired mundane factual belief; it was trumped by a new mundane representation, generated to explain away the disfluency. There is no reason to think of these manipulations as especially powerful. Compliance is induced in cognitive dissonance paradigms by the mildest situational pressure (in fact, it is essential for the effectiveness of the manipulation that the person perceive the choice as free).

One more example of the lability of mundane beliefs, chosen for the triviality of the manipulation: unpacking effects (see Norby 2015 for discussion). These effects modulate the likelihood that agents assign to a proposition depending on how the options are presented, with atypical options lowering estimates of likelihood (Sloman et al. 2004). For instance, participants might rate the likelihood that they will buy a ferret or a gibbon or some other kind of pet in the next 12 months as lower than the probability that they will buy a pet in the next 12 months, even though the options are logically equivalent: the atypicality of ferrets and gibbons as pet choices influences the estimate. Participants in one experiment preferred a gamble that paid off if an even number was rolled on a fair die over one that paid off if 1, 4 or 6 was rolled, despite the equal probability of the outcomes (Redden & Frederick 2011). Even those participants who recognized that they were equally likely exhibited the preference. Why

<sup>4</sup> Van Leeuwen cites cognitive dissonance-fuelled recommitment to a cult as evidence that religious credences are insulated from empirical falsification. But cognitive dissonance is not limited to such beliefs.

do participants prefer a bet on *rolling an even number* to a bet on *1,4 or 6*? As Nagel (2015) remarks, confidence seems to be influenced by the ease with which representations are processed: fluency of processing is a metacognitive signal of likelihood. This signal is sufficiently powerful to cause acquiescence in some participants who recognized that the probability was exactly equal in both conditions.

In this section, I have not disputed the claim that religious representations are often practical setting dependent. Some religious (or, more broadly, supernatural) representations are counterintuitive (Sperber 1996; Boyer 2001); in virtue of being counterintuitive, they are easily trumped, and when trumped will not guide behavior. It may take effort to infer and to behave in ways that are consistent with them. But (as Sperber notes) they do not differ from many scientific beliefs in being counterintuitive; these factual beliefs will therefore exhibit just as much practical setting dependence as religious or supernatural beliefs. Conversely, some religious or supernatural beliefs are very intuitive and in virtue of that fact resistant to the kinds of manipulations that affect processing fluency. Species essentialism and creationism, for instance, are highly intuitive across a wide range of contexts. In virtue of this fact, they will often trump mundane beliefs.

## 2.2 Cognitive governance.

The second property Van Leeuwen attributes to factual beliefs is that they provide background assumptions for inference over other representations. This property, which Van Leeuwen calls cognitive governance, is defined over classes of attitudes: class X inferentially governs class Y “if and only if attitudes in X supply the informational background that supports inferences from elements of Y to new elements of Y” (2014: 703). Religious beliefs do not exhibit cognitive governance, Van Leeuwen maintains. Rather than religious beliefs governing inferences over attitudes that belong to different classes, inferences over religious beliefs are themselves governed by factual beliefs. It is theologically correct to suppose that God is omniscient and omnipotent, but factual beliefs interfere with the interpretation of religious narratives, so that hearers resolve ambiguities and fill in background assumptions in ways that make God more mundane. For instance, they understand God as answering one prayer before moving on to the next (Barrett 1999).

Cognitive governance and practical setting dependence are clearly connected. A representation that fails to exercise cognitive governance in a context is in some sense practical setting dependent. Unsurprisingly, then, the same sorts of evidence that indicates that mundane beliefs are practical setting dependent may be cited to show that they often fail to exercise broad cognitive governance. Often enough, religious or supernatural beliefs are processed more fluently, in a context in which neither ritual nor identity is salient, than are competing mundane beliefs, and the person takes the former and not the latter as background assumptions.

As we saw above, science professors betray evidence of the persistence of intuitive theories that conflict with their scientific knowledge (Shtulman & Harrington 2015), in the form of longer reaction times when verifying intuition-inconsistent scientific claims. Bering (2002) provides evidence that specifically supernatural beliefs persist alongside naturalistic. Like Astuti and Harris, Bering asked his participants (American adults) about the bodily and mental functions of an individual described in a short narrative, at the end of which the person dies. Those participants who explicitly denied that people survive death in any way gave answers consistent with that view. But their reaction times indicated the persistence of dualistic intuitions: they took longer to deny the persistence of mental states with no intuitive tie to the body than those that are so linked. Similarly, priming atheist participants with thoughts of death seems to increase implicit (but not explicit) belief in God (Jong, Halberstadt & Bluemke 2012; Heflick & Goldenberg 2012). Atheists who explicitly reject belief in the soul nevertheless were unwilling to sign a contract selling theirs to an experimenter, citing a feeling of discomfort at the thought (Haidt, Björklund & Murphy 2000). These studies indicate that specifically religious representations are active and online even in atheists, and are sufficiently powerful to generate unease in participants. This is evidence for cognitive governance, even when participants are able effortfully to override their intuitions. Effortful inhibition is dependent on the availability of time and cognitive resources, as well as the awareness of the need for override (which is often triggered by disfluency in processing). It takes effort to prevent these representations from governing inference, and even when the effort is deployed, we ought to expect more or less subtle modulation of behavior by the inhibited representation (just as behavior is modulated by implicit attitudes even when agents have the time and resources to guide their behavior by their explicit attitudes; see Levy 2015 for discussion).

Representations exercise cognitive governance when they are intuitive and agents fail to effortfully override them. Both of these properties are indifferent to content: religious attitudes may therefore trump or be trumped by mundane, and vice-versa.

### 2.3 Evidential vulnerability

The main aim of this paper has been to show that mundane beliefs are every bit as liable to contextual instability as religious representations, and conversely that the latter may be very stable across contexts. I will therefore be brief in addressing the third property on which factual beliefs ostensibly differ from religious: evidential vulnerability. An attitude is evidentially vulnerable when it is “involuntarily prone to being extinguished if (a) it conflicts with perceptual states or if (b) it is realized to lead to a contradiction” or “if it contradicts or does not cohere with other evidentially vulnerable states” (2014: 704). That is, an attitude is evidentially vulnerable if it is prone to involuntary extinction on (i) receipt of conflicting perceptual evidence, or (ii) detection of logical contradiction, or (iii) detection of conflict with other states that themselves are vulnerable to extinction on receipt of conflicting perceptual evidence or detection of logical contradiction. Van Leeuwen holds that evidential vulnerability is the hallmark of factual beliefs, but religious beliefs are not prone to involuntary extinction in this manner. In fact, while it is true that religious beliefs tend to resist disconfirmation, this fact does not mark them as special. Strong evidence is often insufficient to shake our confidence in quite ordinary beliefs.

Consider the enormous literature on motivated cognition. Some examples, almost at random. Participants in one experiment were given mock news stories which contained false information (for example, that WMDs had been found in Iraq). Some participants also received information authoritatively correcting the error. The experimenters found that participants who were motivated to believe the false claim accepted it *more* strongly following authoritative correction (Nyhan & Reifler 2010). In a similar vein, Kunda (1987) found that subjects who read (fabricated) information about the link between heavy coffee consumption and increased risk of breast cancer disbelieved the information, but only if they were female and heavy coffee drinkers. The motivation to accept or reject a claim may override the power of evidence. These factual beliefs (*that WMDs were found in Iraq; that heavy coffee consumption does not raise the risk for breast cancer*), were immunized against evidence. It is motivation to accept a claim that predicts immunity from disconfirmation, not content, and we are often motivated to accept

mundane beliefs. While the mirror image of this kind of case, in which a religious credence is vulnerable to evidence, may be rare, such cases occur, especially when the religious beliefs rejected are not central to the person's identity.

Van Leeuwen doesn't deny that mundane beliefs may be resistant to evidence, nor need he deny that religious beliefs may be extinguished by evidence. He may limit himself to claiming that attitudes with religious contents are significantly more likely to resist disconfirmation; perhaps because these attitudes are much more likely to be identity-constituting. But while identity-constituting attitudes are likely to be especially resistant to disconfirmation, beliefs in which we are less invested sometimes also resist disconfirmation. Consider the confirmation bias (Nickerson 1998); our disposition to consider evidence that confirms a hypothesis and overlook evidence against it. While it may be true that the confirmation bias arises only when we are motivated to accept a hypothesis (Sharot and Garrett 2016), the triviality of the manipulations that trigger it indicates that the motivation need only be vanishingly small and that it can be easily induced.

In my view, evidential vulnerability is indeed central to the properties that distinguish beliefs from other states (along with aptness for inference; Stich 1978; Levy 2015). Unlike, say, imaginings, beliefs are states that agents abandon or modify in the face of inconsistent evidence. That does not entail that representational states that resist disconfirmation are not beliefs, however. Beliefs do not face the tribunal of evidence alone, but *en masse*. Resistance to disconfirmation leads to (often, confabulatory) changes in the agent's web of belief. That's exactly what we see in the cases of motivated reasoning discussed above. Motivated resistance to disconfirmation leads to agents seeing or inventing flaws in the apparently disconfirming evidence, for example. That's true whether the belief they are motivated to retain is mundane or religious.<sup>5</sup>

<sup>5</sup> A referee for this journal suggests that Van Leeuwen believes that together practical setting dependence, evidential vulnerability and cognitive governance provide a general framework for cognitive attitudes. While I agree that these are three interesting dimensions along which attitudes differ, I doubt that we can define attitude types by reference to these dimensions alone. I have already noted that aptness for inference needs to be added to the set of properties. In addition, I suspect that the property of being subject to intentional activation or inhibition will need to be added to any framework fit for picking out attitude type.

Evidential vulnerability doesn't distinguish mundane beliefs from religious beliefs, any more than does cognitive governance or practical setting dependence. It might be objected, however, that in my discussion of all three properties, the examples I have cited of (allegedly) factual beliefs that are unstable across contexts have different kinds of contents to genuinely mundane beliefs. The kinds of beliefs I have cited might be thought to be partially evaluative, rather than simply beliefs about matters of fact. For instance, attitudes toward the policies of political parties, or preferences about tuition rises are partially evaluative. Perhaps *these* kinds of partly evaluative beliefs are sensitive to context, but genuinely mundane beliefs are not.<sup>6</sup>

But not all the beliefs that shift in response to context are even partially evaluative. Some, for instance, concern scientific claims (like the theory of evolution); these theories may govern inference only in very narrow contexts. Some concern the probability of certain events or actions, such as the likelihood that I will buy something or that a certain die roll will occur. Moreover, even when beliefs are partially evaluative, the manipulation produces associated changes in non-evaluative judgment. For instance, shifting judgments about moral or political issues through cognitive dissonance induction results in the confabulation of supporting factual beliefs (e.g. that the policy would have better economic consequences). Moreover, contrary to Van Leeuwen's predictions, some beliefs with a religious or supernatural content are stable across contexts. Creationism and essentialism remain intuitive, even for people with a deep understanding of evolution, for instance. Again, fluency, and not belief content, predicts the extent to which beliefs are stable across contexts.

### 3. Fluency is context-sensitive.

I have argued that mundane beliefs will shift (just like religious representations) as a function of how much fluency or disfluency is experienced when processing them, or information that entails them, because processing fluency is a significant determinant of the degree to which a claim is intuitive. I have suggested that fluency is itself context-sensitive; it is this context-sensitivity of fluency that entails the context sensitivity of beliefs. In this final section before concluding, I will describe the properties which together determine the extent to which a representation is processed fluently. Insight into the properties which determine fluency will

<sup>6</sup> I owe this objection to Neil Van Leeuwen.

enable us to grasp just how easily fluency can be manipulated, inadvertently or intentionally, and therefore the extent to which intuitiveness is context-sensitive.

Fluency depends on a variety of properties (Schwartz, Newman & Leach in press). The fluency of a representation is influenced by its (1) social consensuality; that is, how widely is it accepted by those around the agent; (2) evidential support; (3) compatibility with beliefs already accepted; (4) narrative coherence and (5) source credibility. For instance, claims that are inconsistent with others that I already accept generate disfluency (hence the experience of cognitive dissonance). All these properties are subject to contextual variation, because we use cues for them that may fail to track the properties in some contexts.<sup>7</sup>

Consider social consensuality. It may be rational to take the extent to which others accept a claim as a heuristic for its truth. There is some social selection against untruths, and good evidence that collective deliberation outperforms individual in a wide variety of circumstances (e.g. Mercier et al. 2015). However, we are unable directly to measure the extent to which a claim is widely endorsed. We therefore use proxies for social consensuality, proxies which sometimes diverge from the extent to which beliefs are accepted. For instance, we take familiarity as a cue for social consensuality, but claims may become familiar for reasons other than the fact that they are widely accepted. Repetition of a claim increases the ‘illusion of truth’ (Begg, Anas & Farinacci 1992), but repetition may not indicate wide acceptance. Weaver et al. (2007) showed that a single person making a claim repeatedly increased acceptance almost as much as the same number of repetitions by different people. In fact, when repetition of a claim is explicitly in the service of debunking it, acceptance may nevertheless increase despite the provision of evidence against it (Schwarz et al. 2007).

<sup>7</sup> The relationship between fluency and acceptance is mediated by people’s naïve theories about what fluency indicates. These theories may on occasion be idiosyncratic; in any case, they can themselves be manipulated. For instance, telling experimental participants that effortfulness of thought is an indicator of its complexity, and therefore of the intelligence of the person who experiences it, may temporarily reverse the disposition to take the experience of effortfulness as a cue to the falsity of a claim (Briñol, Petty & Tormala 2006). People may also discount fluency when there is a salient source which they take to be irrelevant. For instance, people underestimate the prevalence of the surnames ‘Bush’ and ‘Clinton’ in the general population, presumably because they attribute ease of retrieval to the familiarity of the famous families, rather than the actual distribution of the name (Oppenheimer 2004). In the absence of salient competing sources of fluency, however, and when naïve theories are not manipulated, our default disposition is to take fluency as an indicator of familiarity and therefore reliability.

In addition to being influenced by cues, fluency may be directly experienced in accessing information. In fact, ease of retrieval has repeatedly been found to trump the amount of evidence available in support of a claim. For instance, Schwarz et al. (1991) asked participants to recall either 6 or 12 occasions on which they had acted assertively. Participants who recalled 12 occasions of assertive behavior rated themselves as less assertive than those who recalled 6 occasions, presumably because the difficulty of recalling 12 occasions trumped the amount of evidence recalled. Retrieval ease is, however, easily primed, and is likely to play a large role in belief shifts across contexts. Conceptual and semantic priming is often used to increase fluency (see Alter & Oppenheimer 2009 for review). These manipulations are not extraordinary. They are the deliberate and controlled induction of processes that are feature of everyday life. Environments prime representations; linguistic cues prime representations; clothes prime representations. Whether the priming is sufficient to shift beliefs will depend on the strength of the competing forces. Some representations are so easily accessed that shifts in context may fail to shake them. Some mundane representations are reinforced so often that they are almost always retrieved fluently. But some mundane representations are novel. Mundane representations may exercise broad cognitive governance because they are so often reinforced or otherwise intuitive, but so may some supernatural representations (dualism, creationism, species essentialism).

There may be additional reasons why religious beliefs are subject to contextual shifting. As Van Leeuwen recognizes, analytic thinking is negatively correlated with religious belief. He takes this evidence to support his claim that religious beliefs are different kinds of attitudes to mundane beliefs: He suggests that analysis and evidence just don't matter much for those inclined to religiosity with regard to certain of their attitudes. Like Boudry & Coyne (2016), I do not find this convincing: If religiosity is negatively correlated with a disposition to be troubled by conflict, the most plausible explanation for this correlation is that religious beliefs *do* conflict with mundane beliefs. If they were different kinds of attitude, operative only in limited contexts, no such conflict should occur and the correlation would be mysterious. Further, a disposition to analytic thinking is a global trait of individuals, not one that is confined to one context. It is a disposition to fail to notice or be troubled by conflict; one that predicts resistance to disconfirmation for mundane beliefs too.

Whatever the explanation of the negative correlation between analytic thinking and religious belief, analytic thinking itself is correlated with being WEIRD (Western, educated,



industrialized, rich and democratic). WEIRD people are cognitive outliers, using laws of noncontradiction much more systematically than other people (Henrich, Heine and Norenzayan (2010). The same correlation holds *within* societies: liberals in Western societies are more analytic than conservatives, and – not coincidentally – more inclined to atheism (Talhelm et al. 2014). These differences stem not from any lack of analytic capacity on behalf of non-WEIRD people, but from a greater tolerance for contradictions and a lack of cultural pressure to detect and resolve them.

In fact, it may be that the disposition to analytic thinking is the product of formal education, of a particular sort, which leads us to internalize a set of rules for cognition; ‘mindware’ which enables better performance on logical reasoning tasks (Stanovich 2009). It is therefore unsurprising that a non-Western population (the Vezo) with little formal education, and the Spanish children studied by Harris & Giménez (2005) are relatively at ease with cross-situational inconsistency or less likely to notice it at all. We ought to expect a heightened capacity to detect and be troubled by (that is, to experience as disfluent) contradiction as the children age and internalize mindware.<sup>8</sup> We should not generalize from the Vezo or the child sample to the religious beliefs of those more sensitive to and troubled by inconsistencies. Nor should we expect the failure to detect or be troubled by inconsistency to be limited to representations with any specific sort of content.

#### 4. Conclusion

Some beliefs exhibit much more context sensitivity than others. People may manifest the dispositions that license attribution of a belief like ‘God is watching’ only on Sunday mornings, for instance. But the phenomenon is neither distinctive of, nor limited to, beliefs with religious contents. It is not the content of attitudes that predicts their stability across contexts. Rather, it is facts about how intuitive they are, and these facts are heavily dependent on how fluently they are processed. Processing fluency is sensitive to context, because context affects whether representations are retrieved, how easily they are retrieved and how fluently they are processed. We ought to expect contextual shifts to be quite common, and to fail to correlate with content.

<sup>8</sup> Recall that the religious representations of older children in both the Spanish and Vezo sample, and those of Vezo adults, were less sensitive to context than those of younger children. This may reflect the development of capacities for analytic thinking.

Even those representations that are highly intuitive will only trump others when they are salient, and salience is itself contextually sensitive.

Evidence for contextual shifting of religious beliefs may seem to indicate that these beliefs are special, because we expect our beliefs to be stable. But beliefs are much less stable than we naively think, especially for those of us who are not disposed to detect or to be troubled by inconsistency. Outside of those beliefs that are so familiar that they are at ceiling with regard to fluency, shifting may be the norm, not the exception.<sup>9</sup>

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