Religious Credence is not Factual Belief

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Abstract: I argue that psychology and epistemology should posit distinct cognitive attitudes of religious credence and factual belief, which have different etiologies and different cognitive and behavioral effects. I support this claim by presenting a range of empirical evidence that religious cognitive attitudes tend to lack properties characteristic of factual belief, just as attitudes like hypothesis, fictional imagining, and assumption for the sake of argument generally lack such properties. Furthermore, religious credences have distinctive properties of their own. To summarize: factual beliefs (i) are practical setting independent, (ii) cognitively govern other attitudes, and (iii) are evidentially vulnerable. By way of contrast, religious credences (a) have perceived normative orientation, (b) are susceptible to free elaboration, and (c) are vulnerable to special authority. This theory provides a framework for future research in the epistemology and psychology of religious credence.

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Religious Credence is not Factual Belief

Many philosophers and cognitive scientists have a habit of using the word "belief" as though it refers to one simple sort of cognitive attitude. And when we talk about differences in "beliefs," we tend to focus on differences in *contents*, without considering the possibility that we are lumping distinct *attitudes* under this one word. But, I will argue, if we examine the matter carefully, we will soon find empirical reasons to think this habit is a source of confusion. Just as the word "jade" refers to two different substances[1] from the standpoint of modern chemistry, "belief," we will see, refers to at least two different kinds of attitude from the standpoint of a well-developed, empirically informed theory of cognitive attitudes.[2]

Three interesting phenomena, broadly religious, help motivate this view.

Consider, first, Astuti's and Harris' (2008: 734) description of the results of their experiments with the Vezo tribe in Madagascar, which focused on how the Vezo represent physical and psychological properties of the deceased:

> Vezo do not believe in the existence and power of the ancestors in the abstract, but they believe in them when their attention is on tombs that have to be built, on dreams that have to be interpreted, and on illnesses that have to be explained and resolved. In other contexts, death is represented as total annihilation, and in these contexts it would be misleading to insist that Vezo believe in the existence of ancestral spirits.

If they are right, then being in the ritual-religious setting toggles the Vezo mind toward using a special class of "beliefs," a class that largely does not guide behavior outside the ritual-religious setting. If this is so, then different classes of "belief" representations have different functional properties.

Sauvayre (2011), second, describes stages individuals go through in exiting a cult. She finds in 71% of cases that a *conflict of values* triggers what she calls the last stage of doubt, which results in an individual's finally exiting the cult. A cult member, for example, may conclude that the "guru" behaved immorally. *This* realization, more than cognition of empirical evidence, leads to departure from the cult and to a shedding of its "beliefs." But humans are also capable of giving up at least some "beliefs" in response to evidence. If I believe (so to speak) the water cooler is full and then *see* it has no water in it, I give up this "belief." This contrast suggests that some "beliefs" respond to perceptual evidence, while others respond to a special kind of perceived leader, a leader whose prestige biases their

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[1] Jadeite: $NaAlSi_2O_6$. Nephrite: $Ca_2(Mg, Fe)_5Si_8O_{22}(OH)_2$.

[2] Cognitive attitudes, like factual beliefs and hypotheses, represent *how situations are or might be*. They contrast with conative attitudes, like desires and hopes, that represent *how situations are to be made*—how the agent would like things to be (Shah and Velleman 2005).

transmission (Henrich 2009), such that loss of this special prestige in the eyes of the adherent can result in loss of corresponding "belief."

Third, Boyer (2001) gives examples that suggest people elaborate inventively on religious "beliefs" they hold. He mentions how the details of Greek *exotiká* (demons or devil incarnations) change over time (82); how local Indian practitioners of Hinduism invent deities not described in official Hindu texts (282-3); and how Kwaio religious specialists make things up on the fly about the ancestors they revere, "improvising all sorts of new details about these agents" (302). Examples can be multiplied. With other "beliefs," however, people are far less inventive. I believe, in a mundane way, there are almonds in my cupboard and not cashews; nor do I invent "beliefs" that the almonds are roasted or that there are cashews, though I may *imagine* such things. So some "beliefs" generate other "beliefs" *of their kind* by creative processes; others do not.

These phenomena, to which I shall return, deserve to be captured by a thesis that can guide further psychological and epistemic inquiry. I hold:

> **Religious Credence Thesis**: psychology and epistemology should posit distinct cognitive attitudes of *religious credence* and *factual belief*, which have different characteristic etiologies (how they're formed and revised) and different forward effects (downstream consequences).[3]

My aim is twofold. First, I review further evidence that supports this thesis. This aim is achieved in preliminary fashion, since more evidence is relevant than I can document here. The thesis, in conjunction with the theory that elaborates on it, is meant to guide further research. Second, accordingly, I present a theory that makes precise the differences between the two attitudes I posit. This theory locates religious credence and factual belief in relation to other cognitive attitudes, like *fictional imagining*, *hypothesis*, *acceptance in a context*, and *assumption for the sake of argument*. I argue that religious credence has key features in common with these latter attitudes that that distinguish them from factual belief.

In section 1, I clarify my methodological framework and explain how my claims should be understood. In section 2, I present and motivate my theory of factual beliefs; factual belief is an attitude we typically take toward contents so mundane as to be not worth mentioning, like *dogs have noses*, *silver is a metal*, or *the faucet spouts water*. In section 3, I present empirical evidence that strongly suggests many religious cognitive attitudes lack the defining characteristics of factual beliefs. If this is right, we should define a

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[3] Having different characteristic etiologies and forward effects does not imply no *overlap* in terms of forward effect and etiology. There is much overlap. But there are also very important differences.

different notion to capture distinctive features of those religious attitudes; I do this in section 4, where I characterize religious credence in conjunction with motivating psychological, anthropological, and historical data. I conclude, in section 5, with two normative principles, Balance and Immunity, designed to help us think about which cognitive attitudes belong to a well-functioning human cognitive system and by outlining the epistemological and psychological research programs my theory suggests.

Here's a snapshot of my theory. Factual beliefs have three characteristics beyond their Davidsonian/decision-theoretic role in generating action (Davidson 1963). They (i) are practical setting independent, (ii) cognitively govern other attitudes, and (iii) are evidentially vulnerable. (i) means factual beliefs are used in practical reasoning and action choice across practical settings; (ii) means they are the basis for drawing inferences among other cognitive attitudes; and (iii) means they tend to be extinguished by evidence contrary to them. Religious credences generally lack (i) - (iii). By way of contrast, religious credences (a) have perceived normative orientation, (b) are susceptible to free elaboration, and (c) are vulnerable to special authority. Factual beliefs do not characteristically have properties (a) - (c).[4]

"Jade," as mentioned, is analogous to "belief." Historically and pre-theoretically, its class of referents appeared unified. The relevant data, viewed with the right theoretical apparatus, revealed otherwise. "Star" is also analogous. Both Venus and the North Star are "stars" in everyday speech. Ordinary language delivers one appellation for two distinct but *apparently* similar phenomena, a satellite of the sun and a burning ball of gas much farther away. These examples reveal a *desideratum* on scientific theories: scientific theories recognize distinct phenomena, despite conflations of pre-theoretic speech. The theory and vocabulary that follow aim to satisfy this *desideratum* within cognitive science of religion.

Section 1: Clarifications and Methodological Assumptions

Sperber (1996: 16) expresses the need for more clarity about *belief*. He lists a number of notions anthropologists have used and discussed, ranging from 'taboo' to 'totemism' and including 'belief,' and observes the following:

> The vagueness or arbitrariness of these terms has been repeatedly pointed out. Yet, in spite of this critical work, there are no signs that anthropologists are converging on a set of progressively better defined, better motivated notions. . . . so, if we want proper theoretical terms in anthropology, we should construct altogether new ones.

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[4] As I emphasize later, mixed attitudes exist as well. For example, I discuss intuitive beliefs at the end of section 2 and extremist credences in the Conclusion.

The present project is in line with this suggestion. My idea is to sharpen the notion of belief into two kinds and offer theoretical tools for thinking about these and related kinds.

Let's start with the attitude/content distinction. Consider four mental states, all cognitive attitudes:

(i) Bob *believes* coffee is acidic.
(ii) Jennifer *hypothesizes* coffee is acidic.
(iii) Greg *hypothesizes* coffee is alkaline.
(iv) Sam *believes* coffee is alkaline.[5]

The mental states described in (i) and (ii) have the same contents, but the agents relate to them in different ways. They *do* different things with those contents. Conversely, (i) and (iv) describe the same attitude to different contents, as do (ii) and (iii). The *contents* of a representational state thus do not fully characterize it, since attitude and content vary independently. "Content" refers to meaning or semantic value, while "attitude" refers to the *general functional role* an agent's mind assigns to a representational state.

We can locate the attitude/content distinction within Fodor's (1985) broader framework. Fodor characterizes propositional attitudes, like beliefs and desires, by way of four elements: organism, relation, representation, proposition. The organism is the creature in question—a person in our cases. The representation is the particular structure in the organism's mind that has the proposition as its meaning.[6] Finally, "relation" in Fodor's framework refers to the general functional role the representation plays in the organism's mind, which gives us the *type of attitude* (*imagining*, *desiring*, *hoping*, *fearing*, etc.) she has to the propositional content *by way of* her representation.

Cognitive science has given the representation and content components of mental states much theoretical attention, with philosophers tending to focus on content (with notable exceptions[7]) and cognitive psychologists, cognitive neuroscientists, and cognitive anthropologists focusing more on representational formats (e.g., Kosslyn *et al.* 2006). Sperber's (2000) theory of metarepresentation, for example, describes the structure of many culturally significant mental representations. But—this is the key point—*neither* a theory of representational format *nor* a theory of content can explain the *attitude component* of mental states. So there is a notable gap. That's where my theory will be useful.

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[5] Coffee is in fact acidic.
[6] Representations have different formats too, and representational format is in some respects independent of content. A person who grew up counting in hexadecimal would think the content *twice ten is twenty* by way of a different internal representation from the one you or I would use.
[7] E.g.: Fodor (1975), Tye (1991), and Camp (2007).

Consider two more "beliefs," the first in the mind of Jennifer, a woman who didn't read the news in April of 2013, and the second in the mind of Sam, a devout Christian.

(v) Jennifer *believes#* Margaret Thatcher is alive.
(vi) Sam *believes** Jesus Christ is alive.

My theoretical hypothesis is that *believes#* and *believes** express different attitudes. Jennifer remembers famous leaders and, in a matter of fact way, takes some to be alive and others not. But Sam regards the contents he "believes" with reverence; he regards them in a way—to be characterized—that makes his attitude part of his identity. Thus, we should draw a distinction and stick to our new vocabulary: "factual belief" for the attitude type in (v) and "religious credence" for the attitude type in (vi).

To characterize these notions, my theory appeals to properties that define cognitive attitudes *generally*, including such attitudes as hypothesis, fictional imagining, assumption for the sake of argument, and acceptance in a context (Bratman 1992). Religious credence, on my view, lies closer along several dimensions within this property space to attitudes like fictional imagining than it does to factual belief.

We should not see the distinction too rigidly, however. The properties I appeal to define a space with several dimensions, within which some properties vary independently. Thus, to borrow language from McCauley and Lawson (2002) and Sperber (1996), factual belief and religious credence specify *attractor positions*. McCauley and Lawson use that notion to think about what rituals (out of the space of possible rituals) actually occur and why; I will use the notion to help think about clusters within the space of possible cognitive attitudes. The functional properties that define religious credences and distinguish them from factual beliefs *tend* to co-occur for reasons I emphasize, though there may be related but distinct clusters as well. That is a substantive empirical view. Still, humans form and maintain cognitive attitudes flexibly, so some straggler attitudes will fall outside the various clusters around the attractor positions.[8] In such cases, the present theory helps describe the nature of the outliers more precisely and can be used to formulate hypotheses about their causes and effects.

We can now understand three preliminary but essential clarifications.

First, my thesis does not entail Gould's (1997) position of "non-overlapping magisteria" (NOMA). Gould suggests that the contents of scientific theories and of religious

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[8] And there will be other attractor positions still, as I suggest at the end of section 2.

teachings do not even in principle contradict.[9] I think that view is false, since most religions make descriptive claims about the world and such claims are often not just incidental to their worldviews. *Contra* Gould, religious teachings are not *merely* moral. But whether or not NOMA is false, my thesis is orthogonal to it. *My* point is that the *attitude* religious "believers" have is a distinct sort, which is consistent with the possibility that the contents of the distinct attitudes conflict. Furthermore, my view gives resources to explain why Gould's view is tempting, even if it is mistaken: Gould may have sensed that the respective attitudes are different, but not having grasped the relevant psychological distinctions, he tried to explain the difference he sensed by saying that the "magisteria" ("domains") do not overlap. My view explains Gould's intuition, without committing his error (if it is that).

Second—relatedly—some psychological states that might have been *called* "factual beliefs" pre-theoretically will not count as *factual beliefs* (a term of art) in my theory. Likewise, some states that might have been called "religious beliefs" pre-theoretically won't count as *religious credences*. For example, does a "belief" *that Mao's policies did not cause famine* count as factual belief? We don't know without more information. A mistaken history student in Cleveland may factually believe this, if he misread the history text and has the attitude of factual belief toward those contents. But an ideological Maoist may have a religious credence toward the same content. One cannot decide whether an attitude is a factual belief or religious credence just by looking at the contents. In fact, many ideological distortions, I suspect, involve religious credences toward what might be thought of as contents that concern facts (e.g., *global warming does not exist*, etc.).[10]

Third, it is not part of my theory that all factual beliefs are true, nor is it part of my theory that all religious credences are false. Truth and falsity are determined by the relations between contents (not attitude types) and the world, and my theory is about attitudes, not contents.

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[9] One might defend Gould's views by saying that NOMA is a *normative* ideal. But I do not think it works as a normative ideal either, since if it were attempted rigorously, it would change many religions beyond recognition.

[10] One might think that any endeavor deserving the name "religion" should include allegiance to a supernatural divinity, which I don't require. But others also do not require this of "religion." Kalmont-Taminski (2013), for example, rejects this requirement, as do Bellah (2011) and Dworkin (2013). This is somewhat terminological, but from a psychological perspective, exclusion of religious credences (grant me that term for now) that don't appeal to supernatural divinities from the domain of "religion" would force us to miss very important points of psychological commonality between religions with and without divinities. For me, what separates religious credence from non-religious ideology is vulnerability to special authorities (see section 4); this requirement excludes much ideology that would not pre-theoretically count as "religious," like some forms of nationalism.

Now let's turn to the defining properties of *factual beliefs*, along with empirical and theoretical reasons for thinking mental states that have these properties do exist.

Section 2: Factual Belief

We can start theory construction with a puzzle: what makes believing that *p* (in the most mundane, ordinary sense of belief) different from *imagining* that *p* as fiction? What, for example, makes believing you're a famous actor different from merely imagining it? The puzzle can be generalized: what makes belief different from hypothesis, etc.? We might here hope for an answer from Davidson (1963), who gives us the standard characterization of belief: beliefs are mental states that (other things equal) cause actions that satisfy desires, if the beliefs are true. On this view, a belief *that a coffee shop is two blocks up* is a mental state that causes walking two blocks, when I want coffee.

But Davidson's view does not solve our puzzle. Velleman (2000) argues that other cognitive attitudes besides belief also cause actions that, if they were true, would satisfy desires. When mommy is away, Benny may *imagine* teddy is mommy, and desiring to hug mommy, Benny hugs teddy. Imagining seems to substitute for belief in its Davidsonian role, at least in some circumstances. So we need a more articulate framework than Davidson gives. Developing one is the aim of this section.

Here I organize pertinent empirical research into a framework that gives a principled solution to the puzzle at hand. That framework has three dimensions: *practical setting* (the range of settings in which a cognitive attitude guides behavior), *forward cognitive effect* (the downstream cognitive consequences of an attitude), and *etiology* (the characteristic constraints on how a cognitive attitude is formed and revised). This framework allows us to define *factual belief* and ultimately distinguish it from what I call *secondary cognitive attitudes* (fictional imagining, hypothesis, etc.).

Factual Belief is Practical Setting Independent

Golomb's and Kuersten's (1996) fascinating study suggests key insights for distinguishing imagining from factual belief. Adult experimenters pretended to be on a picnic with child subjects and took an *actual* bite out of a piece of Playdough they were pretending was a cookie. If children confuse reality and pretense, as many think, the bite would have been no surprise, since the subjects would have taken the adult to have bitten *a cookie*. But the children were surprised—even disconcerted—which shows they were

tracking the piece of Playdough *as* Playdough all along, *even in the context of make-believe*. Call this *continual reality tracking*.

A tempting view is that humans act on imaginings during make-believe and on factual beliefs during plain action, with each attitude type not guiding behavior in the other's practical setting. But Golomb and Kuersten show this is not quite right. We act on imaginings, it's true, in make-believe play (for entrance conditions into that setting for children, see Lillard *et al.* 2004), but factual beliefs operate during make-believe too. (i) They track real features of the environment such that we can execute pretend movements within it [to use Playdough as a cookie, one needs factual beliefs about what Playdough is like]. (ii) They track features of the environment that determine *whether* one is in the make-believe setting [the factual belief that a real bite was taken initiates exit from the setting of make-believe].

These two points about the relation between factual belief and imagining don't just apply to children's make-believe. Harris's (2000: xi) observations on ancient of cave painting and ritualized burials (adult imaginative activities) support and extend them.

> In short, cave art and ritualised burial provide clear examples . . . the artefacts and props were collectively produced and understood; they served to conjure up an imagined world distinct from the physical context in which they were manufactured or displayed. Yet, in each case that physical context *needed to be acknowledged* and re-worked if the artefacts were to serve their function. [my italics]

Factual belief is the attitude that does the acknowledging of which Harris writes.

Practical setting is the dimension of a cognitive attitude that specifies the sorts of situation in which it guides behavior, and one value on this dimension can be *setting independent*.[11] Factual beliefs are *practical setting independent*. Humans adjust to the practical setting they are in almost reflexively, using various cognitive attitudes accordingly, but factual beliefs operate in the background across practical settings. Imagining the furniture before me is a spaceship, I continue to factually believe it is a sofa of such-and-such dimensions and cushiness. Fictional imaginings are thus distinct from factual belief in being *practical setting dependent*, and the specific setting in which they guide action is make-believe play. This doesn't mean one never *has* fictional imaginings outside of make believe play (consider daydreams); rather, it means that *action* on the basis of imagining is dependent on one's taking oneself to be in the setting of make-believe play. As Harris (2000:

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[11] The notion of practical setting is akin to Goffman's (1971) notion of *frame.*

11) puts it, "a make-believe stipulation is temporary—to be retained only for the duration of the pretend episode in question."

Let's define *practical setting independence* on two levels: individual cognitive attitudes and classes of attitudes.

(1) A cognitive attitude *x* is practical setting independent if and only if *x* guides behavior in all practical settings in which *x*'s content is relevant to the agent's behaviors.

(2) A class of cognitive attitudes *X* is practical setting independent if and only if *X* is employed in guiding action in all practical settings.

Factual beliefs individually and as a class satisfy (1) and (2). Secondary cognitive attitudes, like fictional imaginings, do not.

One might object that *any* cognitive attitude depends on practical setting, since features of context always determine what representations one uses, even beliefs. But this objection misinterprets the notion of practical setting independence. (1) does *not* say that any setting independent attitude guides action in any situation whatsoever. Rather, (1) says such an attitude guides behavior in any situation *in which its content is relevant.*

This point bears rehearsing. My factual beliefs about Napoleon (*that he was French*, *that he led armies*, etc.) do not usually influence how I order pizza, since they are not relevant to that action. But they are available for use in that setting should they become relevant (*modulo* performance errors like forgetting); they would guide my speech, for example, if I learned of a pizza discount for knowing Napoleon trivia. Furthermore, my factual beliefs about Napoleon guide action in the setting of make-believe also, as long as the French emperor is relevant to the pretense. But imaginings are different. Imagining *I am Napoleon* would *not* guide action outside pretend play, *even if* that content were relevant. I do not tell the pizza shop I am Napoleon as a way of answering trivia questions, even if I imagine being Napoleon. In short, imaginings turn off outside their characteristic practical setting, even when their content is relevant, while factual beliefs cut across practical settings and guide action whenever their contents are relevant.

So practical setting dependence distinguishes fictional imagining from factual belief. Does this approach generalize to *other* secondary cognitive attitudes? It does. An assumption for the sake of argument, for example, guides your verbal behavior in the setting of that argument, not outside it. A person who assumes for the sake of argument that coffee is carcinogenic speaks like a person who believes this, but *only* in the setting of that argument; outside it, they behave differently. Similarly, hypothesis guides action in the setting of inquiry but may cease to guide outside it. In this respect, walking out of the lab

can do to hypotheses what walking off the stage does to fictional imaginings: it makes them no longer operative in guiding action. This approach is also in line with Bratman's (1992) distinction between belief and acceptance in a context.

> An agent's beliefs provide the *default cognitive background* for further deliberation and planning. . . . Most importantly, this cognitive background is, in the sense explained, context independent. But practical reasoning admits adjustments to this default cognitive background, adjustments in what one takes for granted in the specific practical context. . . . To be accepted in a context is to be taken as given in the adjusted cognitive background for that context. (10-11, Bratman's italics)

The theory here generalizes Bratman's approach. Acceptance in a context is not the only "adjusted cognitive background." Rather, each secondary cognitive attitude constitutes an adjusted cognitive background, used in a given practical setting. Factual belief guides action and enables continual reality tracking across practical settings.[12]

Factual Beliefs Have Cognitive Governance

Imagine Michelangelo's David falling off a boat into the ocean. What do you imagine next? Most likely, you imagine the statue sinking. But why? Your initial imagining does not by logic alone entail the statue should sink. What guided your imaginative inference? I propose factual beliefs are the default background that supplies missing information for inferences among imaginings. The picture is roughly this:

> INITIAL IMAGINING: *Michelangelo's David falls off a boat into the water*.
> FACTUAL BELIEF: *Michelangelo's David is marble. Marble sinks in water.*
> INFERRED IMAGINING: *Michelangelo's David is sinking in the water*.

We are looking for *forward cognitive effects* that distinguish one cognitive attitude from the other. I claim that being the informational background that allows inferences among *other* attitudes is characteristic of factual beliefs, but not of other attitudes.[13] To see the contrast, consider the following absurd inferential scenario. You already factually believe David is marble and marble sinks. Now someone gets you to imagine the David falling off a boat into the ocean. Would all that get you to *factually believe* that Michelangelo's David is sinking in the ocean? That inference would look like this:

> INITIAL FACTUAL BELIEFS: *Michelangelo's David is marble. Marble sinks in water.*
> IMAGINING: *Michelangelo's David falls off a boat into the water*.
> *FACTUAL BELIEF: *Michelangelo's David is sinking in the water*.

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[12] I also argue for using practical setting independence to characterize belief in my 2009.
[13] Nichols and Stich (2003) present much the same picture. As Nichols and Stich (ch. 2) point out, beliefs that specifically contradict the imaginary premise are excluded from the background of inference for a specific episode of imagining, but that doesn't undermine the overall picture of beliefs' being the background for inferential elaboration generally.

"*" marks the absurd state you do not acquire. You go on to *imagine* David is sinking but not factually believe it. (If you did acquire that factual belief, you would probably call the Italian Coast Guard.) Thus, imaginings do not do inferentially for factual beliefs what factual beliefs do for imaginings: imaginings do not supply the informational background for inferences from earlier factual beliefs to later ones; otherwise, you would have believed the absurdity. (This, of course, is not to deny imaginings have any causal impact on factual beliefs at all; rather, that impact does not take the form I identify here.) This all suggests there is an anti-symmetric relation between factual belief and imagining, which I call *cognitive governance*.

Cognitive governance should be defined over classes of cognitive attitudes.

(3) Class *X* of cognitive attitudes 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*.

My theoretical claim is that the class of factual beliefs satisfies *X* when imaginings are assigned to *Y*, but not *vice versa*. (It is also trivially true that each kind of cognitive attitude inferentially governs itself. Factual beliefs govern factual beliefs; imaginings govern imaginings; hypotheses govern hypotheses, etc. But factual belief is distinctive in having governance over the attitudes *generally*. Note also that not all inferences here are performed *consciously*; often one goes on to the next imagining without even realizing that background factual beliefs are supporting the inference.)

The examples so far may make this theoretical claim intuitive. Empirical studies give further motivation; I rehearse three, though more could be added.[14]

First, Harris and Kavanaugh (1993, experiment 5) describe how they had a stuffed Teddy 'pour' out milk; they then asked children who saw this to dry the 'wet' part of the floor. Reliably, children sponged the portion of the floor directly below where the milk had been 'poured,' even though this location was in no way indicated by the experimenter. This shows they used their background knowledge (factual beliefs, on my theory) of how liquid falls to infer the imagined location of the spill. Harris (2000: 14) writes, "they had to imagine, *guided by familiar causal principles*, the make-believe puddle that was brought about by Teddy's actions, and set about wiping it up" (my italics).

Second, Weisberg and Goodstein (2009) studied how people fill in missing information from stories. They asked subjects what would be true in the story they read. Weisberg and Goodstein found that mathematical, scientific, conventional (about social

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[14] Lewis (1983, ch. 15); Walton (1990); Harris (2000, ch. 2); Currie and Ravenscroft (2002); Van Leeuwen (2013).

norms), and contingent facts are generally taken to be true in stories, though how "near" a fictional world is to reality modulates which facts are imported. Thus, in any case, there is a class of representations that is privileged in terms of filling in missing information in stories. On my theory, this is the class of factual beliefs and the filling in happens *via* cognitive governance.

Third, Weisberg *et al.* (2013) show that children prefer realistic story continuations. Children saw an incomplete series of story images and heard a correspondingly incomplete story; then they chose among pictures to continue the storyline. Children by a large margin chose realistic continuations and did so even when the story had been fantastical up to the choice point. Adults, in an analogous study, tended to choose realistic continuations for stories that started realistically, but fantastical continuations for stories that started with fantasy. In any case, both adults and children appear to have a reservoir of information that by default supplies missing information for the stories.[15]

These findings support the view that factual beliefs cognitively govern imaginings. Importantly, the reverse is not true. The earlier-cited Golomb and Kuersten (1996) experiment with the Playdough cookies supports this latter point, since if imaginings also governed factual beliefs, the children would have come to factually believe the Playdough was a cookie, contrary to what happens. Furthermore, there are principled theoretical reasons for thinking the governance goes one way (*modulo* performance errors): if it went equally in both directions, the contents of the classes of attitudes would simply collapse into one another and people would lose all grip on reality whenever encountering fiction, contrary to what happens. In sum, anti-symmetric cognitive governance—governance that goes one way but not the other—is a basis for functionally distinguishing the attitudes of factual belief and fictional imagining.[16]

Does this approach generalize to the relation between factual belief and still *other* attitudes, like hypothesis and acceptance in a context? Reflection suggests it does, but I know of no empirical research on the matter. Let's rehearse the case of hypothesis. If I hypothesize that a certain chemical reaction produces acetylene and factually believe acetylene is flammable, then I will form a sub-hypothesis that the chemical reaction

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[15] For some kinds of story, like fantasy or science fiction, there are also what I call *genre truths* that play this role. This wrinkle is immaterial to the present argument. Factual beliefs, in any case, supply the most basic level of default information for purposes of cognitive governance.

[16] Gendler (2003) points out there is some permeability to the boundary between beliefs and imaginings. She calls this *contagion*. But permeability doesn't not entail there is no boundary; if there were none, the attitudes would collapse into one another.

produces something flammable, which gives me purchase on testing the initial hypothesis. But factually believing a chemical reaction produces acetylene and merely hypothesizing acetylene is flammable, won't *yet* get me to factually believe the reaction produces something flammable; rather, I would have to confirm the hypothesis with *other factual beliefs* (produced, say, by observing a flame). So factual beliefs supply the informational background for inference from one hypothesis to its sub-hypotheses; otherwise put, factually beliefs cognitively govern hypotheses. But hypotheses don't govern beliefs; rather, hypotheses only become factual beliefs with *they comport well with other factual beliefs*, which is just to say that factual beliefs in the end simply govern themselves.

Factual Beliefs Are Evidentially Vulnerable

A merry war exists about the rationality of belief. Some argue, with Davidson (1984) and Dennett (1987), that the idea of *belief* outside a rational system makes no sense. On this view, a cognitive system that believes Chicago is north of Houston is also disposed to believe Houston is south of Chicago; the disposition to form the second belief partly constitutes the first. Examples can be multiplied. Rationality *constitutes* belief.

Others reject this idea. Stich (1981), for example, invokes several human irrationalities as evidence against it, and Johnston (1988) uses self-deception to make much the same point against Davidson.[17] Advocates of the non-rationality view might also point to religious "belief" in objecting to the rationality view. But here we must be careful, for if I am right that *belief* falls into at least two kinds, then the mooted non-rationality of religious "belief" does not contradict the rationality of factual belief—just as the solidity of Mars does not contradict the gaseousness of Alpha Centauri.

We can resolve this tension. True, humans typically *reason* from scratches on furniture to claws of a cat, to give a mundane case. But to ignore irrational influences on "belief" would fly in the face of hundreds of psychological experiments. The solution is this: we grant that *some* rational influence is characteristic of *some* kinds of belief, while allowing that *other* non-rational or irrational influences exist too and that *other* so-called beliefs may be less susceptible (or not at all) to the rational influence we posit.

Some mental states are *vulnerable to evidence*. Contrary evidence *tends to* extinguish them, and such extinction is not voluntary (Williams 1973). Examples abound. I may have factually believed the cat is outside, but my auditory impression of *meow* coming from the

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[17] See my 2007 for related discussion of self-deception.

basement extinguishes this. I may have factually believed Germany uses the *Deutschmark*, but when I arrive and *see* Euros, my former factual belief dies. And so on.

I define evidential vulnerability recursively, for reasons that will become clear.

(4) (i) if cognitive attitude *x* is involuntarily prone to being extinguished if (a) it conflicts with perceptual states or if (b) it is realized to lead to a contradiction, then *x* is evidentially vulnerable.[18]
(ii) if cognitive attitude *x* is involuntarily prone to being extinguished if it contradicts or does not cohere with other evidentially vulnerable states, then *x* is evidentially vulnerable.
(iii) No other cognitive attitudes are evidentially vulnerable.

Sub-clause (4)(i) establishes evidential vulnerability for states that can be confirmed or refuted by direct inspection: my factual belief that my bike is in the garage, for example, is extinguished by looking. Sub-clause (4)(ii) establishes evidential vulnerability for mental states that are sensitive to consistency or coherence with states established as evidentially vulnerable by (4)(i) [or by 4(ii) through recursion]: I may have factually believed Bryan wasn't using my bike, but the revision of the earlier factual belief, given other beliefs, leads to the extinction of this one as well, even if I don't directly see Bryan on the bike. Recursion and sensitivity to consistency and coherence thus extend evidential vulnerability from perceptual beliefs to further factual beliefs about the world.

For classes of attitudes:

(5) A class of cognitive attitudes *X* is evidentially vulnerable if and only if *X* is composed only of attitudes that are evidentially vulnerable as defined in (4).

Theoretical arguments support building evidential vulnerability into the definition of factual belief. If contrary evidence didn't extinguish factual beliefs, we would be poor survivors. One's factual belief that no hyenas are near must vanish on seeing fresh hyena tracks, on pain of being lunch. Furthermore, it is hard to see that there could be mental *contents* without at least evidential vulnerability in the sense of (4)(i)(a): for a belief to be *about* an object, it must respond to perceptual inputs from that object (Dretske 1983).

But there is an empirical argument for evidential vulnerability as well. Kim *et al.* (2012), extending research of Gelman (2003) and Koenig and Harris (2005), show that children track the reliability of speakers in a way that, I argue, reveals both basic and sophisticated levels of evidential vulnerability. Their study included an establishment phase and a testing phase. In the establishment phase, children (aged three or five) heard two

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[18] Clause (b) is needed to include mathematical beliefs. The term "involuntarily" is needed because some secondary cognitive attitudes *tend* to be revised because of evidence, but optionally.

characters, Lion or Rhino, applying labels to familiar objects (e.g., "This is a pencil."). One character would be accurate and the other inaccurate. Then in the test phase, either the reliable or unreliable speaker from before applied new labels to unfamiliar objects. Furthermore, they applied labels in a way that grouped together objects that looked different; two different-looking objects in the test phase might both be labeled "dax," while an object similar-looking to the first of those two objects would be labeled "wug." So the children could subsequently make inductive inferences on the basis of appearances or on the basis of labels. Children, it turns out, are more likely to use new labels in making inferences when those labels were provided by previously reliable speakers, whereas new labels provided by unreliable speakers are disregarded in favor of appearances.

This study reveals evidential vulnerability on two levels, corresponding to (4)(i) and (4)(ii). In the establishment phase, when the speaker (Lion or Rhino) first labeled a familiar object, the child's internal representation of this label as applying to that object must have been able to be discarded when out of comportment with her perceptual state [as in (4)(i)]. Otherwise she would not have tracked which speaker was unreliable in the first place. The unreliable speaker is the one whose labels got discarded. And the reliable speaker, it appears, received a sort of mental marker of *evidential authority*, at least for some of the children, so that that speaker could produce new factual beliefs that are the basis for extinguishing or overriding representations from other sources, such as superficial appearances. So the reliability of a speaker, as established in part by perceptual mechanisms that conform to (4)(i), extends the child's ability to revise other mental states in a way that conforms to (4)(ii).

In sum, (4) and (5) also belong in our theoretical characterization of factual beliefs.

Factual Beliefs: The Bigger Picture

Factual beliefs play the Davidsonian role in relation to desire *and* are practical setting independent, have general cognitive governance, and are evidentially vulnerable. (Individually they satisfy (1) and (4); as a class (2), (3), and (5).)

Philosophers often say "beliefs are the map by which we steer the ship." But often imaginings, hypotheses, suppositions, assumptions for the sake of argument, acceptances in a context—and others without names—are cognitive inputs into behavior; they are maps too. Each practical setting toggles the mind to its own distinctive attitude: the setting of inquiry activates hypotheses; make-believe activates fictional imagining; argument settings activate assumptions for the sake of argument.

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But even on stage, the actor represents the location of the trap door so she can drop through it. Even during hypothesis testing, the scientist represents meter readings and test tube locations. And even taking the sacrament, the devout Catholic is aware of the texture of the wafer. So some representations—typically encoding contents mundane or tied to perception—stay active across settings. These are factual beliefs.

It makes sense that evidential vulnerability and practical setting independence cluster together. Evidential vulnerability exposes factual beliefs to features of the world in such a way that we can avoid the ditch we previously thought (factually believed) wasn't there. And that ditch will be there even in the setting of make-believe or whatever, so the factual belief that encodes its existence should be active across practical settings.

It also makes sense that evidential vulnerability and cognitive governance cluster. Evidential vulnerability exposes factual beliefs to the world in a way that makes them suitable for supplying an ontology of objects (there is a ditch, dogs have teeth). And cognitive governance allows us to think more speculatively about what various objects in the world *could* do, while still preserving a sense in which *those objects* are in the contents of our imaginings or whatever (Currie and Ravenscroft 2002: 18-19).

Let us revise the philosopher's slogan to the following: "beliefs are not the only map by which we steer the ship, but factual beliefs are the map by which we manage and extend other maps." Otherwise put, factual beliefs are conditions for the possibility of having and using other cognitive attitudes at all.

Now some "beliefs" share some but not all characteristic properties of factual beliefs. *Intuitive* beliefs—those embedded in our folk biology, folk psychology, folk physics, etc.—seem both to be practical setting independent and to have cognitive governance, *without* having evidential vulnerability. As McCloskey (1983) emphasizes, our intuitive expectations about how events unfold in the physical world are difficult to modify by education and evidence. But they govern how we imagine and are operative across practical settings. We can say for intuitive beliefs, then, that natural selection substitutes along the etiology dimension for evidential vulnerability. This shaping is, however, akin to evidential vulnerability, since in both cases exposure to the physical world shapes the attitude. *Much* more can be said on this matter, but in any case, intuitive beliefs are close cousins to factual beliefs without being identical to them.[19]

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[19] I thank an anonymous referee for raising this point.

But many so-called beliefs are more distant. Van Fraassen (1980), for example, argues that scientists do not "believe" but merely "accept" their theories. I doubt this is true of all scientists, but it is plausibly true of some. In such cases, to use my framework, their theoretical beliefs are not factual beliefs. Examples are striking. On hearing of the recent confirmation of the inflationary universe theory, Andrei Linde made a curious admission: "maybe I only believed it because it was so beautiful." This suggests to me, though he says "believed," that his own theory had not yet been internalized as *factual beliefs*.

Many other "beliefs" face a similar treatment. In these cases, the cognitive scientist using my framework owes two things: first, evidence that those states in fact lack the functional properties of factual beliefs, or if they only lack some, evidence of which ones they lack; second, an empirically motivated theory of the characteristic features special to them.

It would be impossible in one article to complete these two tasks for every "belief" that is not a factual belief. There are too many candidates: political beliefs, theoretical beliefs, metaphysical beliefs, etc., all of which must be addressed in due course. But we must start somewhere. I start with religious credence.

Section 3: Religious Attitudes not Factual Beliefs

There are empirical reasons to think that many, if not most, religious cognitive attitudes, typically called "beliefs," lack the three core properties of factual beliefs. In this section, I review some of this evidence. I shall begin using the term *religious credence*, though that use is provisional until the notion is fully defined in the next section.

Religious Credence Lacks Practical Setting Dependence

Return to Astuti and Harris (2008), quoted in the Introduction. In their first study, they supplied some of the Vezo with a religious-ritual narrative and asked about the physical and psychological properties of deceased ancestors. Could they see? Could they think? And so on. They asked others the same questions about a corpse described in a naturalistic way. Astuti and Harris found subjects were *more likely* to attribute psychological properties to the deceased in the ritual narrative setting than in the naturalistic setting. Furthermore, this study is a sequel to Harris and Giménez 2005, which demonstrates the same toggling effect among Spanish children. Recall that Astuti and Harris write, "In other *contexts*, death is represented as total annihilation…" (734, my italics). This use of the word "contexts" is strikingly similar to Bratman's in his theory of acceptance in a

context, according to which acceptances—which are not factual beliefs—guide behavior in special contexts (practical settings).[20]

As mentioned, a prevalent view of belief in philosophy and cognitive science is that *belief* is a single cognitive attitude type and that variation in behavioral effects of different beliefs is due to variation in contents. I think this view is so pervasive that it is typically just taken for granted. Let's call someone who holds this view a *Single Belief Theorist* (SBT).[21]

SBTs will have great difficulty explaining the studies by Astuti and Harris and by Harris and Giménez. SBTs will have to posit bizarre, conditional contents to try to explain why people are prone to saying one thing about psychological properties of ancestors in the ritual setting and another in the naturalistic setting. SBTs will have to posit something like:

SIMPLE BELIEF: *if I am in a religious ritual, the ancestor can see.*
SIMPLE BELIEF: *if I am in a naturalistic setting, the ancestor is a lifeless corpse.*

Jointly these entail that the life of the ancestor comes and goes as the person with the "belief" goes in and out of the ritual setting. I see no independent evidence that people have attitudes with contents with this structure. My posits to explain the data are more elegant:

RELGIOUS CREDENCE: *the ancestor can see.*
FACTUAL BELIEF: *the ancestor is a lifeless corpse.*

What explains the data is that the credence is practical setting dependent, becoming deactivated outside the religious-ritual setting.

One might object that the factual belief is also practical setting dependent, arguing that *it* becomes otiose in the ritual setting. But this objection misses something. A corpse in a ritual setting is still moved about by people performing the ritual; it is treated as a physical object that does not move itself. So factual beliefs about the lifelessness of the corpse stay operative even in the ritual setting, though they may be bracketed for some behaviors, while the credence that the ancestor can think and feel becomes inoperative outside the ritual setting.

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[20] Bek and Lock (2011) present evidence that seems to cast doubt on the findings of Astuti and Harris and Harris and Giménez. Roughly, they find that biological priming depresses expression of afterlife belief, while those in the no-prime and emotional-prime conditions show same levels of expression of afterlife belief. Does this show that "belief" in the afterlife is a *default*, which merely gets depressed in the biological prime? Actually, the Bek and Lock studies don't squarely address the results of Harris and colleagues, since their emotional prime was not religious in nature. Further, their biological prime *did* toggle *off* afterlife beliefs, which shows that those are practical setting dependent to some extent. Huang, Cheng, and Zhu (2013) present two studies relevant to this issue, concluding their results "fine-tune" the implication of the studies by Harris and colleagues that "afterlife beliefs…are context dependent" (40). I agree: fine-tuning of the practical setting/context dependence claim is needed, but not rejection of it. I thank an anonymous referee for raising this issue.
[21] Someone in philosophy who holds a simple belief view is Sinhababu (2009).

What then is the practical setting of religious credence? We should not attempt to be too specific at this point, since that setting takes different forms in different cultures. But Atran and Norenzayan (2004) offer some guidance in saying that "existential" problems and situations that evoke them are central to religions cross-culturally. These include confrontation with death, birth, illness that can't be explained otherwise, unexplainable coincidences that seem to change one's life, challenges to one's identity, and the like. In addition to these basic activators of the religious credence setting, many religions construct practices and physical spaces that evoke or are symbolic of these problems and situations and hence toggle on religious credences as well. This is the extended practical setting. And since religious credences are part of one's identity, many situations that challenge one's identity or group allegiance can activate credences as well.

What are the *exit* conditions are from the religious practical setting? A growing literature shows that analytic thinking and analytic cognitive style are negatively correlated with religious "belief" (Pennycook *et al.* (2012); Shenhav *et al.* (2012); Pennycook (2014)). I call one of the phenomena demonstrated in this literature *analytic deactivation*. Gervais and Norenzayan (2012) show that for both religious and non-religious people, having to perform an analytic task, such as math problems, reduces the tendency to report belief in supernatural beings. Even looking at an image of Rodin's thinker has this tendency. This suggests that analytic deactivation, among other things, triggers a return to reliance on factual beliefs, as opposed to religious credences that encode ghosts, spirits, and the like. (Importantly, it will be hard to explain such results by appeal to contents. There is nothing about religious contents *per se* that makes analytic thinking about them difficult. One can solve mathematical word problems about ghosts, gods, and demons if one wishes. So a purely content-based explanation of analytic deactivation is insufficient. Rather, this is a consequence, at least in part, of attitude type: religious credences are typically operative in a frame of mind in which analytic thinking is inactive.)

More research on the practical setting dependence of religious credence is needed. But the evidence so far makes it worth theorizing about and investigating. Christian ministers have long harped on "once-a-week Christians." As Dennett (2006: 227) points out, people who "believe" God is always watching do things they wouldn't do if their mothers were watching. Such phenomena sit awkwardly with a view that posits only one single sort of belief; they sit well with a view that holds religious credence differs from factual belief in being practical setting dependent.

Religious Credence Lacks General Cognitive Governance

Several religions profess that God is omnipotent, omnipresent, and omniscient. But research on *theological correctness* illustrates how such credences lack cognitive governance over imaginings. Barrett and Keil (1996) tested subjects from religions that subscribe to the "omni" properties—Bahaism, Buddhism, Catholicism, Protestantism, and Judaism—giving them vignettes that describe God helping different persons in need. The vignettes were neutral about whether God helped the different persons *simultaneously* or *sequentially*. Later, they asked subjects to recall the vignettes. By a significant margin, subjects recalled the story with God helping sequentially—one person *then* the other. Why? An omnipotent, omnipresent God *could* help simultaneously. Barrett (1999) argues that intuitive beliefs about agency are guiding subjects' recollection of the story.

We can extract two further lessons. First, since the contents of the vignette are *imagined* (taken as fiction), this research exemplifies how intuitive beliefs supplement factual beliefs in their inferential governance over imaginings, including imaginings about God. Second, note what did *not* happen. The religious credences about "omni" properties did *not* supply an inference to the possibility of God's simultaneous helping. So this research implies that at least some credences are sharply limited in their cognitive governance.

Anthropological fieldwork can also support this conclusion. Atran (2002: 84-86), for example, reports that the Maya-speaking Itza' profess that some humans transform into animals. Yet they don't worry when they eat animals that they might be eating a person. Atran wryly notes they "should suspect that someone eating a pork chop might be a cannibal" (87). But no one does, which suggests that the credences do not govern factual beliefs about what they are eating. *If* a person factually believed in transformation of humans into animals, she would also factually believe that some animals are human, due to the reflexive cognitive governance factual beliefs have over themselves; that this worry does not occur shows that the credence in question is not a factual belief.

There is more to be said. One objection to my claim that religious credences don't govern factual beliefs is to point out the interference of credences in scientific thought. A young earth creationist, for example, denies facts of geology. If religious "beliefs" interfere with "factual beliefs," so the objection goes, they must have governance over factual beliefs. This is an interesting objection. But the phenomenon to which it appeals (interference) does not actually show that credences govern factual beliefs; rather, it forces on me a testable hypothesis. My theory predicts that the young earth creationist who denies facts of geology

has formed *further religious credences* with those denials as contents. She may feel compelled to form these further credences on account of felt challenges to her identity. But, I hold, she does not have

FACTUAL BELIEF: *the world is not billions of years old.*

Rather she has

RELIGIOUS CREDENCE: *the world is not billions of years old.*

So one testable hypothesis (or cluster of hypotheses) is that the attitude that encodes this content will lack characteristics that define factual belief.[22] The attitude, for example, may lack evidential vulnerability.

Religious Credence Lacks Evidential Vulnerability

The issue of evidence brings us to the next point, which a comparison highlights. In 1999, many factually believed that there was a "Y2K Problem," which meant that many computer systems would go haywire on January 1, 2000, due to the numbering of dates in databases. But nothing really happened, and this evidence extinguished factual beliefs about Y2K. But there are also doomsday cults that predict Judgment Day on some particular date. Notably, a cult's cluster of "beliefs" often does *not* disappear when the day passes. Boyer (2001: 302) writes: "What social psychologists found so striking was how a refuted prophecy seemed to deepen commitment rather than shake it." So factual belief in Y2K had an evidential vulnerability that the cult members' Judgment Day credences do not.

Much evidence suggests religious credences don't have evidential vulnerability or only have it to a much lesser degree. Recall Sauvayre's (2011) research, cited in the Introduction. In 71% of cases, a *conflict of values* triggers the last stage of "doubt" and final exit from the cult. This suggests that the cult member's "beliefs" are not held because of evidence. Exiting cult members did not learn information that was evidentially relevant to the truth or falsity of their credences; rather, they found the guru to be immoral.

Pennycook *et al.* (2012), furthermore, propose a mechanism underlying the negative correlation between analytic cognitive style and religious "belief": conflict detection or lack thereof is responsible for this negative relationship. Individuals less inclined to detect informational conflicts—e.g., conflicts between statistical information and stereotypes—are

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[22] Here's a related example. On February 12, 2007, the *New York Times* reported about how Marcus Ross, a young earth creationist, had earned a PhD in Geoscience at the University of Rhode Island, having written about the extinction of mosasaurs 65 million years ago, despite "believing" that the earth is younger than 10,000 years old. Importantly, his Baptist credences did not govern the scientific hypotheses in his dissertation, otherwise he could not have finished. So Ross gives us a clear example of credences that lack widespread governance.

more likely to profess religious views. Individuals with a more analytic cognitive style (more responsive to such conflicts) are less likely to profess religious views. Thus, we have a rough mapping between the set of people who tend to lack a certain form of evidence responsiveness (conflict detection) and the set of people who *have* religious credences. We also have a rough mapping between the set of people who have this responsiveness and the set of people who *lack* religious credences. Importantly, analytic inclination ("style"), not just ability, accounts for at least a large part of this difference (Pennycook 2014), so one cannot attribute the whole difference to an inability on the part of the religious to detect informational conflicts. Rather, those with religious credences hold them in a frame of mind in which analysis and evidence are just *not what matters* to them. Ironically, people who have an analytic cognitive style may be the ones with an inability—an inability to enter a frame of mind where evidence doesn't matter (Luhrmann 2012 and Boyer 2013; McCauley's 2011 perspective on autism spectrum disorders and religious cognition is also pertinent).

There can be variation on this dimension. In particular, some religious attitudes seem to have some evidential vulnerability. Whitehouse (1995), for example, describes a splinter group of the Pomio Kivung in Papua New Guinea who frequently, as McCauley and Lawson (2002) put it, performed extensive "high sensory pageantry" rituals under the view that they would cause ancestors to return. When the ancestors did not, the cult disbanded with its members returning to the mainstream religion. This, *prima facie*, suggests their "beliefs" were evidentially vulnerable, unlike other religious credences, since when the evidence was lacking the "belief" was abandoned. There are, of course, other interpretations of this example, since practical factors, like hunger, were also pressuring the splinter cult to disband. But even if evidential vulnerability did play a role in extinguishing these "beliefs," this still does not undermine my general claim that religious credences lack evidential vulnerability. Rather, this illustrates why religious attitudes *tend not to be* evidential vulnerable, or in other words, why the religious credence attractor position does not include evidential vulnerability: religious "beliefs" that are evidentially vulnerable tend to get extinguished, as in the case Whitehouse describes.[23]

<p style="text-align:center">*   *   *</p>

Thus, religious credences lack defining characteristics of factual beliefs. These lacks put them closer to attitudes like fictional imagining, acceptance in a context, and hypothesis.

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[23] I thank an anonymous referee for emphasizing this case. My treatment parallels McCauley's and Lawson's (2002); they see it as falling outside either of their two main *ritual* attractor positions.

The classification I oppose looks like this, where the large oval gathers the non-"belief" cognitive attitudes.

Belief (Imagining) (Hypothesis) (Acceptance) (...)
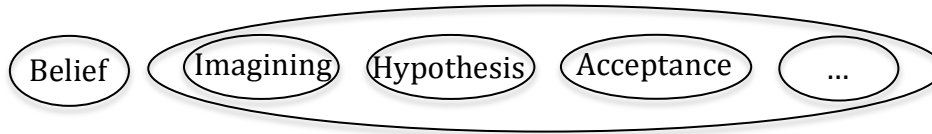
My view is illustrated below. Each attitude in the large oval lacks the characteristics of factual belief; each secondary cognitive attitude is distinct from the others in virtue of its special practical setting and downstream influences on emotion and action.

Factual Belief (Credence) (Imagining) (Hypothesis) (Acceptance) (...)
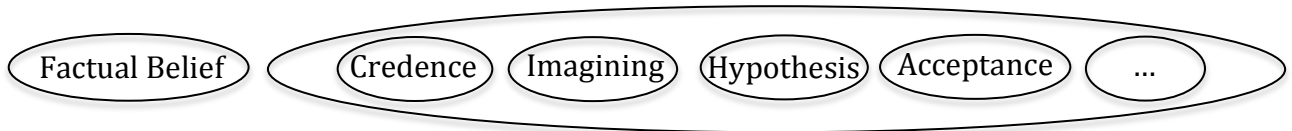
Furthermore, I have a straightforward theoretical argument for preferring my view: the very psychological properties that *could* legitimize the major distinction in the first picture (between belief on the one hand and imagining, etc., on the other) in fact also legitimize, when viewed in conjunction with relevant empirical evidence, putting religious credence apart from factual belief. Our hand is forced.

One objection to my claim that religious credences are not factual beliefs is that people make great sacrifices, even their lives, for their religious doctrines, so they *must* "believe" them. But this objection undermines itself. As Dennett (2006: 231) points out, the fact that people would take death over denying what they religiously "believe" shows there is something distinct about said "beliefs." If I had to choose either death or denying some ordinary factual belief, like *leaves grow on plants*, I'd deny the factual belief. The fact that some credences require profession, even on pain of death, differentiates them even further.

If I am right, however, a major received view in cognitive science of religion still stands. The view, which I endorse, is that religious states of mind arise from general, widely shared and widely used human psychological capacities, as opposed to having a separate dedicated system. The evidence for this is overwhelming. But one important capacity is often not mentioned. Humans can form special purpose cognitive attitudes, like fictional

imagining or acceptance in a context. *This* general capacity, I claim, is also central to religious mental life, for it is also part of what makes religious credence possible.[24]

Section 4: Religious Credence

A cluster of properties makes religious credence unique among secondary cognitive attitudes. Religious credences have *perceived normative orientation*, are susceptible to *free elaboration*, and are *vulnerable to special authority*.

Perceived Normative Orientation

Taylor (2007: 5) describes a "fullness" that gives direction to religious life: "Somewhere, in some activity, or condition, lies a fullness, a richness; that is, in that place (activity or condition), life is fuller, richer, deeper, more worth while, more admirable, more what it should be." Religious credences, metaphorically, are a map that helps the agent find this "place" of fullness. Conversely, as Taylor also points out, the religious person senses a special awfulness to be avoided, where life would be bad, less worthwhile, or terrible.

So there is a *toward* side and an *away* side to the religious agent's cognition of the normativity of religious credence-based action: toward the good and away from the bad.

The property of credences we're after is the following:

(6) Cognitive attitude *x* has perceived normative orientation if and only if the agent takes actions guided by *x* to be normatively virtuous *in virtue of* being guided by *x*.

There are empirical reasons to hold religious credences characteristically satisfy (6). Summarizing many results, McKay *et al.* (2011: 1858-9) write, "participants primed with religious supernatural concepts have been found to cheat less, to collect more charity pamphlets, and to be more likely to cooperate in a prisoner's dilemma game." There is need of qualification here, since as Norenzayan and Shariff (2008) note, religious prosociality may be largely limited to helping in-group members. But I am not claiming that credences make a person's actions *objectively* moral. Rather, people who let credences guide their actions *take themselves to be* acting rightly (hence *perceived* normative orientation). And the behaviors described by McKay *et al.* are typical of people who take themselves to be acting rightly (and to some extent are).

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[24] The production of representations whose corresponding attitude falls in the large oval will involve *many* of the same processes as the production of representations whose attitude is factual belief. When I read a story about romance, for example, many of the same mechanisms will be at work in producing the fictional imaginings as are at work in understanding a friend who tells me about his love life (producing factual beliefs). It is possible to acknowledge that religious credence (or any other attitude) is distinct from factual belief, without thinking it involves a sort of extraordinary form of cognition. Still some of the constitutive constraints differ, as I argue.

Two clarifications are needed. First, perceived normative orientation does not preclude credence-based actions from having (or being taken to have) other functions as well. Ritual sacrifices often eventuate in meals and increased social standing. But a sense of orientation toward good and away from bad, I claim, accompanies the sacrifice, if it expresses religious credence, in a way that other status-boosting (etc.) activities do not. Second, the term "normative" here does not correspond directly with its use in moral philosophy. My use of the term does *not* imply (or exclude) morality in the sense of making prescriptions across all rational persons (Singer 2000: 14). Indeed, Baumard and Boyer (2013) note that many religions do not have an explicit morality. But "normative" here does refer to more than mere conventional normativity, since mere convention—from etiquette to rules of games—does not supply the sense of rightness in question. Rather, the religious agent takes herself to be oriented toward a higher good (and away from a more fearful bad) than is attainable by ordinary, non-religious actions.

The expression of religious credences in action takes various forms, and forms that are acceptable in one religion may not be in another. The key is that there is an intelligible relation between the representational structure of the credence and the action expressing it. I describe here four possible forms of guidance credences can have.

First, religious credences in some traditions can represent a character or action to be imitated. The idea of *imitatio Christi* illustrates this role. Van Engen (1988: 25) writes that Late Medieval Scriptural Study yielded

> . . . an individual affective identification with particular moments in Christ's life, chiefly his passion, the result or purpose of which was ideally fourfold: to "relive" with Christ his virtuous life and saving passion, to have him ever present before one's eyes, to manifest his presence to others, and to orchestrate, as it were, all of one's emotional faculties around devotion to him.

The fact that credences can supply a basis for imitation explains why their representational format is often imagistic (Jackson 2009); humans imitate the objects of imagistic representation more easily than those of abstract symbolic representation. The imagistic representational format of many credences also enhances their emotional impact, leading to experience of "fullness," as Taylor would put it. Imitation activates the religious agent's sense of orientation *toward* the good.[25]

Second, credences can structure ritual behavior. A credence that *the ancestors desire choice meat* can eventuate in an animal's slaughter, accompanied by pageantry that signifies

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[25] I discuss imagery, imitation, and emotion in my 2011.

that meat is for the ancestors, even though people who perform such rituals typically eat the meat themselves. We may say that credences help determine the choice of *props* in the ritual (in the sense of "prop" developed by Walton 1990). Importantly, there is often a sense of *compulsion* about performing rituals that goes beyond whatever practical purposes the ritual is supposedly for. Boyer and Liénard (2006: 816) write: "people just feel that they must perform a specific ritual, that it would be dangerous, unsafe, or improper not to do it. It is important to distinguish these feelings . . . from the explanations people may have about the reasons for performing the ritual." Thus, much credence-based ritual action is sensed to orient the agent *away* from the bad.

Third, more abstractly, religious credences structure verbal and non-verbal behavior so to express the content of the credences. As with costly sacrifice, this form of guidance often signals group membership. Professing "belief" in transubstantiation signals that the speaker is a member of the Catholic in-group, as does painful re-enactment of a martyr's suffering. And the very strangeness of the professed "belief" or the costliness of the non-verbal behavior renders the signal strong and hence a credible sign of allegiance (Sosis and Alcorta 2003). Let me relate this to practical setting dependence. Because religious credences guide signaling of group identity, any situation that *tests identity* may be a practical setting that activates credences. This explains the illusion that credences guide behavior "all the time"—as some mistakenly think. Whenever someone *probes* to see if an agent is acting on the basis of credences, that creates an identity test, which triggers at least verbal expression of credences by the tested agent. It's like opening a refrigerator to see if the light is always on: it *seems* credences are always operative, since when you probe, they are. So to capture evidence of practical setting dependence, subjects must not feel their religious commitment is in question. I think the studies relevant to practical setting dependence discussed in section 3 satisfy this methodological desideratum (Harris and Giménez 2005; Astuti and Harris 2008; Gervais and Norenzayan 2012). This is all strikingly different from factual belief. A factual belief that one rock is heavier than another is not a signal of group membership; nor are factual beliefs generally. Furthermore, insofar as the religious community takes itself to be oriented toward the good or away from the bad *as a group*, credence-expressing actions that signal membership illustrate both *toward* and *away* elements of perceived moral orientation.

Fourth, religious credences *sometimes* feed into action in Davidsonian fashion: if I desire to be forgiven and have a credence that praying leads to forgiveness, I pray. But

again, religious credences do not play this role across all practical settings. We can see the practical setting of religious credence more clearly in light of this section: it includes situations that evoke a need for normative orientation in life (in the relevant sense) or a need to feel a sense of belonging. Atran writes (2002: viii): "Religion ensues from the ordinary workings of the human mind as it deals with emotionally compelling problems of human existence, such as birth, aging, death, unforeseen calamities, and love." I once asked a recent convert to Christianity why he adopted his "beliefs." His answer had nothing to do with evidence: "I wanted that as part of my life."

Free Elaboration

In "Sinners in the hands of an angry God," colonial preacher Jonathan Edwards (1741/1856: 314) makes a curious claim about God's anger toward sinners alive on earth:

> The are now the objects of that very same anger and wrath of God that is expressed in the torments of hell . . . Yea, God is a great deal more angry with great numbers that are now on earth, yea, doubtless with many that are now in this congregation, that it may be are at ease and quiet, than he is with many of those that are now in the flames of hell.

This passage strikingly *combines* (a) an improvisatory character and (b) an utter seriousness. By "improvisatory" I mean that, although the passage is consistent with descriptions of God in the Bible, further details are made up in colonial New England. Nothing in the Bible entails God is comparatively *angrier* with living sinners than with those already in hell. Rather, Edwards (or someone he borrowed from) freely elaborated on the theme of God's righteous anger. Free elaboration is thus an imaginative process, whose products—when they are further religious credences—still have the perceived normative orientation of other credences.

"Free" does not mean there are *no* constraints on the generation of new credences. Limits on the psychological capacities at play, such as memory, constrain what comes to be represented (Boyer 2001, ch. 2; Atran and Norenzayan 2004). Furthermore, constraints on the practical possibility of executing credence-expressing actions shape credences as well; McCauley and Lawson (2002) argue that rituals tend not to be both high in frequency and high in sensory pageantry. So credences that require high frequency *and* high sensory pageantry rituals tend not to arise or will be extinguished quickly (see section 3).

"Free" here means *free to generate ontological posits that are not rationally entailed by evidence or previous credences*. We can grant that most credences (or at least many) have some coherence with other existing credences: there is an at least somewhat unified outlook or narrative to a given agent's class of credences. But newly generated credences

are often not *rationally entailed by* previously existing credences. The relation *G is angrier at L than H* (<God, Living sinners, Hell-dwelling sinners>) is freely generated in this sense. Though it coheres with previous credences, nothing in previous credences rationally implies it. Contrast this with a factual belief case. I factually believe there are raw almonds in my cupboard. That *there are cashews in my cupboard* is neither entailed by that factual belief nor ruled out by it, but since it is not entailed, I do *not* form a factual belief that *there are cashews in my cupboard*. If factual beliefs had free elaboration, I might well do so. So there is a rational constraint factual beliefs have that religious credences do not. Factual beliefs have a conservative ontology: what they posit is (as a matter of competence, i.e., excluding performance errors like false memory, etc.) entailed by rational inferences from perceptual or other factual beliefs.

Free elaboration, to be precise, is a property of classes of cognitive attitudes:

(7) A class of cognitive attitudes *X* is susceptible to free elaboration if and only if the agent imaginatively elaborates on elements of *X* to generate further elements of *X* in ways that cannot be supported by induction, deduction, or other rational inference patterns.

Imaginings obviously satisfy this definition. Religious credences do as well. Edwards is one among many examples. The declarations of figures like the late Jerry Falwell were often improvised, but still had religious credence behind them. Recall also the examples from Boyer (2001) cited at the outset: the changing features of Greek *exotiká*, invented local Hindu deities, and improvised features of ancestors among the Kwaio.

Furthermore, free elaboration on credences is operative whenever there is syncretism, the blending of two or more religions. Pressures to combine elements of disparate religious traditions are often political (Boyer 2001: 268-9). One must imaginatively integrate, say, elements of Christianity and ancestor worship, coming to a result not implied by either tradition on its own. This is a process of exploratory constraint satisfaction, where the constraints are the need to foster group coherence and to preserve normative orientation despite political clash.

Why, from a theoretical standpoint, should we free elaboration be a property of religious credences? Free elaboration, I hold, naturally accompanies perceived normative orientation; it allows credences to provide orientation in situations to which previous credences did not apply but in a way that extends the normative orientation of previous credences. It can, for example, provide more detailed imagery to imitate, as Jackson (2009) shows for the social gospel in 19th century American Evangelicalism. Alternately, it yields

credences that suggest how to heighten rituals that have grown stale or to bridge political rifts, either of which give the religious agent a renewed sense of purpose.

Vulnerability to Special Authority

I turn to the final property of interest. There is, metaphorically, a pipeline from dictates of someone appraised as a special authority in the religious community to the religious credences of community members. In many religious traditions, though perhaps not all, this special authority must be seen as having an admirable character. Acquiring credences via such a pipeline is not the same as acquiring factual beliefs from someone deemed knowledgeable, an "authority" in a different sense. Two kinds of authority are taken differently. An *evidential authority*, who can produce factual belief, knows about some objective information, such as plant life or streets in Cleveland. This is the sort of reliable source children respond to already at a young age (recall Kim *et al.* 2012). A *special authority*, however, has a revered character (moral or otherwise) and plays a certain *anointed* role (as it were) in the community. To see that the two kinds of authority are taken differently, consider this comparison: a church pastor (special authority) can be fired for an extra-marital affair, but it is unlikely an expert computer systems consultant (evidential authority) would be. The defeater conditions for each kind of authority are different, as are the situations in which they are taken to matter.

So there are two components to special authority.

First, a special authority is taken have an admirable character of some sort. In many traditions the authority's character must be seen as morally upright. Sauvayre's research supports building moral character into our understanding of special authority; her subjects could tolerate empirical inaccuracies of the guru, but conflict of values broke the former devotee from the cult in the majority of departures. Though moral uprightness may not be required in every tradition, it is likely that special authorities across traditions are seen in their communities as having an exceptional ability to act wisely.

Second, the special authority is typically *anointed* in the community somehow, with different acts playing the anointing role in different traditions. The anointment is partly *constitutive* of the special authority. Individuals who form religious credences then have a *mental marker* that tracks anointed individuals. Stone (2001: 181-2) writes: "religions often involve individuals specifically empowered to negotiate the supermundane level of reality: shamans, saints, holymen, or priests."

The cognitive mechanism that operates in conjunction with this mental marker is an instance of what Henrich (2009: 245) calls "prestige-biased transmission":

> . . . a wide range of empirical findings have shown, that both children and adults preferentially pay attention to and learn from others based on cues of prestige, success, skill, age, ethnicity (marked by dialect, dress, etc.) and sex . . . These effects influence a wide range of representations, including opinions, economic decisions, food preferences, social strategies, beliefs, technological adoptions, and dialect.

Prestige-biased transmission no doubt also influences factual belief. But the conditions for having the prestige specific to each cognitive attitude are different, such that an individual can be marked as having one kind of prestige without the other.[26]

I define vulnerability to special authority on two levels:

(8) A cognitive attitude *x* is vulnerable to special authority if and only if *x* is prone to extinction when cognized as contradicting dictates of a special (anointed) authority *in virtue of* those dictates having come from that authority.

(9) A class of cognitive attitudes *X* is vulnerable to special authority if and only if *X* is composed of attitudes satisfying (8) and new attitudes in *X* tend to be formed on the basis of received dictates of special authorities.

Vulnerability to special authority clusters naturally with perceived normative orientation, since humans are social creatures and belong to communities that typically have special figures that set norms. Less obviously, it also clusters naturally with free elaboration, since the elaborating agent typically requires some initial credences on which to elaborate, which the special authority supplies.

<p style="text-align:center">*   *   *</p>

This completes the psychological theory needed to posit factual beliefs and religious credences and to highlight how different they are. Factual beliefs satisfy definitions (1) through (5) and not characteristically (6) through (9); for religious credences, it is *vice versa*. The contrast is stark. The characteristic etiology of factual belief is evidential vulnerability; for religious credence it is vulnerability to special authority. Religious credences guide action in the setting of a felt existential need for normative orientation or when one's religious identity is in question; factual beliefs guide action in all practical settings. Finally, the cognitive effects differ. The cognitive governance of factual belief is an

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[26] Koenig and Harris (2006: 519) give indirect support for this claim: "although young children believe in various extraordinary being such as God or the Tooth Fairy, they do not always place them on exactly the same ontological footing as scientific entities." This suggests that the manner of uptake of the dictates of evidential authorities and special authorities is not the same, though other interpretations of this quotation are also possible.

inferential process constrained by rational entailment by other factual beliefs.[27] Free elaboration is more imaginative: it allows additions to the religious ontology that are not rationally entailed by prior credences.

Let me summarize sections 3 and 4 metaphorically.

An agent's religious credences comprise a map she uses for short- and long-term orientation in life. The map is colored with features that are taken to have normative force *in virtue of* their being part of the map at all; the colors represent *sacred*, *sinful*, *eternal*, *righteous*, *holy*, and the like. The map, in more or less detail, is determined by the dictates of individuals who are taken as special authorities in the community of the agent. But the agent herself also freely elaborates on the credence map in ways she finds useful for normative orientation. The map colors the authorities as *holy*. Other individuals in the community are painted as *faithful*. This map doesn't just represent normative properties, however; it also represents objects, people, places, events, and supernatural beings that make the normative properties memorable or salient.

But the agent is always using another map: factual belief. This map comes to be in a different way from the religious credence map. It is generated chiefly by perception and rational expansion thereon. It helps us avoid falling in ditches and eating poisonous berries. The religious credence map lies on top of the factual map like a colored transparency, so that the objects, events, people, and places in the factual map can also appear religiously colored. Thus, only by careful scrutiny do we see the two maps are distinct.

Section 5: Two Research Programs (Conclusion)

What I have said, if it is at all correct, calls for two research programs, one philosophical and one psychological.

The Epistemological Project

Classic norms for "belief" in epistemology appeal to truth and evidence. But religious credence has much in common with fictional imagining (and other secondary cognitive attitudes), which we typically do not hold to norms of truth and evidence. Are religious credences also excused?

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[27] I treated it as constitutive of factual belief that it has governance over other cognitive attitudes. But then shouldn't factual beliefs govern credences? In fact, they do, because factual beliefs encode propositions like *that so-and-so [priest/shaman/guru/etc.] said such-and-such [doctrine/creation story/rule/etc.]*. It is an unusual form of governance, but factual belief is still fundamental.

The answer is complicated. For a given agent, the practical setting that activates religious credences can expand or contract. For once-a-week Christians, the setting is small. For others, the practical setting is larger. The stage on which religion plays in an agent's mind can expand to cover portions of life appropriately left to science or historical research. As the practical setting of religious credence expands to cover more and more of an agent's life, *without* also acquiring evidential vulnerability, the agent tends toward extremism, which is vicious.

An *extremist credence*—to define one more attitude—has the characteristic properties of religious credence (including lacking evidential vulnerability) but is *also* practical setting independent and has wide cognitive governance. Extremist credence, strictly speaking, may only be tended toward in the limit and never fully realized in actuality; still it is a useful notion for theoretical purposes. On my view, having false contents that are unsupported by evidence does not *by itself* make extremist credence vicious. Rather, extremist credences are vicious because they are not responsive to evidence *and* they have unrestricted downstream consequences on thought and action. Balance is missing (cf. Audi 2008).

This suggests two principles.

Principle of Balance: the breadth of a cognitive attitude's practical setting and the extent of its cognitive governance should be balanced by its evidential vulnerability; cognitive attitudes that are practical setting independent or have wide cognitive governance *without* being evidentially vulnerable are perverse.

Principle of Immunity: if a cognitive attitude is practical setting dependent, only guiding behavior in its appropriate setting, and if it does not cognitively govern other attitudes, it is immune to criticism for not being supported by evidence.

These two principles are not yet basic, since they contain the unanalyzed normative terms "balanced" and "appropriate." But they are still informative in that they locate the dimensions whose balance and propriety matter. Thus, the explication of these principles ought to be the subject of future research in epistemology. I think they are partial characterizations of well-functioning human cognitive systems.

The Psychological Project

Whatever its normative status, we should characterize the psychology of religious credence with the best descriptive theory we can. I have argued that religious credence rests on the human capacity to generate secondary cognitive attitudes, such as the fictional imaginings behind pretend play. To characterize elements of this capacity, I've relied on the developmental psychology of make-believe.

Let's consider one last passage from Golomb and Kuersten (1996: 215):

> On the basis of our findings it seems likely that the world of pretence and reality are not mutually exclusive. The playing child monitors events occurring in reality and maintains the duality between the two modes of thought. In this model of play, thoughts about reality run parallel to thoughts about pretence, although pretence would be the predominant mode of thinking during play.

Imaginative representations co-exist with a layer of factual belief ("thoughts about reality") without being confused with it. In any episode of pretense, the child has two maps, one representing what she takes to be reality (factual beliefs) and another representing the contents of pretense (fictional imaginings). She uses the two sets in conjunction, since she must pretend in the physical space of the real world. But she does not confuse them, contrary to popular myth.

We see a similar structure—two maps—in the relation between religious representations and factual beliefs. There is a corresponding myth to be debunked: quite simply, the myth that the two sets are run together—that there is only one kind of "belief."

One further study deserves mention. Legare and Gelman (2008) describe the co-existence of *bewitchment* explanations and *biological* explanations for AIDS in Sesotho-speaking parts of South Africa, where bewitchment explanations extend traditional religious ideas. In addition to cohering with the present framework, some of their observations are strikingly similar to those of Golomb and Kuersten. They write, "it is not the case that participants appeal to bewitchment because they *lack* an appreciation of biological explanation. Rather, bewitchment and biological explanations co-exist within individuals" (617, their emphasis). Importantly, they note that bewitchment explanations are "contextually specific in ways that the biological explanations are less bound by" (636). And their evidence suggests "biological explanations are the default explanatory framework" (632). They find biological explanations are appealed to, on the whole, far more often, while bewitchment explanations are triggered by contextual priming (study 3). Finally, there seems to be an improvisatory character to the way subjects sometimes attempt to reconcile different kinds of explanations: "participants may be creating these solutions spontaneously during the course of the experiment" (636).

If we take these results seriously and view them in conjunction with other evidence, we may conclude that religious credence and factual belief co-exist in the minds of agents in much the same way that imaginings and factual beliefs co-exist. This conclusion is startling, causing us to ask: how can something so serious as religion be rooted in the same capacity

that yields something as frivolous as fiction? But the question contains a misguided assumption. Humans, in fact, take many fictions incredibly seriously.

The following questions for future research arise in light of the present theory. For any given religious agent, what are the *actual* boundaries of the practical setting of her religious credences? What causes that setting to expand or contract? What more specifically is the nature of the free elaboration to which religious credence is prone? How does free elaboration interact with other dimensions of a person's personality, cognitive endowment, and social status? What are the conditions for someone's coming to be taken as a special authority? And so on.

These are empirical questions I hope my framework puts us in a position to pose rigorously. But to pose them rigorously and design experiments accordingly, we have to start with a basic realization. Jadeite and nephrite are not one thing ("jade"), and Venus and the North Star are not one kind of object ("star"). The present realization is that religious credence is not factual belief.

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