Belief-in is belief-that with affectivity and evidentiality[1]

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Abstract. Belief-in reports of the form *S believes in O* have been taken to have at least two senses: factual and evaluative. I begin by briefly suggesting that there is no evidence for two distinct senses, then spend most of the paper developing a general semantics for belief-in reports. I explore, and use my semantics to explain, several features of belief-in reports: the context-dependence of what belief-that reports they entail, their widespread lack of equivalence with belief-that reports, and their neg-raising property. Put roughly, my semantics says that *S believes in O* a) asserts that, for some contextually salient property F, S believes that O has F and b) presupposes that S either has a belief that O has F for which they meet an affective and evidential requirement or has a belief that O doesn't have F for which they meet an affective and evidential requirement.

Keywords: Belief reports, Belief-in, Neg-raising.

1. Introduction

When we discuss 'belief reports', ascriptions of belief-that like in (1a) (for the *de se*) or (1b) (for the *de re*) tend to take centre stage.[2]

(1) a. Ayesha believes that she's spilling sugar. (cf. Perry, 1979)
b. Boris believes that the mayor is a spy. (cf. Quine, 1956)

By contrast, reports of belief-in like (2a) and (2b) are hardly ever discussed.[3]

(2) a. Carol believes in sets.
b. Daniele believes in public transport.

Why might this be?

On the one hand, ascriptions like (2a) might appear equivalent to belief-that ascriptions. So, for instance, (2a) might be taken to merely claim that Carol believes that sets exist. Given this, we might then think that, in developing an account of belief reports, (2a) and its ilk need no special treatment. On the other hand, ascriptions like (2b) might appear not to attribute a belief. For instance, (2b) might be taken to attribute to Daniele a pro-attitude of some form towards public

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[2]Recent exceptions are Moltmann (2022); Djärv (2023) who discuss reports of the form *S believes O* and *S believes O that P* and Uegaki (2016) who discusses reports with embedded content DPs like *the rumour that P*.

[3]Notable exceptions include Price (1965; 1969), Szabó (2003); Textor (2013); Kriegel (2018).

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transport (cf. Price 1965: 6-9 and Szabó 2003: 585-6). For this reason, we might then think that (2b) and its ilk are irrelevant to developing an account of belief reports.

I propose that ascriptions like (2a) aren't simply equivalent to belief-that ascriptions and that reports like (2b) do attribute a belief. The two kinds of ascriptions are more closely related than might appear. On my view, both a) assert that for some contextually salient property F, S believes that O has F and b) presuppose that S either has a belief that O has F for which they meet an affective and evidential requirement or has a belief that O doesn't have F for which they meet an affective and evidential requirement. My overall aim, then, is to present the first general semantics for belief-in reports, covering cases like (2a) and (2b) alike.[4]

Section 2 sketches why I adopt a general semantics for belief-in reports. Section 3 explores how context affects which belief-that a belief-in report entails. Section 4 and 5 defend the affective and evidential requirements. Section 6 argues that belief-in reports have neg-raising interpretations, and exploits a variant of Gajewski's (2007) excluded middle presupposition for belief-that reports (going back to Bartsch 1973) to derive these interpretations. Finally, section 7 uses the availability of neg-raised belief-in reports to reply to an apparent counterexample to my view due to Szabó (2003: 591-4).

2. Why a general semantics?

I aim to provide the first general semantics for belief-in reports. But, one might wonder, why would we want one?

H. H. Price (1965; 1969) influentially distinguishes two senses of belief-in reports. Based on differences between examples like (2a) and examples like (2b), he speaks of a 'factual' and an 'evaluative' sense (e.g. Price, 1965: 12-3). Price thus rejects the idea that a general semantics for belief-in reports, covering cases like (2a) and (2b) alike, is possible.

According to Price, (2a) would be, at least by default, understood to employ the factual sense. That's because it appears to be equivalent to the claim that Carol believes that sets exist. Since (2a) attributes an existential belief to Carol, why doesn't Price label this sense the 'existence' sense? The answer is that the factual sense is also at play in cases that don't (or at least don't merely) entail an existential belief. Consider:

(3) Eylem believes in free will. (cf. Price, 1965: 11)

By default, (3) doesn't, Price remarks, attribute to Eylem the belief that free will exists, but the stronger belief that all humans (or all rational beings) have free will.

For Price, (2b) would be, at least by default, understood to employ the evaluative sense. One distinctive feature of the evaluative sense is meant to be that it reports the subject as evaluating the object of their attitude positively—as having some form of pro-attitude towards that object.

[4]Szabó (2003: 594–606) develops a semantics for cases like (2a) that feature a bare plural (for instance *sets*) as the complement of *in*. Since my semantics explains the data his semantics is intended to explain and more (see especially section 6), I take my semantics to be preferable. For reasons of space, however, I won't explicitly compare his view to mine.

At first, Price (1965: 17) allows this positive evaluation to consist in an attitude of trust or esteem.[5] But he goes on to concede that (2b), for instance, would attribute to Daniele the belief that public transport is a highly efficient way of transporting persons and commodities, and that that's a good thing too (18). A belief-in report's evaluative sense thus attributes a belief that the things one believes in have a certain property, and that it's a good thing that they have that property. In effect, Price concedes that a belief-in report's evaluative sense is reducible to the meaning of a belief-that report attributing an evaluative belief.

Can Price use this data to argue for two distinct senses? No. For one, that (2a) and (2b) entail different non-evaluative belief-that reports—that Carol believes that sets exist and that Daniele believes that public transport is an efficient way of transporting persons and commodities—by itself doesn't argue for two senses. As I'll show in section 3, and as Price (1965: 11-2, 14-6) admits, there's significant variation in what non-evaluative belief-that reports a belief-in report entails even within Price's two alleged senses. And crucially, we can explain this variation if we take belief-in reports to have a single context-dependent meaning. For another, the intuition that (2a) doesn't and (2b) does attribute an evaluative belief-that can also be explained without appeal to two distinct senses. To do this, section 4 introduces a general 'affective' requirement that holds for both (2a) and (2b), but takes different forms in each case.

So, is there any other evidence for two distinct senses?

Ambiguities and polysemies are regularly exploited for comic effect. For instance, *River Ravi flows in what state? Liquid* exploits our expectation that *state* is to be interpreted as 'country or part thereof with government' rather than 'condition or way of being'.[6] Given this, Price might say that the distinction between the factual and evaluative senses is exploited for comic effect too, for instance in Stephen Colbert's joke at the 2006 White House Correspondents Dinner:

> I'm a simple man with a simple mind. I hold a simple set of beliefs that I live by. Number one, **I believe in America. I believe it exists.** My gut tells me I live there. I feel that it extends from the Atlantic to the Pacific, and I strongly believe it has 50 states. And I cannot wait to see how the Washington Post spins that one tomorrow. (my emphasis)[7]

Colbert exploits his audience's expectation that *I believe in America* is to be interpreted as something like 'I believe that it's a good thing that America is so-and-so', rather than as 'I believe that America exists'. This, Price might argue, is similar to how other jokes exploit expectations generated by ambiguity or polysemy.

However, the fact that Colbert's intended interpretation of *I believe in America* as 'I believe that America exists' is unexpected needn't be due to an ambiguity or polysemy in belief-in reports. Colbert's intended interpretation is also unexpected if his belief-in report has one meaning only—a meaning that entails that for some contextually salient property F, he believes that America has F. First, his utterance isn't informative if interpreted as 'I believe that America exists'. For it's already common ground that he believes that America exists. Any number of

[5]For an overview of theories of trust see McLeod (2020).

[6]https://www.ling.upenn.edu/ beatrice/humor/bad-exam.html

[7]I owe the exampleto Lelia Glass. https://abcnews.go.com/Entertainment/video/stephen-colbert-2006-white-house-correspondents-dinner-62298550

other interpretations would be more informative and thus more salient in the context. Moreover, Colbert talks about a "simple set of beliefs that I live by", thereby making salient an evaluative interpretation of his belief-in report. For all Price says, these two factors might be what's causing our expectation that 'I believe that America exists' isn't the intended interpretation.

An alternative way to argue for two distinct senses is to use the contradiction test (e.g., Kroeger, 2022: 85-7): If a sentence of the form *X, but not X* or *Not X, but X* isn't felt to be contradictory and has a true reading, expression *X* is ambiguous. Take one of Kroeger (2022)'s examples: when an aged mother discusses her grown sons and daughters, *They aren't children any more, but they're still my children* isn't felt to be contradictory and has a true reading, and that's because *children* is ambiguous between 'offspring' and 'pre-adolescent human'. However, belief-in reports don't pass this test. (4a) and (4b) feel contradictory. Neither has a true reading, unless we make a special effort to reinterpret them.

(4) a. # Carol doesn't believe in sets any more, but still believes in them.
b. # Daniele doesn't believe in public transport any more, but still believes in it.

Another way to argue for two distinct senses is to show that reducing two full statements to an elided conjunction leads to zeugma (e.g., Chomsky, 1957: 36). For instance, since in (5a) the predicate *know* occurs once in its propositional knowledge reading, once in its acquaintance reading, its elided conjunction (5b) sounds zeugmatic.

(5) a. Hannah knows that penguins waddle, and Ted knows Pingu. (cf. Benton, 2017)
b. # Hannah knows that penguins waddle, and Ted, Pingu.

However, if we control for confounds, such as the contextual relevance of both full statements, reduced conjunctions of belief-in reports don't sound zeugmatic:

(6) QUD: Do sets exist and do Daniele's friends make a good case for them?
a. Well, Carol believes in Daniele's friends, and therefore in sets. So, since Carol is an expert on these issues, I'd say 'yes'.

Admittedly, the fact that belief-in reports don't pass these two tests doesn't mean that belief-in reports don't have two distinct senses. Some polysemous expressions—whose senses are often argued to be more closely related than the readings of merely ambiguous expressions (Vicente and Falkum, 2017)—don't pass these tests either. Consider:

(7) a. David drank and smashed the bottle. (Felappi, 2019: 66)
b. # That's a book, but it's not a book. (Viebahn, 2018: 759)

Bottle licenses so-called co-predication. In (7a) *bottle* occurs once, but with two senses: *drank* triggers its content-sense; *smashed* its container-sense. So, *bottle* having two senses doesn't require it to pass the reduction test. *Book*, in turn, fails the contradiction test. It arguably has two senses: 'physical copy' and 'informational content'. Still, there's no true reading of (7b).

The absence of direct evidence for two distinct senses thus doesn't establish that a general semantics for belief-in reports is required. But by giving a general semantics for belief-in reports that captures several of their properties, including those Price highlights, I'll show that positing two distinct senses isn't necessary. Applying Grice's 1978 modified Occam's razor, we thus have reason not to multiply senses beyond necessity and to adopt a general semantics.

3. Context-dependence

This section argues for clause a) of my view, that is, that *S believes in O* asserts that for some contextually salient property F, S believes that O has F. To argue for this clause, I'll explore how context affects which belief-that a belief-in report entails.

By default, (2a) seems to attribute to Carol the belief that sets exist. But this default interpretation can be overriden by context, for instance the question under discussion.

(8) QUD: {Can sets/What can} act as the foundation for mathematics?
  a. Carol believes in sets.
  ⊨ 'Carol believes that sets can act as the foundation for mathematics.'

Existence interpretations can also be overriden in other ways, for instance by way of lexical material inside the *in*-PP.

(9) a. Alexius Meinong believes in non-existent objects.
  ⊨ 'AM believes that there are non-existent objects.'
  b. Graham Priest believes in impossible objects.
  ⊨ 'GP believes that there are impossible objects.'

If Alexius Meinong believes in non-existent objects, he needn't believe that non-existent objects exist. Read *de dicto* the belief that non-existent objects exist is obviously contradictory in a way in which a belief in non-existent objects isn't. Read *de re*, as the belief that there are non-existent objects such that Alexius Meinong believes them to be existent, the belief that non-existent objects exist isn't contradictory. But the *de re* reading isn't the most natural reading, given that *de re* readings with embedded bare plurals are generally unattested (Carlson, 1977; Dayal, 2013). On the most natural non-contradictory reading, then, (9a) entails that Alexius Meinong's ontology includes objects he believes to be non-existent: he believes *de dicto* that there are (rather than exist) non-existent objects.

Much the same goes for (9b). If Graham Priest believes in impossible objects, he needn't believe that impossible objects exist nor even that they're possible. The most natural non-contradictory reading of (9b) entails that Graham Priest's ontology includes objects he takes to be impossible objects: he believes *de dicto* that there are impossible objects.

Existence interpretations aren't the only ones that can be overriden by context. Following Price, I suggested that the default interpretation of (2b) attributes to Daniele the belief that public transport is a highly efficient way of transporting persons and commodities. But consider:

(10) QUD: {Does public transport/Which things} help cutting carbon emissions?
a. Daniele believes in public transport.
⊨ 'Daniele believes that public transport help cutting carbon emissions.'

To capture the context-dependence in examples (8a) through (10a), I propose that:

(11) $[\![\text{S believes in O}]\!]^c = 1$ only if for some property F salient in c, $[\![\text{S}]\!]^c$ believes that $[\![\text{O}]\!]^c$ has F.[8]

An important complication in applying (11) is that questions make both a property and its negated variant salient (although the property will generally be more salient). In the cases so far, (8a) and (10a), the entailed belief-that was a belief that O has the property, not a belief that it has the negated variant. But this isn't always the case. Consider:

(12) QUD: Is set theory necessarily contradictory?
a. Carol believes in set theory.
⊨ 'Carol believes that set theory isn't necessarily contradictory.'

How do we derive this interpretation of (12a)? We make use of what the next section will call the affective requirement (=(17)). That is, we know that one would have certain feelings should the things one believes in be found to have (satisfaction, gratitude) or fail to have (disappointment, sense of betrayal) the property they're believed to have. Given this, and contextually assumed information about Carol's mathematical preferences, we know that the only interpretation of (12a) that's consistent with the common ground is the interpretation actually attested.[9] On grounds of charity, then, that's how we interpret (12a).

4. The affective requirement

This section develops the first part of my argument for clause b) of my semantics for belief-in reports. I'll focus on motivating what I've called an 'affective' requirement. Subsequently, section 5 will motivate the evidential requirement. Finally, section 6 will show why clause b) is formulated as an excluded middle presupposition.

My argument for the affective requirement starts from data Price takes to motivate his evaluative sense. Price takes (2b) to attribute the belief that public transport is a highly efficient way of transporting persons and commodities, and that that's a good thing. On Price's view, then,

[8]One might wonder how (11) can predict existence interpretations, since it's a substantive question whether there's a property of existence. For present purposes, I'll simply assume that there is such a property. But my view doesn't depend on this assumption. Existence interpretations could also be understood in terms of the property of falling into the range of the existential quantifier, having the property of being identical to something, and so on. See Rami (2017) for possible views. The 'there are' interpretations of (9a) and (9b) raise a similar question about the property of being, and my response runs along the same lines.

[9]The context-dependence of this interpretation becomes clear if we assume that it's common ground that Carol takes contradictoriness to favour, rather than count against, a mathematical theory. In that case, (12a) would entail that Carol believes that set theory is necessarily contradictory.

the belief-in report attributes belief-that with a content that's both factual and evaluative. This accounts for an important phenomenon. Suppose Daniele becomes a 'localist' and now believes that it's a bad thing to transport persons and commodities—people and goods should stay where they are. In that case, Price (1965: 18) thinks, (2b) wouldn't be true, at least not on its default reading. Here's another example:

(13) BVB is playing Bayern. Fara is a committed BVB fan. But she can tell that BVB is doing poorly, and so believes that Bayern will win the match.
QUD: Will Bayern win the match?
a. Fara believes in Bayern. Not true

Fara believes that Bayern will win the match. Thus, for some contextually salient property—winning the match—, Fara believes that Bayern have that property. Yet, it's not true that Fara believes in Bayern.[10]

Price's diagnosis of Fara's and localist Daniele's cases is that they're missing required evaluative beliefs. Localist Daniele doesn't believe that it's a good thing that public transport is a highly efficient way of transporting persons and commodities, and Fara doesn't believe that it's a good thing that Bayern will win the match. So, for Price, the reason why the attributions of belief-in to Fara and localist Daniele aren't true is that they're not taking what they believe to be the facts about public transport and Bayern to be good.

By contrast with evaluative belief-in, what Price would call factual belief-in sometimes goes hand in hand with taking what one believes to be the facts to be neutral or even bad. Consider:

(14) 6-year-old Gino believes it's bad to have monsters in one's wardrobe. Despite his parent's efforts to convince him otherwise, he believes there are monsters in his wardrobe.
QUD: {Are there monsters/Which things are} in Gino's wardrobe?
a. Gino believes in monsters. True

(15) Because he's convinced by the One Over Many argument, Hans believes that universals exists. But, since he takes the existence of universals to make no practical difference, he's indifferent to whether they actually exist.
QUD: {Do universals/Which things} exist?
a. Hans believes in universals. True

Gino is like localist Daniele in taking what he believes to be the facts to be bad, rather than good. Yet unlike localist Daniele, Gino has a belief-in. (14a) is true. Hans is unlike our previous characters in taking what he believes to be the facts to be neither bad nor good—he's indifferent. Nonetheless, (15a) is true.

The contrast between cases like Gino's and Hans' and cases like Fara's and localist Daniele's forces Price to distinguish two senses of belief-in reports. The factual sense is responsible for

[10]The context could also be fleshed out to make (13a) true. Suppose, for instance, that despite being a BVB fan, Fara believes it would be good if the current management was fired and believes this will happen if Bayern win the match. Here, she would believe that it's a good thing if Bayern win the match, and (13a) would be true.

the truth of the reports about Gino and Hans; the evaluative for the lack of truth in Fara's and localist Daniele's cases. However, as we've seen earlier, there's no direct evidence for two distinct senses. And in fact, the difference between the two kinds of case is consistent with a general semantics for belief-in reports.

Our general semantics must impose a requirement on belief-in strong enough to predict that Fara and localist Daniele don't believe-in, yet weak enough to also predict that Gino and Hans do believe-in. A first, but problematic, way to go is to replace Price's evaluative requirement with a desire requirement. Intuitively, this requirement says that one wants the things one believes in to have the property they're believed to have. More formally:

(16) $[\![\text{S believes in O}]\!]^c = 1$ only if for some property F salient in c, i) $[\![\text{S}]\!]^c$ believes that $[\![\text{O}]\!]^c$ has F and ii) $[\![\text{S}]\!]^c$ wants $[\![\text{O}]\!]^c$ to have F.

The desire requirement predicts that Fara and localist Daniele don't believe-in: localist Daniele doesn't want public transport to be a highly efficient way of transporting persons and commodities, and Fara doesn't want Bayern to win the match. However, the desire requirement doesn't predict that Gino and Hans do believe-in. Gino doesn't want monsters in his wardrobe and Hans doesn't want universals to exist. So, like Price's evaluative requirement, the desire requirement is too strong for a general semantics of belief-in reports.

Fortunately, there's a weaker, and better, alternative: the 'affective' requirement. Intuitively, this requirement says that one would have certain feelings should the things one believes in be found to have (satisfaction, gratitude) or fail to have (disappointment, sense of betrayal) the property they're believed to have. More formally:

(17) $[\![\text{S believes in O}]\!]^c = 1$ only if for some property F salient in c, i) $[\![\text{S}]\!]^c$ believes that $[\![\text{O}]\!]^c$ has F and ii) $[\![\text{S}]\!]^c$ would have a positive feeling upon learning that $[\![\text{O}]\!]^c$ has F or a negative feeling upon learning that $[\![\text{O}]\!]^c$ doesn't have F.

Localist Daniele doesn't satisfy the affective requirement, because he wouldn't be satisfied upon learning that public transport is an effective way of transporting persons and commodities, nor would he be disappointed if he learned that it's not. So, we correctly predict that localist Daniele doesn't believe in public transport. Fara doesn't satisfy the affective requirement, because she wouldn't be grateful if she learnt that Bayern will win the match, nor disappointed upon learning that they won't. So, we correctly predict that Fara doesn't believe in Bayern.

Applying the 'hey, wait a minute!' diagnostic to Fara's case, we can see that the affective requirement is, just as my view has it, part of the presupposed content of belief-in reports. That B's response is licensed in (18) suggests that A's utterance has a problematic presupposition, namely that Fara would have a positive feeling if she found out that Bayern will win the match.

(18) Context as in (13)

a. A: Fara believes in Bayern.
B: Hey, wait a minute! Surely, Fara wouldn't be satisfied if Bayern won?

Does the affective requirement also make the right predictions about Gino and Hans? The requirement's crucial innovation is that one can have a positive feeling upon learning that some proposition one believes is true without believing its truth to be a good thing or wanting it to be true. Conversely, one can have a negative feeling upon learning that some proposition one believes isn't true without believing that its truth would be a good thing or wanting it to be true.

With this in mind, consider Gino. Though he wouldn't be grateful if he learnt that monsters are in his wardrobe, there's a sense in which he'd be satisfied. For he'd be proven right, against the 'better judgement' of his parents. Conversely, Gino would be disappointed if he found out that there are no monsters in his wardrobe. For he'd be proven wrong, in line with the 'better judgement' of his parents. The satisfaction or disappointment Gino would feel in either case would concern his role as a knower: it would be 'intellectual' in kind.

Now turn to Hans. Although he's indifferent to whether universals exists, he's not indifferent to whether he correctly assessed the One Over Many argument's strength. So, if he learnt that universals exists, he'd be satisfied; if he learnt that they don't exist, he'd be disappointed; and this satisfaction and disappointment would concern Hans' role as a knower.[11]

Given what I've said about Gino and Hans, one might worry that the affective requirement is too weak to predict the truth-conditions of (13a). In its context, (13a) entails that Fara would be disappointed in her role as a BVB fan, not in her role as a knower. But, to make the right predictions about Gino and Hans, I weakened the affective requirement so that it merely entails disappointment in one role or another.

In reply, I propose that the affective requirement is itself context-dependent. More specifically, I let context determine in what 'role' one must be satisfied or disappointed upon learning that the things one believes in do or don't have the property they're believed to have. This yields the right predictions about Gino, Hans, and (13a). Gino's role as a knower is made salient by his contextually assumed relation to his parents, who try to convince him that there are no monsters in his wardrobe. Hans' role as a knower is made salient by his description as convinced by the One Over Many argument, despite being indifferent to whether universals exists. By contrast, Fara's role as a BVB fan is made salient by her contextually assumed status as a BVB fan.[12]

[11] One might worry that Hans could be so cold-blooded a metaphysician as to be indifferent to whether he correctly assessed the One Over Many argument's strength too, whilst still believing in universals. If that was possible, I'd insist that it wouldn't be appropriate for Hans to be so cold-blooded if he believes in universals. So, I'd reformulate the affective requirement as a normative condition on what feelings would be fitting for someone with a belief-in.

[12] A clarification regarding the scope of the affective requirement. Some belief-that reports carry something like it because of the content of their embedded clause. For instance, if a belief-that report's embedded clause concerns the matrix subject's friends, we'll often get something like the affective requirement. Both (ia) and (ib) sound awkward because their first conjunct comes with an affective requirement. (ia)'s first conjunct does this because the content of Zara' belief concerns her friends, and one expects someone to be disappointed upon learning that their friends won't rescue them. (ib)'s affective requirement, by contrast, is overdetermined. It's there both because (ib) entails, in its context, that Zara believes that her friends will rescue her and because it's a belief-in report.

(i) QUD: Will Zara's friends rescue her?

a. # Zara believes that they'll rescue her, but wouldn't be disappointed upon learning that they won't.

b. # Zara believes in her friends, but wouldn't be disappointed upon learning they won't rescue her.

However, whilst some belief-that reports carry something like the affective requirement, many don't. Sometimes subjects are, in their contextually salient roles at least, indifferent as to whether what they believe is true. For

5. The evidential requirement

This section develops the second part of my argument for clause b) of my semantics for belief-in reports. I'll motivate what I've called an 'evidential' requirement.

In the last two sections, I've given necessary conditions for the truth of a belief-in report. At first glance, one might hope that these conditions are also jointly sufficient. Unfortunately though, they don't appear to be. Here's a counterexample.[13]

(19) The caterer brings coffee into the conference room. The coffee they bring is sometimes hot, sometimes cold. None of us want cold coffee. I believe that the coffee is hot, and would be disappointed if I found out that it isn't.
QUD: Is the coffee hot?
a. # I believe in the coffee.

Although I satisfy the necessary conditions I've given so far, there's something awkward about reporting me as believing in the coffee. This suggests that there's an additional requirement that I don't satisfy. A first, but problematic, way to go is to impose a restriction on the objects of belief-in and so to say that one cannot believe in certain things, such as coffee. However, this requirement is too strong. Given the right context, (19a) doesn't sound awkward.[14]

(20) My barista friend feels like her coffee isn't turning out as well as it should. She asks for my opinion about the coffee she's just made. Even before trying, I believe that the coffee is good enough, and I'd be satisfied if I found out that it is.
QUD: Is the coffee good enough?
a. I believe in the coffee.

How do the contexts in which the two belief-in reports are made differ? In (19), not only can I easily find out the coffee's temperature by trying it, I also don't have a reason to form a belief about the coffee's temperature before trying it. By contrast, whilst I can easily find out the coffee's quality by trying it in (20) too, here I do have a reason for forming a belief about whether the coffee is good enough before trying the coffee:[15] I can thereby signal how much trust I place in my barista friend's skills.[16]

The difference in the two contexts suggests an 'early-belief' requirement on belief-in. Intuitively, this requirement says that one has reason for forming one's belief-in before gathering

instance, based on what I learned in school, I believe that it's 400° Celsius on Venus. But lacking interest in astronomy, and absent any other reason to care, I wouldn't be even be intellectually disappointed if I found out that Venus is a little hotter than 400° Celsius. So, the affective requirement tells us that belief-in reports, whether so-called factual or evaluative ones, sometimes aren't equivalent to belief-that reports.

[13] I owe this case to Friederike Moltmann. An anonymous reviewer for SuB28 gave a similar example.

[14] I owe this example to Leonie Buschhoff.

[15] Compare this to a context where one is served by an unfamiliar barista. In that case, one doesn't have a reason to form a belief about the coffee's quality before trying the coffee. Thus, (19a) sounds awkward in this context.

[16] Note that I'm not saying that I have a non-evidential reason for my belief. The reason here isn't a reason for my belief that the coffee is good enough, but for forming a belief about whether the coffee is good enough.

additional easily available sensory evidence. More formally:

(21) $[\![\text{S believes in O}]\!]^c = 1$ only if for some property F salient in c, i) $[\![\text{S}]\!]^c$ believes that $[\![\text{O}]\!]^c$ has F and ii) $[\![\text{S}]\!]^c$ has reason for forming a belief about whether $[\![\text{O}]\!]^c$ has F before gathering additional easily available sensory evidence.

However, this requirement is too strong. For there are many cases where one believes in something concerning which there is no easily available sensory evidence. Carol, for instance, cannot easily gather sensory evidence for the existence of sets or their ability to act as the foundations of mathematics. So, Carol arguably cannot have reason for forming a belief before gathering additional easily available sensory evidence. Yet she has a belief-in.

How one could follow up on (19a) suggests an alternative to the early-belief requirement:

(22) Context as in (19).
   a. A: I believe in the coffee.
      B: Hey, wait a minute! You know, you can just try the coffee, right?

That B's 'hey, wait a minute!' response is licensed suggests that A's utterance has a problematic presupposition, namely that they can't just try the coffee to find out whether it's hot. This presupposition is problematic, because it's unclear to B how A could themselves believe, let alone take others to accept, that they can't just try the coffee to find out whether it's hot. (19a) is a case of presupposition failure, and for this reason sounds awkward and fails to be true.

Example (19a)'s problematic presupposition follows from a 'no-easy-evidence' requirement. Intuitively, this requirement says that one cannot easily gather sensory evidence concerning whether the things one believes in have the property they're believed to have. More formally:

(23) $[\![\text{S believes in O}]\!]^c = 1$ only if for some property F salient in c, i) S believes that O has F and ii) S cannot easily gather sensory evidence about whether O has F.[17]

The no-easy-evidence requirement gets some, but not all, cases right. Carol satisfies it. So, the evidential requirement allows our belief-in reports about her, (2a) and (8a), to be true. However, like the early-belief requirement, the no-easy-evidence requirement is too strong. In particular, it mistakenly predicts (20a) to be a case of presupposition failure, since it's common ground amongst my barista friend and me that I can easily gather sensory evidence concerning whether the coffee is good enough: I can just try the coffee.

Both the early-belief and the no-easy-evidence requirement are too strong. We need a weaker alternative. Since I take both requirements to be on to something, I propose to disjoin them. This gives us the 'evidential' requirement:

(24) $[\![\text{S believes in O}]\!]^c = 1$ only if for some property F salient in c, i) $[\![\text{S}]\!]^c$ believes that $[\![\text{O}]\!]^c$ has F and ii) $[\![\text{S}]\!]^c$ cannot easily gather sensory evidence about whether $[\![\text{O}]\!]^c$ has

[17] I mark presuppositions by underlying the clauses which state them.

F or has reason to form a belief about whether $[\![O]\!]^c$ has F before gathering additional easily available sensory evidence about whether $[\![O]\!]^c$ has F.

Even with the disjunction, however, we might think that the requirement doesn't cover all cases. Can't Gino easily gather sensory evidence about whether there monsters are in his wardrobe? And doesn't he lack reason to form a belief about whether monsters are in his wardrobe before gathering such evidence? If we answer 'yes' to both questions, Gino doesn't satisfy the evidential requirement, and we mistakenly predict (14a) to be a presupposition failure.

I suggest we answer 'no' to the first question, and say that Gino cannot easily gather sensory evidence about whether there are monsters in his wardrobe. For the monsters he believes in are only rarely detectable. They can't, for instance, be seen when his parents are with him or when he's trying to document their presence with a camera. Perhaps the monsters Gino believes in can only be seen when Gino is close to falling asleep. Thus, even Gino, let alone his parents, cannot easily gather sensory evidence about whether monsters are in his wardrobe.[18]

6. Neg-raising for belief-in reports

This section develops the last part of my argument for clause b) of my semantics for belief-in reports. By looking at neg-raising for belief-in, I'll show why clause b) is formulated as an excluded middle presupposition and give another reason for pushing the affective and evidential requirements into presupposed content. I'll start by arguing that belief-in reports license neg-raising interpretations.

6.1. The neg-raising data

Belief-that reports invite an interpretation of a wide-scope negation as entailing a narrow-scope negation (in this sense the negation is 'raised') (e.g. Crowley, 2019). This is a distinctive feature of belief-that reports. Many reports of other propositional attitudes don't have it.

(25) a. David doesn't believe that Gloria left.
$\rightsquigarrow$ 'David believes that Gloria didn't leave.'
b. David doesn't claim that Gloria left.
~~$\rightsquigarrow$ 'David claims that Gloria didn't leave.'~~

[18] A clarification about the scope of the evidential requirement. Some belief-that reports carry something like the evidential requirement because of the content of their embedded clause. For instance, if a belief-that report's embedded clause concerns sets, we'll (typically) get the first disjunct of the evidential requirement. For one cannot easily gather sensory evidence that sets exist or that they can act as the foundations of mathematics.

But whilst some belief-that reports carry something like the evidential requirement, many don't. Subjects believing that P can often easily gather sensory evidence that P and lack reason to form a belief about whether P before gathering additional such evidence. I, for instance, can easily gather sensory evidence that my tea is over-brewed—by tasting it—or that it's windy outside—by opening the window and listening to the trees, but have no reason to form a belief regarding these matters before gathering that evidence. So, the evidential requirement tells us that belief-in reports, whether they're what Price would have labelled factual or evaluative ones, often aren't equivalent to belief-that reports.

A closely related feature of belief-that reports is that certain Negative Polarity Items (NPIs) are licensed by negation across the matrix predicate and receive the interpretation they would receive if the negation was sitting in narrow-scope. For instance, punctual *until*, which is usually only licensed in negated clauses (as in (26b)), is licensed in negated belief-that reports, even when the embedded clause in which *until* occurs isn't itself negated (as in (27b)), unlike in claim-that reports.

(26) a. *Mary left until yesterday.
b. Mary didn't leave until yesterday. (Gajewski, 2007: 293)

(27) a. *Bill believes that Mary will leave until tomorrow.
b. Bill doesn't believe that Mary will leave until tomorrow. (Gajewski, 2007: 293)
⇝ 'Bill believes that Mary won't leave until tomorrow.'

(28) a. *Bill claims that Mary will leave until tomorrow.
b. *Bill doesn't claim that Mary will leave until tomorrow. (Gajewski, 2007: 293)

Belief-in reports also invite an interpretation of a wide-scope negation as entailing a narrow-scope negation.[19] Here too, that's a distinctive property. Many reports using other attitude predicates with embedded *in*-PPs don't invite such interpretations.

(29) QUD: Will Santa deliver presents in time?
a. Jacinta doesn't believe in him.
⇝ 'Jacinta believes that Santa won't deliver presents in time.'
b. Jacinta doesn't have faith in him.
~~⇝ 'Jacinta has faith that Santa Claus won't deliver presents in time.'~~

In addition, belief-in reports parallel belief-that reports insofar as certain NPIs are licensed by negation across *believe* and receive the interpretation they would receive if the negation was sitting in narrow-scope:

(30) QUD: When are we gonna have soup?
a. Kaysar believes in soups until it's cold.
(i) *Until* can be interpreted as modifying when Kaysar believes in soups:
'At any time before it's cold Kaysar believes in soups.'
(ii) But cannot be interpreted as modifying when we're gonna have soups.
b. Kaysar doesn't believe in soups until it's cold.
(i) *Until* can be interpreted as modifying when Kaysar doesn't believe in soups.
⇝ 'At any time before it's cold Kaysar believes that we won't have soups'
(ii) But it can also be interpreted as modifying when we're gonna have soups.
⇝ '(At speech time) Kaysar believes we won't have soups until it's cold.'

[19]This is despite the fact that, at least at first glance, there's no overt narrow-scope landing site for the negation. So, neg-raising for belief-in reports might pose a challenge to syntactic accounts of neg-raising, on which neg-raising interpretations are due to negation moving from wide- to narrow-scope. I won't pursue this issue and will assume Gajewski's semantic/pragmatic account of neg-raising.

6.2. The explanation

I'll assume Gajewski (2007)'s explanation of belief-that neg-raising and generalize it to cover neg-raising for belief-in. The explanation for the belief-that case goes as follows:

> *S believes that P* asserts that S believes that P and has the excluded middle presupposition that S believes that P or believes that not-P.[20] *S doesn't believe that P* asserts that it's not the case that S believes that P, but continues to presuppose that S believes that P or believes that not-P. So, its presupposed and asserted content jointly entail that S believes that not-P.

We can explain belief-in neg-raising in much the same way. To do this, I propose the following semantics for belief-in reports that builds on the results of earlier sections:

(31) $[\![\text{S believes in O}]\!]^c = 1$ iff

a. for some property F salient in c, $[\![\text{S}]\!]^c$ believes that $[\![\text{O}]\!]^c$ has F, and

b. for every property G salient in c, (i) $[\![\text{S}]\!]^c$ believes that $[\![\text{O}]\!]^c$ has G or believes that $[\![\text{O}]\!]^c$ doesn't have G, (ii) $[\![\text{S}]\!]^c$ meets the affective requirement for this belief, and (iii) $[\![\text{S}]\!]^c$ meets the evidential requirement for this belief.

On this view, *Jacinta believes in Santa*, uttered in the earlier context, asserts that Jacinta believes that Santa will deliver presents in time and presupposes (i) that she either believes that Santa will do so or believes that he won't do so, (ii) that whichever of these two beliefs she has, she meets the affective requirement for it, and (iii) that whichever of these two beliefs she has, she meets the evidential requirement for it. This means that in interpreting the wide-scope negation in *Jacinta doesn't believe in Santa* as targeting the asserted, but not presupposed, content of *Jacinta believes in Santa*, we assert that it's not the case that Jacinta believe that Santa will deliver presents in time. And for this reason, the asserted and presupposed content jointly entail that Jacinta believes that Santa won't deliver presents in time. Thus, the wide-scope negation has been 'raised' to narrow-scope.[21,22]

[20] A clarification to pre-empt a potential worry. The excluded middle presupposition might strike us as too strong, since we often neither believe that P nor that not-P. But, crucially, this presupposition is 'soft' and therefore cancellable. That's why in contexts where the alternative of neither believing that P nor believing that not-P, for instance having suspended judgement about whether P, is salient, neg-raising is suspended.

[21] For this explanation to work it's crucial that the affective and evidential requirements are both part of the presupposed content of belief-in reports. For suppose that the affective requirement is part of the asserted content of belief-in reports. Given this, a belief-in report asserts two conjuncts. For instance, *Jacinta believes in Santa*, uttered in the earlier context, will assert (i) that Jacinta believes that Santa will deliver presents in time and (ii) that Jacinta would be (intellectually) disappointed if he won't. So, in interpreting the wide-scope negation in *Jacinta doesn't believe in Santa* as targeting the asserted, but not presupposed, content of *Jacinta believes in Santa*, we assert only that at least one of the two conjuncts is false. We thus leave open that one of the conjuncts, for instance that Jacinta believes that Santa will deliver presents in time, is true. And for this reason, the asserted and presupposed content of *Jacinta believes in Santa* don't jointly entail that Jacinta believes that Santa won't deliver presents in time. Thus, the wide-scope negation won't have been 'raised' to narrow-scope. Evidently, we get this result also if we make the evidential requirement or, indeed, both requirements part of the asserted content of belief-in reports. It's fortunate, then, that, as we saw earlier, there's independent reasons to make both the affective and evidential requirements part of the presupposed content of belief-in reports.

[22] For reasons of space, I'll leave the explanation of the Negative Polarity Item data to the reader. As far as I can see, the explanation again generalizes from Gajewski's explanation of belief-that neg-raising.

6.3. Multiple property contexts

So far, I've focused on contexts where just one property (and its negated variant) is salient. But that's an idealization. Often more than one property is salient. What happens then?

Since I use an existential quantifier ranging over salient properties to describe the asserted content of belief-in reports, I predict that if, for instance, two properties F and G are salient, belief that O has F for which one meets the affective and evidential requirements and belief that O has G for which one meets these requirements are both individually sufficient for one to believe in O. So, a belief-in report in a two property context is expected to be ambiguous between three readings. So, we expect that, for clarity's sake, belief-in reports uttered in a two property context will typically be conjoined with information about which of the three readings is intended. This is the correct prediction:

(32) Jacinta believes that Santa will reward good kids, would be disappointed if he won't, and cannot easily gain sensory evidence for this. But she doesn't believe that Santa will deliver presents in time.
QUD: Will Santa reward good kids (=F) and deliver presents in time (=G)?
a. Jacinta believes in Santa, though, since she never got her presents on Christmas day, she doesn't believe that he will deliver presents in time. True

By contrast, since *S doesn't believe in O* asserts that there's no salient property for which S believes that O has that property and presupposes that for every salient property, S has a belief that O has it for which S meets the affective and evidential requirements or has a belief that O doesn't have it for which S meets the affective and evidential requirements, in a two property context the asserted and presupposed content of *S doesn't believe in O* jointly entail that S has a belief that O has neither F nor G. Fortunately, this prediction too appears to be correct:

(33) QUD: Will Santa reward good kids (=F) and deliver presents in time (=G)?
a. Jacinta doesn't believe in Santa.
$\rightsquigarrow$ Jacinta believes that Santa will neither reward good kids nor deliver in time.

7. A challenge from Szabó 2003

Now that we've explored and explained the neg-raising interpretations of belief-in reports, I'll use the availability of these interpretations to reply to an apparent counterexample to my view due to Szabó (2003: 591–4).

Based on an example, Szabó argues that what Price would call the factual sense of a belief-in report isn't equivalent to *S believes that O exists*. Such belief-in reports don't, Szabó suggests, attribute a belief with a propositional content, but a belief whose content is a term. Since I agree with Szabó's opponent that such belief-in reports attribute a belief with a propositional content, Szabó's argument also threatens my view.

Szabó's example involves Horatio, of whom Hamlet said "There are more things in heaven

and earth, Horatio, Than are dreamt of in your philosophy". Horatio reasonably holds that his ontology misses some things that in fact exist. That is, according to Horatio, the things he takes to exist don't exhaust what does exist. Now contrast a belief-that with a belief-in report:

(34) QUD: What exists?

a.	Horatio believes that things he doesn't believe in exist.	True
b.	Horatio believes in things he doesn't believe in.	Not true

The belief-that (34a) attributes is a reasonable one, and one that, given the case description, Horatio holds. (34a) is true. By contrast, the belief-in (34b) attributes is an unreasonable one—there's something incoherent, Szabó suggests, about believing in things one doesn't believe in. So, since it's part of the case description that Horatio is reasonable, Horatio doesn't have this belief-in. (34b) isn't true. Because (34a) and (34b) differ in truth-values, Szabó concludes that belief-in reports aren't equivalent to belief-that reports of the form *S believes that O exists*.

Given the context in which we're interpreting (34a) and (34b)—a context in which the salient property is existence—my view predicts that (34b) entails (34a). So whatever makes the belief attributed in (34b) an unreasonable one, and so one not held by Horatio, must be something (34b), but not (34a), entails. On my view, there's two such things: the affective requirement and its evidential counterpart. First, that Horatio would be (intellectually) satisfied/disappointed if he found out that things he doesn't believe in exist/don't exist. Second, that Horatio cannot easily gather sensory evidence that things he doesn't believe in exist or has reason to form a belief about whether they exist before gathering additional easily available sensory evidence about whether they exist.

Szabó's case can be extended so that Horatio satisfies both the affective and the evidential requirement. Take the evidential requirement first. Depending on what specific things Horatio already takes to exist, it might be very difficult for him to gather sensory evidence that things he doesn't believe in exist. For instance, if Horatio's ontology already contains all things for which there can be perceptual evidence, he won't be able to easily gather sensory evidence that things he doesn't believe in exist. Thus, he satisfies the evidential requirement. Regarding the affective requirement, one could describe the case so that he'd be at least intellectually disappointed upon finding out that things he doesn't believe in don't exist. This disappointment can, moreover, be reasonable. For his modesty prevented him from holding the much more informative and, in this scenario, ultimately correct belief that his ontology exhausts what exists. So, he'd have been closer to the truth if he had committed. And this can give Horatio good reason to be intellectually disappointed upon finding out that the things he took to exist actually exhaust what exists. In sum, my semantics predicts Horatio, on some extensions of Szabó's case, to reasonably believe in things he doesn't believe in, contrary to Szabó's intuitions.

My reply to this apparent counterexample turns on the fact that both (34a) *and* (34b) have neg-raising interpretations. Thus, in evaluating our truth-value and reasonableness intuitions about the case, we need to control for these neg-raising interpretations.

On (34a)'s neg-raising interpretation, Horatio believes that things such that he believes them not to exist do exist. This belief isn't inconsistent: it can be true that things such that one believes them not to exist do exist. Still, it can seem just as unreasonable and incoherent as the

belief-in attributed by (34b). Indeed, it's closely related to the 'commissive' form of Moore's paradox, which arises if one believes that P and that one believes that not-P.[23] The content of one's belief isn't inconsistent here either: P can be true even if one believes that not-P. Yet this doesn't exonerate one. One is still being unreasonable.[24] By contrast with (34a)'s neg-raising interpretation, the interpretation Szabó intends interprets the negation as wide-scope, as in *Horatio believes that things such that it's not the case that he believes them to exist do exist*. On this interpretation, (34a) reports a reasonable belief.[25]

So, the belief (34a) reports is only unreasonable on (34a)'s neg-raising interpretation. This suggests a hypothesis about (34b): that the belief-that (34b) reports is only unreasonable on (34b)'s neg-raising interpretation. One part of this hypothesis is true: on its neg-raising interpretation, (34b) entails an unreasonable belief-that. Given the contextually salient property of existence and (34b)'s neg-raising interpretation, (34b) entails that Horatio believes in things such that he believes them not to exist. This in turn entails that Horatio believes that things such that he believes them not to exist do exist. So, (34b)'s neg-raising interpretation entails the same unreasonable belief-that as (34a)'s neg-raising interpretation.

Is the remainder of the hypothesis also true? That is, is the belief-that (34b) reports reasonable on (34b)'s non-neg-raising interpretation? On this interpretation, (34b)'s negation is read as wide-scope. So, given the contextually salient property of existence, this reading of (34b) entails that Horatio believes in things such that it's not the case that he believes them to exist. This entails that Horatio believes that things such that it's not the case that he believes them to exist do exist. Thus, (34b)'s non-neg-raising interpretation entails the same reasonable belief-that as (34a)'s non-neg-raising interpretation.[26] So, we have systematic reasons (cf. Szabó, 2003: 592-4) for thinking that (34b) has an interpretation that Szabó's argument from Horatio's reasonableness hasn't shown to be false, even if (34b) wouldn't normally be used that way.

Now, Szabó could raise an explanatory challenge at this point. Both (34a) and (34b) have neg-raising and non-neg-raising interpretations. In either case the belief the neg-raising interpretation reports is, whilst the belief the non-neg-raising interpretation reports isn't, unreasonable. So, why do we have different intuitions about (34a) and (34b)? On the assumption that the

[23]For an overview of Moore's paradox and its various forms see Williams (2015)

[24]The difference between Horatio's unreasonable belief and the commissive Moore paradoxical belief seems to turn on the fact that the negative belief Horatio believes himself to have is self-ascribed *de re* rather than *de dicto*:

(i) a. What Horatio believes: $\exists$x [x exists $\wedge$ I believe ($\neg$ x exists)]
b. Its Moore paradoxical variant: $\exists$x [x exists $\wedge$ I believe ($\neg$ $\exists$x x exists)]

[25]Interestingly, that's despite great similarity with the 'omissive' form of Moore's paradox, which arises if one believes that P and that it's not the case that one believes that P. Horatio's reasonable belief, however, doesn't have the same logical form as the omissive Moore paradoxical belief. The belief he believes himself not to have is understood *de re*, not *de dicto*:

(i) a. What Horatio believes: $\exists$x [x exists $\wedge$ $\neg$ I believe (x exists)]
b. Its Moore paradoxical variant: $\exists$x [x exists $\wedge$ $\neg$ I believe ($\exists$x x exists)]

[26]Szabó could argue that, although the belief-that (34b)'s non-neg-raising interpretation entails is unproblematic, something else (34b) entails makes Horatio's belief-in unreasonable, and therefore one he doesn't hold. But what might this be? For instance, as we saw earlier, him being intellectually disappointed upon finding out that things he doesn't believe in don't exist can be reasonable.

neg-raising and non-neg-raising interpretations are equally available in both cases, we expect no such difference. I admit that this remains an explanatory challenge for my view. But to address it more space is needed than I have here. So stay tuned for more.

8. Concluding remarks

Belief-in reports of the form *S believes in O* have been taken to have at least two senses: factual and evaluative. I began by briefly suggesting that there's no evidence for two distinct senses, then spent most of the paper developing a general semantics for belief-in reports. I explored, and used my semantics to explain, several features of belief-in reports: the context-dependence of what belief-that reports they entail, their widespread lack of equivalence with belief-that reports, and their neg-raising property. Put roughly, my semantics says that *S believes in O* a) asserts that for some contextually salient property F, S believes that O has F and b) presupposes that S either has a belief that O has F that meets the affective and evidential requirement or has a belief that O doesn't have F that meets the affective and evidential requirement.

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