Metaphysically Indeterminate Existence
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Theodore Sider (2001), (2003), (2009) has developed an influential argument against indeterminacy in existence. In what follows, I argue that the defender of metaphysical forms of indeterminate existence has a unique way of responding to Sider's argument. The response I'll offer is interesting not only for its applicability to Sider's argument, but also because of its broader implications; responding to Sider helps to show both how we should think about precisification in the context of metaphysical indeterminacy and how we should understand commitment to metaphysically indeterminate existence.

1. Sider's argument

Sider (2009) summarizes his argument as follows:

> The indeterminacy argument aims at those who think that unrestricted quantifiers can have precisifications. In what follows, let all quantifiers, both used and mentioned, be unrestricted. Suppose that '∃' has two precisifications, $\exists_1$ and $\exists_2$, in virtue of which ⌜∃xΦ*x*⌝ is indeterminate in truth value, despite the fact that Φ is not vague. ⌜∃xΦ*x*⌝, suppose, comes out true when '∃' means $\exists_1$ and false when '∃' means ∃2. How do $\exists_1$ and $\exists_2$ generate these truth values? A natural thought is:
>
> > **Domains** $\exists_1$ and $\exists_2$ are associated with different domains; some object in the domain of one satisfies Φ, whereas no object in the domain of the other satisfies Φ
>
> But the natural thought is mistaken. If Domains is assertible, it must be determinately true. But Domains entails that some object satisfies Φ (if "…some object in the domain of one satisfies Φ…", then some object satisfies Φ). And so ⌜∃xΦ*x*⌝ is determinately true, not indeterminate as was supposed.

In a nutshell, the worry is as follows. If there's indeterminacy in existence, we need to precisify the existential quantifier. In order to precisify the existential quantifier, we have to vary its domain. But this leads to two precisified domains for '∃', one of which is larger than the other. And in this situation, we haven't actually got two *precisifications* of '∃'. The unrestricted usage of '∃' must range over everything, and so the bigger domain wins -- the bigger domain is determinately the meaning of '∃'. But if the bigger domain is determinately the meaning of '∃', then the meaning of '∃' isn't indeterminate, as we originally supposed.

Some caveats are in order. As Sider readily admits, even if it is successful this argument doesn't show that existence can't be indeterminate. It is aimed only at precisificational theories of indeterminacy. Other approaches -- degree-theoretic, third-value, contextualist, etc -- to indeterminacy are untouched. Moreover, the argument doesn't show that '∃' cannot have precisifications. It shows only that '∃' cannot have precisifications if those precisifications are understood as different domains for '∃'.

Nevertheless, the argument is a substantial challenge to the defender of metaphysical indeterminacy. It would be strange - and suspicious - if precisificational theories were closed off to the defender of metaphysical indeterminacy. Precisificational theories remain among the most popular and successful approaches to indeterminacy, and they are of particular importance to those who wish to preserve classical logic and classical metatheory.[1]

And it would likewise seem ad hoc if metaphysical indeterminacy was in general defensible, but metaphysically indeterminate existence was not. Though metaphysical indeterminacy per se does not imply the possibility of indeterminate existence[2], many common examples of metaphysical indeterminacy do entail such a possibility. To take a familiar case, suppose facts about composition are sometimes metaphysically indeterminate. If it can be indeterminate whether some things the xs compose to form some distinct thing y, then it can plausibly indeterminate what things there are (i.e., it could be indeterminate whether there is any thing y). Indeterminacy in persistence could give us similar results. At least on some views of persistence, metaphysical indeterminacy in the facts about x's persistence through time will generate scenarios in which its indeterminate whether x exists. Other cases will run in much the same way. If, for example, it can be indeterminate what universals are instantiated, and we're Aristotelian about universals, then we have to admit the possibility of it being indeterminate what universals there are (because if it can indeterminate whether a universal is instantiated, it seems that it could be indeterminate whether a universal is *ever* instantiated). The impossibility of indeterminate existence would greatly restrict the sort of metaphysical indeterminacy we could allow.

These considerations, combined with Sider's claim that precisifications of '∃' need to be understood as domains, make Sider's argument something the would-be defender of metaphysical indeterminacy needs to address. But, I'll argue, the defender of distinctively metaphysical indeterminacy has a unique way of responding to Sider's argument -- one not available to other precisificational accounts of indeterminacy. To show why this is the case, however, we need to look at the components of Sider's argument in detail.

2. Precisificational theories of indeterminacy

On one popular way of thinking about indeterminacy, indeterminacy always admits of *precisification*. That is, when a sentence S is indeterminate, there are various ways of

[1] Standard supervaluationism preserves classical logic, though not classical metatheory. 'Non-standard' supervaluationism preserves classical metatheory as well. Other notable classical treatments of indeterminacy -- Williamson's (1994) epistemicism and Graff-Fara's (2000) interest-relative contextualism, for example -- are not available to the defender of metaphysical indeterminacy, so precisificational theories are of particular importance if classical logic is to be preserved. See Barnes and Williams (forthcoming) for a precisificational theory of metaphysical indeterminacy which is fully classical (preserving both classical logic and metatheory).

[2] If you thought the openness of the future was a kind of metaphysical indeterminacy, for example, the indeterminacy you commit to wouldn't require indeterminacy in existence. Future-directed indeterminacy *can* lead to indeterminate existence: if, for example, the openness of the future involves indeterminacy in what future ontology exists. But while indeterminacy in what future ontology exists would be sufficient for generating metaphysical indeterminacy for future facts, it isn't necessary -- you might think there's future-directed indeterminacy but be a presentist. See Barnes and Cameron (2009) for discussion.

rendering what S says more exact or precise. The basic idea is that the meaning of indeterminate sentences is in some sense 'underdetermined'. And so to eliminate indeterminacy we should remove this underdetermination - we should specify an exact meaning for the sentence. Making S more precise -- that is, specifying an exact meaning for S -- is a way of resolving its indeterminacy. But when the meaning of S is underdetermined, there are often multiple ways we can make S more precise. That is, there are multiple 'candidate meanings' for S, each of which resolve its indeterminacy. These candidate meanings are the different 'precisifications' of S: they are each equally good candidates for the meaning of S (or at least, none is determinately better than the others) and they each resolve S's indeterminacy.

The presence of these multiple precisifications then allows for the familiar treatment of indeterminacy and vagueness given by supervaluationism.[3] The basic idea is that we can use precisifications to give us a semantics for 'determinately' and 'indeterminately'. A sentence is determinately true if it is true at all precisifications; it is indeterminate if it is true at some precisifications but false at others. There is then a further question of whether we equate determinate truth with truth simpliciter, but that matter is independent of the basics of a precisificational approach to indeterminacy.

So, for example, suppose we have a paradigm red thing -- a fire truck, say -- and we want to precisify the meaning of 'is red'. Any way of making 'is red' precise should count the fire truck as red -- that is, any candidate meaning for 'is red' is one which says that the fire truck is red. Given this, the sentence 'The fire truck is red' is determinately true. But suppose, in contrast, we have a rose that's a dusky shade of reddish-pink. Some candidate meanings of 'is red' count the rose as red, but some don't: it's no constraint on our usage of 'is red' that it cover things colored like the rose, nor that it fail to cover them. So on a precisificational account of indeterminacy, the sentence 'The rose is red' is indeterminate.

3. Precisification via reference

There are, of course, different ways you can characterize precisifications -- commitment to a precisificational account of indeterminacy does not by itself settle *how* we should go about precisifying. But a common and straightforward way of thinking about precisifications is as determining the reference[4] of the terms in the sentence we want to precisify. For predicates, this means fixing an extension; for quantifiers, this means fixing a domain; and so on.

So, for example, consider again an utterance of the sentence 'The rose is red' which is indeterminate. Suppose there's no indeterminacy in what 'the rose' refers to (I'm waving a rose right in front of your face and pointing to it, and there are no other roses around) but it's indeterminate whether the rose in question counts as red (it's bordering on pink). So to precisify, we determine the extension of 'is red'.

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[3] In both its 'standard' (see Fine (1975)) and 'non-standard' (see McGee and McLaughlin (1994)) forms.

[4] Or, perhaps more carefully, the semantic value. For ease of explanation, I'll speak loosely about 'the reference' of things like quantifiers, but if this strikes you as objectionable just sub in 'semantic value'.

Here are two pieces of semantic orthodoxy: the meaning of predicates (plus context, perhaps) determine their extension[5] and the extensions of predicates are sets. With this orthodoxy as a starting point, it's natural to say that if a predicate's meaning is indeterminate, it's indeterminate *which set* is its extension.[6] There are lots of different sets of objects, the members of which all resemble one another in their red-ish color. All these sets contain firetrucks and British postboxes -- they contain all the paradigm red things. But they differ as to which (if any) 'borderline' red things they contain -- there's variation in what bricks, sunsets, and raspberries they have as members.[7]

Some of these sets contain the rose. Some of them don't. When we precisify, we determine an exact extension for 'is red' -- that is, we pick one of these sets and say that 'is red' picks out all and only the objects which are members of the set we've chosen. Given that, *ex hypothesi*, it's indeterminate whether the rose is red, we need to choose some sets which contains the rose and some which don't. By doing this, we show how you could give 'is red' a precise reference (that is, determine its extension) in different ways, some which count the rose as a red thing and some of which don't.

That's the process of precisifying 'is red' to sift out the indeterminacy. You end up with a precisification (a determination of the extension of 'is red') that counts the rose as red, and a precisification that doesn't. Neither way of determining the extension of 'is red' -- that is, neither way of precisifying the sentence -- is determinately better than the other (it's not determinately better or worse to include the rose in the set of red things, because it's indeterminate whether the rose is red). Familiar supervaluationist-style stories can proceed from there.

4. Precisifying quantifiers

It's worth seeing exactly how this kind of precisificational process will go when what we're precisifying is a quantifier, since that's what's at issue in Sider's argument. For Sider's argument to work, we need to assume that the meaning of quantifier is determined by its domain (and that domains are sets or suitably set-like[8]). Assuming this, we can see how precisification of quantifiers can proceed in an analogous way to precisification of predicates.

We could, of course, think that the meaning of a quantifier is determined by something other than its domain -- the inference rules that govern it, for example. But such an interpretation of quantifiers doesn't sit well with Sider's argument. If quantifiers get their meaning just from, say, their introduction and elimination rules, then quantifier meanings are 'cheap', as Sider puts it, and there's no reason to think that quantification is ontologically perspicuous. That is, just because some variable, x, is bound by some quantifier doesn't tell us anything ontologically interesting about what the world is like x-wise.

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[5] That is, all the individuals -- whether actual or possible -- which satisfy the predicate.

[6] Contrast the view which says that indeterminate predicate have a determinate extension, which is a 'vague set'.

[7] Though they all respect penumbral connections - for any x they contain, they contain all the things redder than x.

[8] E.g., Classes, or sui generis values of second order variables.

To see why this is the case, consider an example given by Jason Turner (2010):

> For any language with an existential quantifier ∃, we can define a new symbol that acts inferentially like a 'bigger' existential quantifier. Here's how. First, pick a new symbol, *α*. It will be a 'quasi-name': if we take a sentence with a name in it and replace that name with *α*, we count the resulting expression as a sentence, too. Then, where R is any n-placed predicate of the language, apply the following definitions:
>
> (1)⌜R(*α*, . . . , *α*)⌝ =df. ⌜P ∨ ~P⌝, where P is some sentence not containing *α*;
>
> (2) ⌜R(t1, . . . , tn)⌝ =df. ⌜P & ~P⌝, where P is some sentence not containing *α* and some but not all of the ti's are *α*, and
>
> (3) ⌜∃*xF(x)⌝ =df. ⌜∃xF(x) ∨ F(*α*)⌝.
>
> The first two definitions make α act like a name assigned to a peculiar object — an object that satisfies all predicates, but (for polyadic ones) only in conjunction with itself. The third definition introduces a new expression '∃*' which acts like a quantifier that is substitutional with respect to α but objectual otherwise.

As Turner points out, '∃*' satisfies the inference rules for existential quantifiers, and '∃' counts as a restriction of it (if we understand restrictions as well as quantifiers via inference rules). But we shouldn't conclude, as a result, that '∃*' is a better guide to what there is than '∃'. As Turner says '∃* is just a linguistic trick. We cannot possibly get ontological insight from it'.[9]

So for the argument to get started, we need to assume that quantifiers get their meanings from their domains. But once we make this assumption, it's easy to see why quantification is understood as ontologically loaded. If quantifiers are associated with domains and domains are sets (or suitably set-like), then quantification *must* be ontologically committing. To quantify over some thing, a, is to include a in the domain of a quantifier. But for a to be in the domain of the quantifier is for a to be a member of the set which is the domain of the quantifier. And only things which exist can be members of sets. If quantifiers take their meanings from their domains, quantification incurs ontological commitment in a way it doesn't if quantifiers take their meanings from something like inference rules.

With this assumption in place, the question is now how to precisify quantifiers. Consider an utterance of 'There is a dog' which is indeterminate and in which the quantifier 'there is' is restricted to things in the kitchen. Suppose that there are no salient cases of borderline dogs. The indeterminacy is coming from whether there's a dog in the kitchen -- the dog has been banned from the kitchen, but is slowly working her owner through a forced-march Sorites series by attempting to move, one millimeter at a time, across the kitchen threshold. It is currently indeterminate whether the dog counts as being in the kitchen. When we restrict our quantifiers to things in the kitchen, the sentence 'There is a dog' thus comes out indeterminate.[10]

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[9] After all, if the language in which we use '∃*' contains the predicate 'is a unicorn', then ∃*x(x is a unicorn) will be true. As Turner says: 'surely we ought not to think that, really, there are unicorns after all.'

[10] This is a classic case of inherited vagueness. 'In the kitchen' is vague, but is not used in the sentence (the sentence is just 'There is a dog', with 'there is' suitably restricted). Rather, we've placed a vague restriction on 'there is', so 'there is' inherits the vagueness from the description we're using to restrict it.

The existential quantifier restricted to things in the kitchen gets its meaning via its domain, but it's indeterminate what its domain is. There are two sets -- both of which contain the refrigerator, the microwave, etc -- one of which contains the dog, the other of which doesn't. It's indeterminate which of these is the domain of the kitchen-quantifier. To precisify, we give the kitchen-quantifier as specified domain. On one precisification, we assign it the dog-containing set; on the other, we assign it the dog-lacking set. Neither of these precisifications is determinately better than the other. The familiar supervaluationist story -- for quantifiers instead of predicates this time -- can proceed from there.

5. Precisifying unrestricted quantifiers

With these basics in place, we can now understand Sider's argument against indeterminate existence. If there is indeterminate existence, a precisificational theory of indeterminacy requires that there be precisifications of the unrestricted existential quantifier. If we associate the meaning of the unrestricted existential quantifier with its domain and think that we should precisify a quantifier by specifying the sets which can permissibly count as that quantifier's domain then the problem is easy to formulate.

Suppose for the sake of argument that it's indeterminate what exists (the source of the indeterminacy doesn't matter here, so long as we think it's indeterminacy that admits of precisification). Determinately, some thing, a, exists. It's indeterminate whether anything else exists. That is, it's indeterminate whether there exists some further thing in addition to a. To precisify this indeterminacy, we need to precisify the *unrestricted* existential quantifier '$\exists$'. There are two ways to do this (on the assumption that we precisify quantifiers by specifying their domains). We can assign to '$\exists$' the domain {a}, or we can assign to '$\exists$' the domain {a, b}. Doing this gives us two different quantifiers -- Sider's $\exists_1$ and $\exists_2$ -- one with domain {a} and one with domain {a, b}. These two quantifiers are the precisifications of the indeterminacy in '$\exists$'.

Let's stipulate that $\exists_1$ has the more expansive domain {a, b}, and $\exists_2$ the more restricted domain {a}. In order for both $\exists_1$ and $\exists_2$ to count as precisifications of $\exists$, it must be the case that neither is determinately a better candidate for the meaning of $\exists$ than the other. Sider's point is that, given the variation in the domains of $\exists_1$ and $\exists_2$, this cannot be the case. To be a candidate for the meaning of the unrestricted existential quantifier, a quantifier must range over *absolutely everything*. $\exists_2$ does not range over everything -- to see why, just look at the domain of $\exists_1$. And if $\exists_2$ doesn't range over everything, then it isn't a good candidate for the meaning of '$\exists$'.

If you precisify '$\exists$' by varying the domain, the thought goes, you will end up with two quantifiers, one of which is more expansive than the other. But if '$\exists$' has to have the most expansive domain available, then only one of these precisifications -- the one with the largest domain -- will be a candidate for the meaning for '$\exists$'. (The smaller domain is ruled out, because the presence of the larger domain means the smaller domain isn't unrestricted - there's something it isn't quantifying over.) And thus '$\exists$' will determinately have the largest domain, rather than it being indeterminate what domain it has. But if it can't be indeterminate what the domain of the existential quantifier is, then we can't precisify the existential quantifier; and if we can't precisify the existential quantifier then existence can't be indeterminate on any precisificational understanding of indeterminacy. That's the argument in a nutshell.

6. The 'intuitive complaint'

As mentioned previously, the argument only works if we assume that the way to precisify a quantifier is to vary its domain. But that's a natural thing to assume if we maintain both that quantifiers get their meanings from their domains and that precisifications should be refinements of meaning. If a quantifier's meaning comes from its domain, how else would we refine its meanings except by varying the domain?

There are other ways we could potentially precisify an unrestricted quantifier. We could precisify its introduction and elimination rules. Or, in an example Sider considers in detail, we could treat precisifications of quantifiers as translation functions from sentences to sentences. Here is Sider's example:

> Consider various translation functions, which assign sentences to sentences. A precisification of a quantified sentence, S, is the meaning of Tr(S), for some translation function Tr. To specify a range of precisifications, one need only specify a range of translation functions. Suppose, for example, that we want to say that the following sentence is vague:
>
> > (C) Something is composed of objects a and b
>
> And suppose that a and b are "attached" to each other to degree 0.8, in some suitable scale. (The idea is that objects compose a further object if they are sufficiently attached together; 0.8 is to be a borderline case of attachment.) We must find two precisifications of (C), one true, the other false. To this end, consider two translation functions, Tr_1, and Tr_2, which assign the following values to sentence (C):
>
> > Tr_1 (C) = 'Some object, any two parts of which are attached to each other at least to degree 0.9, is composed of a and b '
> >
> > Tr_2 (C) = 'a and b are attached to each other at least to degree 0.7'
>
> Since Tr_1(C) is false and Tr_2(C) is true, we have our desired precisifications.

In response, Sider registers what he calls an 'intuitive complaint': what you get from something like translation functions doesn't look like a refinement of the meaning of '∃'. The semantic machinery employed in these precisifications isn't ontologically committing.[11] And in the case of translation functions, it doesn't even involve quantification. So what you come up with in these non-domain-varying precisifications begins to look very distant from the meaning of 'there exists', which leads to Sider's intuitive complaint. Something this distant from the meaning of 'there exists' doesn't seem like a *refinement* of the meaning of 'there exists' (that is, a refinement of the meaning of '∃'). It just looks like you've changed the subject. And so, insofar as precisifications are supposed to be refinements of meaning, it doesn't really seem like you're *precisifying*. It seems like you're changing the subject.

7. Precisfying metaphysically indeterminate existence

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[11] On a non-deflationary understanding of ontological commitment, that is.

I think that the defender of metaphysical indeterminacy can respond to Sider's argument. In order to do this, she will need to reject the model of precisification Sider assumes. But, as the subsequent discussion will show, her rejection of this model is principled (i.e., not just prompted by her desire to vindicate indeterminate existence) and, I'll argue, not subject to Sider's 'intuitive complaint'.

As Sider's argument correctly assumes, the best candidate for the meaning of the unrestricted existential quantifier must quantify over everything. If anything is left out of a quantifier's domain, that quantifier simply isn't unrestricted -- end of story. But it's too quick to thereby assume that the more expansive precisification of '$\exists$' -- $\exists_1$ -- is the (determinately) best candidate. And that's because, ex hypothesi, it's indeterminate what exists.

The best candidate for the meaning of '$\exists$' must be unrestricted, but it must also be a quantifier. It must include in its domain everything there is, but also *only what there is*. Otherwise, it isn't a quantifier.

Familiarly, there can be pieces of language which behave quantificationally -- they look and act like quantifiers -- but which fail to be quantifiers because they try to quantify over things that aren't there. Let's call these pieces of language 'pseudo-quantifiers'.[12]

Now let's consider $\exists_1$ and $\exists_2$. $\exists_2$'s domain is {a}. In our example a determinately exists, so $\exists_2$ determinately ranges only over things that exist. Thus $\exists_2$ is determinately a quantifier. But in our example, it's *indeterminate* whether a is the only thing that exists. And so it's indeterminate whether $\exists_2$ ranges over everything that exists. $\exists_2$ is determinately a quantifier, but it's indeterminate whether $\exists_2$ is an *unrestricted* quantifier.

What about $\exists_1$? $\exists_1$'s domain is {a, b}. But, ex hypothesi, it's indeterminate whether b exists (that is, it's indeterminate whether there is any such thing as b).[13] Determinately, $\exists_1$ ranges over everything that exists - it's determinately true that there's nothing that exists that isn't covered by $\exists_1$. But it's indeterminate whether $\exists_1$ ranges over *only* what exists, and thus indeterminate whether $\exists_1$ is a quantifier (or, instead, a pseudo-quantifier).

Saying that $\exists_1$'s domain is {a,b} is in fact misleading. If domains are sets and sets only have existing things as members, then it's indeterminate whether there is any such thing as the domain {a, b}. But {a, b} is what $\exists_1$ is trying to pick out - so it's likewise indeterminate whether $\exists_1$ has a domain at all.[14] That is, it's indeterminate whether $\exists_1$ is a

12 There will, of course, be different ways to characterize what I'm calling 'pseudo-quantifiers'. But the important point is simply that we often find things in natural language which look quantificational, but which fail to genuinely be quantifiers because they try to quantify over things that don't exist.

13 This point needs to be put carefully. It's not that there is some thing, b, such that that thing exists indeterminately. This de re claim will make Sider's conclusion unavoidable. Rather, it's indeterminate whether there is any such thing as b (and so indeterminate whether or not b refers). The claim of indeterminate existence needs to be made de dicto rather than de re.

14 Why isn't it just indeterminate whether $\exists$1 has domain {a} or domain {a,b}? Because for the precisificational model to work $\exists$1 and $\exists$2 need to be determinately distinct.

quantifier with an unrestricted domain, or instead a pseudo-quantifier.[15] *If* $\exists_1$ is a quantifier, then determinately it's unrestricted. But it's indeterminate whether it's a quantifier.

From the perspective of $\exists_2$, $\exists_1$ isn't a quantifier -- it tries to quantify over things that aren't there.[16] From the perspective of $\exists_1$, $\exists_2$ isn't unrestricted -- it doesn't quantify over everything. $\exists_2$ is determinately a quantifier, but not determinately unrestricted. $\exists_1$, if it is a quantifier, is determinately unrestricted; but $\exists_1$ is not determinately a quantifier. The best candidate meaning for '$\exists$' must be both unrestricted and a quantifier. So neither $\exists_1$ nor $\exists_2$ is determinately a better candidate than the other for the meaning of '$\exists$' (and, since it's indeterminate what exists, there are no other better candidates to be had). Both $\exists_1$ and $\exists_2$ can thus count as precisifications of '$\exists$'.

Let's revisit Sider's principle Domains:

> $\exists_1$ and $\exists_2$ are associated with different domains; some object in the domain of one satisfies Φ, whereas no object in the domain of the other satisfies Φ

Domains assumes that $\exists_1$ and $\exists_2$ are (determinnately) quantifiers (determinately) associated with different domains. From there, it's easy to block the possibility of precisifying '$\exists$'. $\exists_1$ has an object in its domain - b - that $\exists_2$ doesn't. If we can quantify over b, then b exists. If b exists, it had better be included in the domain of the unrestricted existential quantifier. So only $\exists_1$, not $\exists_2$, is a candidate for the meaning of '$\exists$'. But, contra Sider, if we think that it's indeterminate what exists we shouldn't think that Domains is determinately true. It's indeterminate whether $\exists_1$ and $\exists_2$ are associated with different domains, because it's indeterminate whether $\exists_1$ is associated with a domain at all. It's likewise indeterminate whether some object in the domain of one satisfies some non-vague predicate ϕ, whereas no object in the domain of the other satisfies ϕ (remember, it's indeterminate whether there is any such thing as b). What's determinate are some nearby conditionals. If $\exists_1$ is a quantifier, $\exists_1$ and $\exists_2$ are associated with different domains. If $\exists_1$ is a quantifier, some object in its domain satisfies ϕ whereas no object in the domain of $\exists_2$ satisfies ϕ. But it's indeterminate whether $\exists_1$ is a quantifier.

8. Precisifying when indeterminacy is metaphysical

On the understanding of 'precisification' deployed in Sider's argument - wherein we precisify by fixing reference - Domains follows straightforwardly. If the way to precisify a quantifier is to assign it a domain, then if there are two distinct precisifications of a quantifier there had better be something in the domain of one that isn't in the domain of the other. Otherwise, there would be no way to say that the domains (and thus the precisifications of the quantifiers) are in fact distinct (at least insofar as domains are understood as sets, or essentially related to sets, or set-like). But once we have variation in domains, Sider's argument looks compelling.

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[15] Sub in your favorite story here for how to deal with non-referring terms like 'b'.

[16] To evaluate 'from the perspective' of a precisification is, roughly, to treat that precisification as giving the actual truth conditions of the terms in question. So, for example, from the perspective of the precisification that says the rose is red, the precisification that says it isn't red has too strict criteria for redness. Precisifications are pseudo-modal, so the idea is analogous to treating a possible world as actualized.

Yet, as I hope the above discussion shows, the defender of metaphysical indeterminacy should resist the idea that precisification of the quantifier determinately requires variation in domains. It requires variation in *something*, sure. But to assume that what we're varying is *determinately* the domain of a quantifier is premature if we're operating under the assumption that its indeterminate what there is.

To resist at this point, the defender of metaphysical indeterminacy will need to reject Sider's construal of precisification. That is, she can't understand precisification as always and only reference-fixing (assigning extensions to predicates, domains to quantifiers, etc). A reference-fixing account of precisification can only precisify the existential quantifier by varying domains, and that's exactly what it isn't determinate that we're doing if there's metaphysical indeterminacy around.

But the standard account of precisification *should* be resisted by the defender of metaphysically indeterminate existence, for obvious reasons. We can't assume that we can precisify by sorting objects into extensions and domains if it can be indeterminate *what objects there are*. On a semantic picture of indeterminacy, indeterminacy is located in our terms. There is no corresponding indeterminacy in the objects we're trying to refer to. So a natural way to construe precisification is as specifying, for each term, exactly what that term refers to. But if indeterminacy is metaphysical, there can be indeterminacy located in the objects we refer to. And if there's indeterminate existence, it can be indeterminate what objects *there are* to be referred to. If it's indeterminate what objects there are, you can't precisify simply by sorting objects into extensions, domains, etc, because it's indeterminate what you've got (what objects there are) to divide up into those extensions, domains, etc.

So Sider's argument asks us to assume for reductio that there is indeterminacy in existence. But for his reductio work, we have to further assume an account of precisification that doesn't make sense under the assumption that there is indeterminacy in existence, *if that indeterminacy is understood as metaphysical indeterminacy*.

But now the major question becomes: if they aren't determinately quantifiers with different domains, in virtue of what do $\exists_1$ and $\exists_2$ count as precisifications of '$\exists$'? This brings us back to Sider's 'intuitive complaint'. Precisifications are supposed to be *refinements of meaning*. We can precisify the existential quantifier by doing things other than varying the domain -- we can assign different translation functions, or specify different inference rules -- but then we wind up with things that look very distant from the meaning of 'there exists'. So it's hard to see how we can wind up with things that deserves to be called precisifications of '$\exists$' except by specifying different domains. And once we've got different domains, Sider's argument is difficult to resist.

But, as we've seen, the defender of metaphysically indeterminate existence shouldn't accept that we precisify by varying domains. So what can she say instead? Very simplistically, think of a language as composed of terms, reference-fixing descriptions, and the extensions you get by applying those reference-fixing descriptions.[17] Now suppose we want to precisify a term that's generating indeterminacy - a term like 'red' in the previous examples. One way to precisify, already discussed, is to specify extensions for 'red'. Various extensions are equally good candidates for the meaning of 'red', and so by assigning 'red' these various extensions we get our precisifications. Moreover, once 'red'

[17] Or perhaps more accurately, functions from reference-fixing descriptions to extensions.

is assigned to specific extensions, we can 'track back' to determine the precise reference-fixing description for 'red' at any given precisification. At precisification P_1, where 'red' has extension e, 'red' has the reference-fixing description that will pick out exactly extension e (so, in the case of colors, the reference-fixing description could be something along the lines of the exact wavelengths of light an object must reflect in order to count as red; applying that reference-fixing description yields all and only the objects in e).[18] At precisification P_2, where 'red' has extension e*, 'red' will have the reference-fixing description that picks out e*. And so on.

But the case is different when its indeterminate what exists. We can't assume that we can track back from extensions or domains to reference-fixing descriptions when it's indeterminate what extensions or domains *there are* (because it's indeterminate what objects there are to be sorted into extensions/domains). An alternative, then, is to precisify the reference-fixing descriptions. In the absence of indeterminate existence, this will yield precisifications with varying extensions of domains. But if it's indeterminate what exists then it's indeterminate whether precisifying in this way leads to variation in extension or domain.

Let's take the case of '∃' as an example. If we're adopting a precisificational theory of indeterminacy and we're assuming that existence is indeterminate, we want to precisify '∃'. But if we're assuming existence is indeterminate we can't precisify '∃' by varying its domain -- if it's indeterminate what exists, then it's indeterminate what domains there are, making domains are a bad place to start. So let's look, instead, at the reference-fixing description. '∃', when unrestricted, has a very simple reference-fixing description -- it says 'take everything'. But if there's indeterminacy in existence, there can be multiple ways of understanding the command 'take everything'. The different ways of understanding this command can give us the different precisifications of '∃'.

'∃' means 'there exists', and everything exists -- so '∃' has to range over everything (when unrestricted). But if existence is indeterminate then it's indeterminate what things exist. Does '∃' range over indeterminate things? Unsurprisingly, that's indeterminate. (Nothing in the referencing-fixing rules of '∃' settles it.) If existence is indeterminate, there are two ways of precisifying the command to take everything. One way says 'be cautious -- take

[18] There may well be multiple reference-fixing descriptions that yield the same extension, e. In that case, we either have to say that one description is privileged (because of facts about simplicity or naturalness or whatever) or instead say that precisification at least enables us to pick out a specific set of reference-fixing descriptions.

only what determinately exists'. The other way says 'be bold -- take the determinate and the indeterminate'.[19]

$\exists_2$ is the cautious precisification; $\exists_1$ is the bold precisification. $\exists_2$ opts for caution because if you quantify over indeterminate existence you risk failing to be a quantifier. $\exists_1$ opts for boldness because if you quantify only over determinate existence you risk failing to be unrestricted. $\exists_2$ isn't determinately unrestricted and $\exists_1$ isn't determinately a quantifier (though determinately, if it is a quantifier it's unrestricted). They represent two different ways of precisifying the reference-fixing command 'take everything', as given by '$\exists$' -- a command which is indeterminate if existence is indeterminate. So there's a clear way of seeing how both $\exists_1$ and $\exists_2$ are refinements of meaning, even though it's not *determinately* the case that $\exists_1$ and $\exists_2$ have different domains.

9. The intuitive complaint, again

Abstracting from this specific understanding of precisification, we can now see, in general, why Sider's 'intuitive complaint' doesn't apply to this defense of precisificational indeterminate existence the way it does to precisifications understood as something like translation functions. If we construe precisifications as translation functions, Sider's principle Domains is determinately false -- precisifications don't have anything to do with varying the domain of a quantifier. But if we're precisifying metaphysically indeterminate existence, Domains is indeterminate. Sider's argument needs Domains to be determinately true in order for his argument to work. But he needs Domains to be determinately *false* in order for the intuitive complaint to be effective.

For the intuitive complaint to work, we need to be able to say that precisifications which don't vary domains don't seem like refinements of meaning. Here's a conjecture: if this complaint is to have any force, we need to be able to say that the precisifications in question are *determinately* such that they don't vary the domain of '$\exists$'. That is, for the intuitive complaint to be effective precisification needs to be something determinately distinct from domain variation -- something like translation functions from sentences to sentences. I don't have much of an argument for this -- it's just an intuitive report about how the intuitive complaint should work. But that at least doesn't look like it's on any *worse* dialetical footing than the intuitive complaint itself.

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[19] Is the 'be bold' command satisfied at $\exists_2$? After all, $\exists_2$ quantifies only over a, so isn't it the case that according to $\exists_2$ we do take everything, even the indeterminate stuff (there just isn't any indeterminate stuff according to $\exists_2$)? No. Remember that to evaluate the truth of 'determinately' and 'indeterminately' statements, we have to look at what's going on at *all* precisifications -- the truth conditions for determinacy-involving statements require us to ask whether something is represented at all or merely some precisifications. According to $\exists_2$, a determinately exists -- but we can only say this by looking at $\exists 1$, which also represents a as existing (a only determinately exists if each precisification represents it as existing). Likewise, according to $\exists_2$ b indeterminately exists -- because $\exists_1$ represents b as existing but $\exists_2$ does not. So $\exists_2$'s quantifier does not meet the 'be bold' command simply in virtue of not quantifying over b. (It's helpful to think about the analogy to modality. Suppose that a necessarily exists and b contingently exists. It's true according to w that a necessarily exists, but the truth of this is determined by what's going on at other worlds in addition to w: a has to exist at *all* worlds to be necessary. And it can likewise be true according to w that b possibly exists, even if b doesn't exist at w, so long as b exists at some other world w*. Again, we have to look at more than just what's going on at w to evaluate what modal statements are true according to w. Determinacy works the same way.)

And if that intuition is right, then there's little reason to think that a compelling version of the intuitive complaint can be formulated against the precisificational account of '$\exists$' defended here. The Domains principle isn't determinately true on this model of precisification, but it also isn't determinately false. We don't assume that we precisify by varying the domain, but we also can't determinately rule it out.

Why? Because it's indeterminate whether $\exists_1$ is a quantifier, and likewise indeterminate whether $\exists_1$ has a domain. Determinately, though, *if* $\exists_1$ is a quantifier then it has domain {a, b}, which is a different, larger domain than the domain of quantifier $\exists_2$ (which has domain {a}). So if $\exists_1$ is a quantifier, then we've got domain variation. But it's indeterminate whether $\exists_1$ is a quantifier. And thus its indeterminate whether we've got domain variation. Which makes sense, given that it's indeterminate what domains there are (which makes sense if we're assuming that its metaphysically indeterminate what things there are).

Works Cited

Barnes, Elizabeth and JRG Williams (forthcoming): ‘A Theory of Metaphysical Indeterminacy’. *Oxford Studies in Metaphysics* 6.

---. and Ross Cameron (2009): ‘The Open Future: Bivalence, Determinism, and Ontology’. *Philosophical Studies* 146 (2).

Fara, Delia Graff (2000): ‘Shifting Sands: An Interest-Relative Theory of Vagueness.’ *Philosophical Topics* 28 (1).

Fine, Kit. 1975. ‘Vagueness, truth and logic’. Synthese, 30, 265–300. Reprinted with corrections in Keefe and Smith (eds) *Vagueness: A reader* (MIT Press, Cambridge MA: 1997) pp.119-150.

McGee, Vann, & McLaughlin, Brian. 1994. ‘Distinctions without a difference’. Southern Journal of Philosophy, supp XXXII, 203–251.

Sider, Theodore (2009): ‘Against Vague and Unnatural Existence: Reply to Liebesman and Eklund’. *Nous* 43: 557-67.

---. (2003): ‘Against Vague Existence’. *Philosophical Studies* 114: 135-46.

---. (2001): *Four-dimensionalism*. Oxford: OUP.

Turner, Jason (2010): ‘Ontological Pluralism’. *The Journal of Philosophy* 107 (1), 5-34.

Williamson, Timothy (1994): *Vagueness*. London: Routledge.