Against Vague and Unnatural Existence: Reply to Liebesman and Eklund*

Theodore Sider *Noûs* 43 (2009): 557–67

David Liebesman and Matti Eklund (2007) argue that my "indeterminacy argument"—according to which quantifiers are never vague—and my "naturalness argument"—according to which quantifiers "carve at the joints"—do not sit well with each other.[1] I don't agree, but I do think that Liebesman and Eklund have shown something important: the indeterminacy argument is not as independent of the naturalness argument as it may have appeared. In any case, I welcome the occasion provided by their challenging paper to clarify and refine my arguments.

1. The indeterminacy argument

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 '$\exists$' has two precisifications, $\exists_1$ and $\exists_2$, in virtue of which $\ulcorner \exists x\phi \urcorner$ is indeterminate in truth value, despite the fact that ϕ is not vague. $\ulcorner \exists x\phi \urcorner$, suppose, comes out true when '$\exists$' means $\exists_1$, and false when '$\exists$' means $\exists_2$. 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 $\ulcorner \exists x\phi \urcorner$ is determinately true, not indeterminate as was supposed.

This was the core of the indeterminacy argument. It is important to recognize its limitations. It does *not* show that '$\exists$' cannot have precisifications; it

*Many thanks to David and Matti for an extensive and fruitful correspondence.

[1]The indeterminacy argument appears in Sider 2001*b*, pp. 128–130 and 2003; the naturalness argument is spread out over Sider 2001*a*, the introduction to Sider 2001*b*, Sider 2003, 2004, 2006, 2009, and a forthcoming book.

shows at most that if '∃' does have precisifications, we cannot think of them as corresponding to different domains.

How else might we think of precisifications of quantifiers? More tractably, how might we think of precisifications of quantified sentences? One proposal would run as follows. 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):[2]

$\mathrm{Tr}_1(\mathrm{C})$ = 'Some object, any two parts of which are attached to each other at least to degree 0.9, is composed of *a* and *b*'

$\mathrm{Tr}_2(\mathrm{C})$ = '*a* and *b* are attached to each other at least to degree 0.7'

Since $\mathrm{Tr}_1(\mathrm{C})$ is false and $\mathrm{Tr}_2(\mathrm{C})$ is true, we have our desired precisifications.

There is much not to like here. Precisifications are supposed to be *ways of refining meaning*. But on the face of it, $\mathrm{Tr}_2(\mathrm{C})$ does not look like a refinement of (C). (C) asserts that there exists a certain sort of object, an object composed of *a* and *b*, whereas $\mathrm{Tr}_2(\mathrm{C})$ does not imply anything remotely like this. (C)'s major connective is the existential quantifier, whereas $\mathrm{Tr}_2(\mathrm{C})$'s is not; $\mathrm{Tr}_2(\mathrm{C})$ is not a quantified sentence. Call this the *intuitive complaint*; more on it below.

The upshot: the indeterminacy argument shows that if quantifiers are to have precisifications, these must be understood as something other than domains. They might, for instance, be understood as translations. But these translations—the ones we have considered anyway—do not seem intuitively to be refinements of meaning (the intuitive complaint).

On to the naturalness argument.

[2] I specify only what these functions assign to the sentence (C). A further question is that of how the functions may be extended to the entire language.

2. The naturalness argument

In the first instance this argument aims at the likes of Eli Hirsch (2002*a*,*b*, 2005, 2007), the leading critic of contemporary ontology.[3] There is an ongoing debate[4] among contemporary ontologists over whether, for instance, a collection of scattered pieces of matter composes some further object, a "scattered object". According to Hirsch, this debate is misguided; it is, in a sense, merely verbal. For there are many candidate meanings for 'exists'. Under one, the sentence 'scattered objects exist' comes out true, but under another, it comes out false. Indeed, each position on the ontology of composite material objects comes out true under some quantifier meaning. Hirsch calls this doctrine *quantifier variance*. Given quantifier variance, the only reasonable question in the vicinity is that of which meaning fits ordinary English *use* of the sentence "scattered objects exist". Since this is clearly not the question that contemporary ontologists are asking, they are not asking a reasonable question.

Any word could have meant something different from what it in fact means. Thus, the fact that the word 'exists' could have been associated with different meanings does not on its own establish Hirsch's conclusion (surely *some* questions are substantive!). At a minimum, the alternate meanings must be in some sense *similar* to one another. The question of whether the pope is a bachelor feels merely verbal in part because certain alternate meanings for 'bachelor' are *similar* to our meaning. A linguistic community that differed from us over whether to apply 'bachelor' to the pope would not feel linguistically alien; its speakers would, in some sense, share our conception of a bachelor, in a way that speakers who used 'bachelor' to mean *fish* would not. Hirsch expresses the mutual similarity of his candidate meanings by calling each one "a notion of existence" (Hirsch, 2002*b*, p. 53), and tends to cash this out as similarity of inferential role.

Hirsch needs, I think, to make a further claim about his candidate meanings. Suppose that, among Hirsch's candidate meanings, our meaning of 'exists' is alone in being *natural* in David Lewis's sense—only it carves nature at its joints.[5] Then, even given inferentially similar alternate meanings for 'exists', the question of what exists in our sense of 'exists' isn't merely verbal, just as questions

[3] Hirsch's critique is inspired by, but soberer than, Hilary Putnam's; see, for example, Putnam 1987. See Eklund 2007 and 2008 on Putnam.

[4] The epicenter is van Inwagen 1990.

[5] See Lewis 1986, pp. 59–69. Lewis's account of naturalness must be generalized, however; see Sider 2009 and my forthcoming book.

about electrons aren't merely verbal despite the existence of inferentially similar alternate meanings for 'electron'.[6] The question of what exists in our sense is a *better question* than questions of what "exists" in any of the unnatural, gerrymandered, grue-like senses; it is a question about reality's fundamental structure.

So, I interpret quantifier variance as including the claim that no candidate meaning is distinguished, in the sense of being more natural than the others.. And it is this additional claim that my naturalness argument targets. The naturalness argument says that there *is* a distinguished quantifier meaning, and that ontology is about what exists in the distinguished sense. Why believe in a distinguished quantifier-meaning? My answer is that we generally attribute distinguished meanings (meanings that carve at the joints) to the primitive expressions of our most successful theories. That is why we think that the primitive predicates of fundamental physics carve at the joints. But quantifiers occur in every successful theory that anyone has ever advanced.[7]

The upshot: I grant Hirsch that there exist many candidate meanings for 'there exist'. Some render 'There exist scattered objects' true, others render it false. But this does not undermine ontology if one candidate meaning is uniquely distinguished by carving reality at the joints. And we have reason to believe that there is indeed such a distinguished meaning.

3. Liebesman and Eklund's dilemma

Liebesman and Eklund's dilemma now runs as follows. My naturalness argument assumes that there are multiple candidate meanings for quantifiers (otherwise what role would there be for naturalness?) But my indeterminacy argument seems to show quite generally that there cannot be multiple candidate meanings for quantifiers. For suppose that $\exists_1$ and $\exists_2$ are candidate meanings for the existential quantifier. If $\exists_1$ and $\exists_2$ have different associated domains, then something is in the domain of one but not the other. Thus, one of them fails to include absolutely everything in its domain. But then that one isn't a candidate

[6]The reasoning behind Putnam's (1981; 1980; 1978, Part IV) model-theoretic argument against realism establishes the existence of such candidate meanings.

[7]My argument for a distinguished kind of quantification is therefore not that it must exist in order to vindicate contemporary ontology, contrary to what Liebesman and Eklund suggest. (As much as putting forward an argument, though, my hope is to clarify what is at issue between Hirsch and the ontologists.)

quantifier meaning after all, for the quantifiers in question are intended to be unrestricted.

The indeterminacy argument, recall, leaves open that quantifiers have precisifications, provided that the precisifications are not understood as domains. Accordingly, when giving the naturalness argument, I can follow Hirsch in speaking of multiple quantifier meanings, provided that I take those quantifier meanings to be something other than domains. The quantifier meanings might, for instance, be the semantic values of "translations", under various translation functions.

But, Liebesman and Eklund ask, won't my attack on the translations approach to precisifications apply to my own use of translations as candidate quantifier meanings? Consider, again:

(C) Something is composed of objects *a* and *b*

Suppose, for the sake of argument, that (C) is false in English. Hirsch wants to say that this is a "shallow" fact (not fit for high debate in the manner of the ontologists), because, in addition to the false proposition that is actually expressed by (C), there is a true proposition that we could equally well have meant by (C); namely, the proposition that is actually expressed by the sentence:

(AB) *a* exists and *b* exists

I grant Hirsch that this is a candidate semantic value for (C) (and go on to object that it does not carve at the joints[8]). But how can I grant this? Does not the intuitive complaint apply here as well? After all, (AB) seems intuitively not to mean anything like (C). It has a different logical form: (C)'s major connective is the existential quantifier while (AB)'s is 'and'. Should I not therefore deny that its meaning is a candidate semantic value for (C), just as I denied that Tr_2(C)'s meaning is a precisification of (C)?

If 'candidate meaning' is construed liberally, no one can deny that there are many candidate meanings for quantified sentences. For example, suppose that "candidate meanings" must merely validate the standard introduction and elimination rules for the quantifiers (and other logical constants). Then candidate meanings are cheap: for any language, $\mathscr{L}$, and any model, M, of an appropriate sort for $\mathscr{L}$, a candidate meaning results from interpreting an

[8]Better: I object that the semantic value for '∃' that is associated with an appropriate translation function that assigns (AB) to (C) does not carve at the joints.

arbitrary sentence ϕ of $\mathscr{L}$ as meaning that ϕ is true in M. If one further constrains candidate meanings by requiring them to render true a chosen set of sentences Γ, each model of Γ still results in a candidate meaning. One could consider more loaded definitions of 'candidate meaning', but I think the battle is more productively joined elsewhere: better to construe 'candidate meaning' liberally, and then fight over whether candidate meanings carve at the joints, count as precisifications, and so on.

Back to battle, then, with 'candidate meaning' henceforth understood liberally. Is my attitude toward candidate meanings and precisifications consistent? My opponent in the indeterminacy argument, the defender of vague quantifiers, is committed to saying that some candidate semantic values of '$\exists$' are *precisifications*, refinements of that expression's meaning. That is why the intuitive complaint there is appropriate: the supplied semantic values ought to be genuine refinements. But when I grant Hirsch his candidate semantic values for quantified sentences, I do not say that they are precisifications, nor do I accord them any related positive status. *Hirsch* does (he calls them "notions of existence"), but I don't. So it is no argument against *me* that Hirschian translations do not look like good semantic values.

Liebesman and Eklund will reply that if my intuitive complaint about translational precisifications—"they don't look like refinements!"—is any good, then I could make an analogous attack on Hirsch's proposed quantifier meanings. The attack would not, of course, show that Hirsch's candidate meanings do not exist (we are construing 'candidate meaning' liberally, recall). But as we saw, Hirsch needs his candidate meanings to be in some sense similar to our meaning of 'exists'. Let $\mathscr{L}$ be a language in which (C) means what (AB) actually means. In order to deflate the ontologist's debate over (C), Hirsch must argue that in $\mathscr{L}$, the expression 'Something' expresses "a kind of existence", that its meaning is relevantly similar to its meaning in English. Liebesman and Eklund's reply, then, must be that I could dispense with naturalness and offer the intuitive complaint against the claim that 'something' expresses a kind of existence in $\mathscr{L}$. After all, in $\mathscr{L}$, the sentence 'Something is composed of a and b' means merely that a and b exist; this seems to leave out the existence of a further object composed of a and b.

To which I reply: yes, to the extent that the intuitive complaint is justified in the case of the indeterminacy argument, it is also justified against Hirsch. Just as Tr_2(C) does not seem intuitively to be a way of refining (C)'s meaning, (AB) does not seem intuitively to say anything like what (C) says. (AB) leaves out (C)'s claim that there exists some further object composed of a and b.

The naturalness argument and the intuitive complaint are separate, compatible ways to argue for the same conclusion. It's helpful to think of Hirsch and the defender of vague existence as making claims of a common form: that there are multiple candidate quantifier meanings with a certain *merit*. For Hirsch, the merit is that the candidates are the meanings of 'exists' in "equally good" languages—equally good in a sense that is supposed to show that ontological disputes in English are merely verbal. For the defender of vague existence, the merit is that the candidates are precisifications, refinements of the actual, English meaning of 'exists'. A picture:

Vague existence:

$$\begin{tikzcd} & p_1 \\ \text{`Exists'} \arrow[ur] \arrow[r] \arrow[dr] & p_2 \\ & p_3 \end{tikzcd}$$

precisifications

Hirsch:

$$\begin{tikzcd} & m_1 \\ \text{`Exists'} \arrow[ur] \arrow[r] \arrow[dr] & m_2 \\ & m_3 \end{tikzcd}$$

meanings in "equally good" languages

Considerations of naturalness, as well as the intuitive complaint, can each be taken as a challenge to the merit of the offered candidate meanings, and hence can each be put forward against *both* views. The intuitive complaint rejects the candidates' merit on intuitive grounds. Precisifications must be intuitively similar to the original, unprecisified meaning; likewise for equally good languages, since the existence of languages with utterly un-English-like meanings for 'exists' shows nothing about the status of ontological debates conducted in English. Considerations of naturalness likewise apply in each case, though they are theoretical rather than intuitive. Hirsch's offered candidates are less natural, and hence his languages do not show ontology to be verbal. The candidates are not precisifications because precisifications cannot be exceeded in naturalness by an otherwise adequate candidate meaning.[9]

So, the arguments are compatible with each other. This is not to say that the arguments are equally *good*. In particular, the intuitive complaint rests upon

[9]See the end of Sider 2003. Note that this challenge to vague existence would be available to me, in service of my "argument from vagueness" for temporal parts, even if I gave up the indeterminacy argument, contrary to what Liebesman and Eklund suggest.

an undefended, intuitive judgment of semantic dissimilarity. I'm not sure I'd bet my house (or even my bicycle) on that judgment's being correct. Further, it is dependent on the naturalness argument in the following sense: it can be resisted by a defender of quantifier variance. Recall that quantifier variance (as I construe it) says that there are many candidate quantifier meanings, no one of which is distinguished in the sense of being more natural than the others. The defender of quantifier variance could, then, reply to the intuitive complaint as follows:

> Let p be the proposition expressed by (AB). You say that (AB) "does not seem intuitively to concern existence", presumably because the major connective of (AB) is not 'there exists'. But we can imagine another language, $\mathscr{L}$, in which the same proposition p is expressed by a sentence (namely, (C)) whose major connective *is* 'there exists'. Of course, in $\mathscr{L}$, 'there exists' must mean something different from what it means in English, but this other language carves nature at the joints just as well as does English (and is also inferentially similar to English). Your evaluation of p as being insufficiently similar to the actual meaning of (C) was parochial—it was based on viewing p through the lens of English rather than the equally joint-carving $\mathscr{L}$.

And a defender of quantifier variance could make an analogous reply to the intuitive complaint against precisifications of quantifiers. The intuitive complaint is based on the logical form of *English* sentences expressing the candidate meanings; but those candidates could be expressed by sentences whose major connective is 'exists' in alternate languages which carve nature at the joints just as well as does English. Further, the defender of quantifier variance could give the following positive account of why these candidates count as precisifications:

> Here is my picture of the semantics of 'there exists'. There are many candidate quantificational meanings, each of them precise, each of them equally natural, and none of them exceeded in naturalness by some further candidate quantificational meaning. What determines which one or ones we mean by 'there exists'? Fit with ordinary usage.
>
> Fit with usage comes in degrees. Some candidates fit usage very badly; these are determinately not what we mean. Others fit usage

> well enough; these are what we mean. Since our usage is vague, there are many candidates in this second category. These are the precisifications of 'there exists'.
>
> One facet of our usage of 'there exists' concerns attachment: we tend to say that "there exists" a composite object only when its parts would be sufficiently attached to one another. But our standards for what counts as sufficiently attached are vague, and can be precisified in various ways. On one way of precisifying them, we get a meaning for 'there exists' that counts (C) as true if and only if Tr_2(C) is true. This candidate counts as a *precisification* of (C)—a way of refining (C)'s meaning—because it is our standards that determine (C)'s semantic value, and this candidate meaning results from a refinement of those standards.

Given quantifier variance, I think each of these defenses against the intuitive complaint is successful.[10] But without quantifier variance, neither can be made, at least not as stated. Without quantifier variance, the defender cannot say that the intuitive judgments of semantic dissimilarity are based on viewing semantic values "parochially". For if only English carves at the joints, then only the logical form that English assigns to a meaning will match that meaning's distinguished structure—the meaning's joints.

I close with a discussion of a helpful objection made by Liebesman and Eklund in correspondence. The objection aims to show that the intuitive complaint has no merit. Assume for the sake of argument that 'or' has inclusive

[10]Further, even without quantifier variance, analogous defenses might succeed for *uses* of quantifiers that do not mean the distinguished quantifier meaning. We might invent—or even have already—a language with an expression, E, that obeys the inference rules described in logic books for the existential quantifier, but which is also analytically governed by certain other principles, the result of which is that E does not mean the distinguished quantifier meaning. (Perhaps English "lite" quantification is like this; perhaps it's very strongly built into the rules of use of English that, regardless of the existence—in the joint-carving sense—of abstracta, one can truly say "there are at least two ways to win this chess match" if the match can by won by moving the queen or by moving a rook. It would even be possible to hold that most, or even all, ordinary English quantification is lite.) In such a language, the semantic pressure to make the extra stipulated rules of use come out truth-preserving is so strong that it renders countervailing facts of naturalness irrelevant. Quantifiers in an ontologically second-rate language of this sort *could* be vague; and ontological questions in such a language might well be merely verbal. Admitting this does not threaten ontology, for ontology may be conducted using non-lite quantifiers—quantifiers whose stipulated inferential role is minimal and which are stipulated to mean the joint-carving sort of quantification.

and exclusive disjunction as precisifications. (Liebesman and Eklund don't assume that this view is true, only that it shouldn't be ruled out by the intuitive complaint.) English contains no word that unambiguously expresses either inclusive or exclusive disjunction, so the precisifications of:

(O) ϕ or ψ

must be expressed in English as follows:

(ID) (ϕ and not-ψ) or (ψ and not-ϕ) or (ϕ and ψ)

(ED) ϕ or ψ, and not both: ϕ and ψ

But (ED) has a different logical form from (O). Thus, some precisifications can only be expressed by violating the logical form of the precisified sentence. How, then, can I cite a mismatch of logical form when complaining that Tr_2(C) does not look like a precisification of (C)? Mismatch of logical form does not on its own prevent a candidate meaning from being a precisification.

The example shows that the intuitive complaint needs to be refined, but I think in the end that the complaint survives. The candidate meanings of 'or' are the various truth functions, which are all (I will assume) equally natural. Which truth function is selected as the meaning of 'or' is a matter of ordinary usage—more specifically, a matter of the inference rules governing 'or'. Those rules are underspecified: English usage definitely allows inferences that are neutral as between inclusive and exclusive disjunction (for example the inference to ⌜ϕ or ψ⌝ from ⌜ϕ and not-ψ⌝ and from ⌜not-ϕ and ψ⌝, and disjunctive syllogism); but English usage (let us grant) neither definitely allows nor definitely disallows inferring ⌜ϕ or ψ⌝ from ϕ alone and from ψ alone. One refinement of the rules allows these further inferences; another disallows them. The first refinement picks out the truth function for inclusive disjunction; the second picks out exclusive disjunction. Thus: inclusive and exclusive disjunction are precisifications of 'or' because they correspond to refinements of the rules governing 'or'.

Now (and here is the point): this story carries over to (C) and Tr_2(C) only if quantifier variance is true. The story assumed that refining the *rules* governing 'or' results in a *precisification* of 'or'. This is a good assumption since it's plausible that all truth functions are equally natural; but consider, for contrast, the case of 'electron'. We would not regard 'electron' as having precisifications corresponding to refinements of rules governing our use of 'electron', because those rules play only a minor role in determining the semantic value of 'electron'; a bigger role is played by the fact that there is a single natural semantic value for 'electron'. "Wiggling" the rules for 'or' wiggles its semantic value, whereas wiggling the rules for 'electron' does not wiggle its semantic value. If quantifier variance is true then 'there exists' is relevantly like 'or', and refinements of its rules generate precisifications; but not if there is a single distinguished quantificational meaning.

The example of inclusive and exclusive disjunction, then, does not undermine the intuitive complaint, so long as that complaint is properly understood. The intuitive complaint rests on the slogan: "precisifications are refinements of meaning". But inclusive and exclusive disjunction *are* refinements of the meaning of 'or'. For one way to refine the meaning of an expression is to refine the rules governing its use, *if those rules are what determines its meaning*. Since the truth functions are all equally natural, the rules governing 'or' have free rein to determine which truth function it means; and so refining the rules refines the meaning of 'or'. Can precisifications of the quantifiers be defended in the same way? Not unless quantifier variance is assumed. For unless we're assuming quantifier variance, the rules governing quantifiers do not determine their meanings. (The rules are relevant of course; but without quantifier variance, wiggling the rules governing a quantifier may not wiggle its semantic value.) So we are left with our original judgment that the alleged precisification $TR_1(C)$ is *not* a refinement of (C), and there is no route through inferential role to show otherwise.

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Here is what I think Liebesman and Eklund have taught us. The indeterminacy argument boiled down to an intuitive complaint that certain proposed precisifications of quantificational sentences seem not to be refinements of the original vague sentences. And this complaint can be answered by anyone who accepts quantifier variance—a stance incompatible with my naturalness argument. My two arguments, then, are not as independent as it may have seemed.[11] The more I think about these matters, the more convinced I become

[11] Someone who rejected talk of naturalness altogether—Goodman, to give him a name—might make the intuitive complaint in isolation from the naturalness argument. Goodman would have to face Liebesman and Eklund's example of disjunction. If the precisifications of (O) can violate its logical form, why can't the precisifications of (C) violate its logical form as well? But Goodman's cause would not be hopeless. We make *some* intuitive judgments of

that whether quantifier variance is true, or whether instead there is a single, most natural, quantifier meaning, is the crux of metaontology.

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semantic dissimilarity: we can all agree that 'Quine believes that there are Fs' is not a way of refining the meaning of 'There are Fs'. Perhaps Goodman can argue (without bringing naturalness into it) that whatever disqualifies 'Quine believes that there are Fs' also disqualifies $TR_2(C)$ as a precisification of (C), but not (ID) and (ED) as precisifications of (O).

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