

ABSOLUTISM AND RELATIVISM

Can we theorize about absolutely everything? Do we ever succeed in being maximally general, in some interestingly maximal sense of ‘maximal’? It may seem obvious that we can and do. After all, English is equipped with quantifiers such as ‘everything’ which permit us to make general claims. *Absolutism about quantifiers* maintains further, with considerable plausibility, that we sometimes use these quantifiers to make claims that are as general as can be: sometimes we use ‘everything’ to talk about—quantify over—absolutely everything.

Nonetheless, despite the obvious appeal of absolutism about quantifiers, diverse grounds have been forthcoming for the opposing view, *relativism about quantifiers*. This introductory chapter aims to give an overview of the absolute generality debate, and to set the scene for the defence of relativism later chapters pursue. Section 1.1 elaborates on absolutism. We then take up some of the main arguments that have been given in favour of relativism: the argument from sortal restriction (Section 1.2), the argument from metaphysical realism (Section 1.3), and the argument from indefinite extensibility (Section 1.4). Two important objections against relativism, and a number of relativist responses, follow in Section 1.5 and Section 1.6.

1.1 Absolutism

To a first approximation, *absolutism about quantifiers* is the view that sometimes—when subject to no explicit or tacit restrictions—quantifiers such as ‘everything’ or $\forall x$ range over an absolutely comprehensive domain.¹ The key notion stands in need of explanation. What is it to quantify over an *absolutely comprehensive domain*? The absolutist may expand on his view as follows:²

To quantify over an absolutely comprehensive domain is simply to quantify over absolutely everything there is. ‘Absolutely everything’ means just that: absolutely everything whatsoever in the entire universe. [*Thumping the table:*] NO EXCEPTIONS!

The absolutely comprehensive domain is simply the domain comprising absolutely everything. It contains every item we can talk about, in this context or any other, in addition to every item speakers of other languages, natural or artificial, generalize over using their quantifiers. If there are abstract objects (such as numbers or sets), these belong to the absolutely comprehensive domain; similarly, if there are theoretical objects (such as electrons or quarks) or fictional objects (such as unicorns or hippogryphs) or merely possible objects (such as Wittgenstein’s possible children), then these too

¹Our principal templates for absolutism about quantifiers are Cartwright’s (1994) defence of speaking of everything, and Williamson’s (2003) elucidation of generality-absolutism.

²Compare Cartwright (1994, p. 1) and Williamson (2003, p. 415).

belong to the absolutely comprehensive domain. The same goes, without exception, for everything else.

Three further preliminary clarifications are in order. First, the absolutist's thesis that we sometimes quantify over absolutely everything *that* there is tells us nothing about *what* there is. For instance, the absolutist need not agree with the platonist who thinks that there *are* abstract objects, nor with those who posit theoretical, fictional, or merely possible objects. (Note the 'if's in the absolutist's elucidation.) The absolutist is free to adopt as austere or bloated an ontology as he pleases, so long as he claims that we can quantify without restriction over absolutely every item it comprises.³

Second, the absolutist's thesis says only that we sometimes quantify over absolutely everything that *there is*. For instance, according to a perennial fiction, there are unicorns. But this does not commit the absolutist to maintaining that the absolutely comprehensive domain contains a unicorn unless he maintains, further, that there really *are* unicorns. Nor does this commit him to the absolutely comprehensive domain's containing a fictional unicorn unless he maintains, further, that there *are* fictional unicorns. Similarly, just because there *could* be a golden mountain or there *will* one day be humans on Mars, let's assume, doesn't mean that a golden mountain or a human located on Mars is in the absolutely comprehensive domain; nor need the absolutist maintain that this domain contains a *possible* golden mountain or a *future time-slice* of a human located on Mars, unless he maintains, further, that there *are* such items.⁴

Third, to say that we *sometimes* quantify over absolutely everything there is is not to say that we *always* do. For instance, the English quantifier 'no donkey' is always restricted to range over a domain comprising only donkeys. The absolutist may also maintain that even when no restriction is explicit in the syntax of the quantifier (as, for example, in 'everything', 'every object', or 'every item'), its domain may still be subject to restrictions supplied by the context of utterance. Imagine, for example, that after much toil, having painstakingly made the final adjustments to her apparatus, a scientist makes the following utterance, her hand poised over the start button:

- (1) Everything is ready.

On one widely-held view,⁵ the truth of her utterance is compatible with a great many things not being ready (the experiment pencilled in *next* month, for example). All the same, these non-ready items fail to be counter-instances to the general claim she makes, because the context serves to restrict the occurrence of 'everything' in her utterance of (1) to range only over items relevant to the task at hand.

The operation of any sort of quantifier domain restriction is perfectly consonant with absolutism provided it can sometimes be lifted. The absolutist need

³Compare Williamson (2003, p. 433).

⁴Compare Williamson (2003, p. 431–3).

⁵The mechanism behind quantifier domain restriction is controversial. See Section 4.2.

only claim that some languages contain quantifiers which in some contexts range over the absolutely comprehensive domain. It's helpful to suppose he adds—as he typically does—that English quantifiers such as ‘everything’ are such quantifiers and the context in which he explains his view is such a context. (Indeed he must add this if his elucidation is to achieve its required generality.)⁶

Further clarifications will be necessary in due course. But enough has already been said to outline the *prima facie* appeal of absolutism. Very often in science, philosophy, and everyday life it suffices to quantify over *less* than everything. The enterprise at hand may only call for us to generalize about, say, particles in the standard model, or agents with free will, or the contents of one's fridge. But sometimes restricted generality doesn't seem to be enough: some statements in logic, set theory and metaphysics seem to cry out for an absolutely general formulation.

Take, for instance, mereological nihilism. Having explained that mereologically simple things are those that have no proper parts, the nihilist attempts to state her sparse view of parthood with the following utterance:

- (2) Everything is mereologically simple.

Well aware of the potential for such a radical claim to invite misunderstanding, the nihilist may take pains to emphasize that she does not intend her use of ‘everything’ to be restricted. If she is more charitably interpreted to quantify over a limited domain, she doesn't want our charity. To interpret her with anything less than absolute generality seems to vitiate the statement of her view.

A logician or set theorist might make similar efforts to accompany informal English renderings of the following theorems of predicate logic (with identity) and of set theory:⁷

- (3) Everything is self-identical.
 (4) Everything is the sole element of its singleton set.

In either case, interpreting ‘everything’ to range over a less-than-absolutely-comprehensive domain appears to deprive the theorem of its intended generality. With the initial quantifier so restricted, an utterance of (3) or (4) fails to rule out the possibility of non-self-identical things or singletonless items *outside* the limited domain. To capture these theorems in their intended generality seems to call, on the contrary, for quantification over an absolutely comprehensive domain.⁸

The *prima facie* case for absolutism about quantifiers is clear. All the same, absolutism has been opposed on diverse grounds. Anti-absolutist arguments draw

⁶Compare Cartwright (1994, p. 1) and Williamson (2003, n. 1).

⁷Compare the examples in Cartwright (1994, p. 1) and Williamson (2003, p. 416).

⁸Assuming domains are extensional, there is at most one absolutely comprehensive domain. But, except when expounding the views of absolutists, we generally eschew talk of ‘the absolutely comprehensive domain’ to avoid any suggestion of a presupposition that there is any such domain.

variously on semantic, metaphysical and mathematical considerations: (i) advocates of ‘sortal restriction’ dispute the availability of a universal sense of ‘thing’; (ii) relativists wary of ‘metaphysical realism’ contend that absolutism leads to objectionable views in metaontology; (iii) friends of ‘indefinite extensibility’ maintain that the availability of an absolutely comprehensive domain is in conflict with the open-ended nature of concepts such as *set* and *interpretation*.

In my view, when properly developed, considerations from indefinite extensibility provide by far and away the most powerful case against absolutism. Nonetheless, a fairly brisk survey of some of the other main arguments against absolutism is helpful in order to bring this view and the principal argument against it into sharper relief. The next three sections take up each of these anti-absolutist arguments in turn.⁹

1.2 The argument from sortal restriction

The argument against absolutism from sortal restriction trades on the distinctive determiner–nominal structure of quantifiers in natural language. In English, and many other languages, quantifiers result from combining a determiner (e.g. ‘every’, ‘some’, ‘no’, ‘most’) with a nominal (e.g. ‘thing’, ‘set’, ‘donkey’).¹⁰ The nominal serves to delimit the quantifier’s range. For instance, ‘every donkey’ generalizes about donkeys; ‘every set’ ranges only over sets; ‘everything’ quantifies over things. Absolutism consequently calls for universal nominals: in order to contend that ‘everything’ sometimes attains absolute generality, the absolutist needs to claim that the nominal ‘thing’ applies indiscriminately to any item whatsoever, regardless of its sort. The argument from sortal restriction contests this claim on the twin grounds that a quantifier’s nominal must be a *sortal* term and that no sortal term is universal.¹¹

Advocates of the sortal–non-sortal distinction differ on exactly what it takes to be sortal, but terms like ‘set’, ‘cardinal number’, ‘book’, and ‘person’ are typically taken to be clear cases of sortal terms; terms such as ‘thing’ or ‘red thing’ are usually taken to be clear cases of non-sortal terms.¹² On one prominent view, a sortal term is equipped with a *non-trivial criterion of identity* which gives identity conditions for items of the relevant sort. In the case of the term ‘set’, the Axiom of Extensionality is often given as a paradigm example of a non-trivial criterion of identity:¹³

Axiom of Extensionality. A set is identical to another if and only if they have the same elements.

⁹Rayo and Uzquiano (2006b) and Florio (2014a) survey similar terrain, also considering attacks on absolute generality based on Skolemite scepticism.

¹⁰See Lewis (1970, p. 40) and Barwise and Cooper (1981, pp. 161–2).

¹¹See Rayo and Uzquiano (2006b, sec. 1.2.5).

¹²See, for instance, Wallace (1965).

¹³See Geach (1968), Dummett (1981, ch. 16), Wiggins (2001), and Lowe (2009).

The need for nominals to be equipped with non-trivial criteria of identity is often motivated in connection with cardinality questions. P. T. Geach, for instance, maintains that there's something problematic about attributing a cardinal number to the red things in a given room:

... the trouble about counting the red things in a room is not that you cannot make an end of counting them, but that you cannot make a beginning; you never know whether you have counted one already, because "the same red thing" supplies no criterion of identity. (1968, pp. 38–9.)

As Michael Dummett puts it, on this view, in the case of a non-sortal such as 'red thing':

it simply makes no sense to speak of the number of red things... there are some questions "How many?" which can only be rejected, not answered... (1981, p. 547)

For sortal restriction to threaten absolutism about quantifiers, it needs to be argued further that putative universal nominals, such as 'thing', 'object', 'item', and so on, either fail to be universal or fail to yield meaningful quantifiers when combined with determiners such as 'every'. To this end, the sortalist may maintain that despite functioning syntactically as a count noun, on a par with 'set' or 'book', the nominal 'thing' and other supposedly universal nominals fail to be equipped with a non-trivial criterion of identity.

Faced with such an objection, many absolutists, I suspect, will be all too happy to simply reject the underlying metaphysics. If we lack an effective means to determine whether this red item is the same as one we already counted, we have no way to come to know how many red items occupy the room. But surely our ignorance, even if unavoidable, is no bar to there in fact being, say, exactly 8^8 items in the room large enough to reflect light in the red part of the visible spectrum. Nor is it a bar to the quantifier 'Exactly 8^8 red items' being a non-semantically-defective English quantifier.

Contemporary sortalists often prefer to cast non-trivial criteria of identity in a less epistemic, more metaphysical role. On such views, a non-trivial criterion of identity for *F*s need not give an idealized decision procedure for determining whether or not *F*s are identical; instead it serves as something approaching a conceptual analysis of *being the same F*, an informative account of *what it is* that makes *F*s identical or distinct.¹⁴

The difficulty of this metaphysical enquiry depends on how demanding a notion of informativeness is in play. But, once again, the link between the success of this enquiry and quantification over every member of the relevant sort is far from immediate. Not every meaningful term can be defined in terms of more basic ones. Even if we accept tight links between quantification and identity, why think the meaningfulness of the relevant quantifiers turns on there being a *non-trivial* criterion of identity?

This is not the place for a full evaluation of a sortalist metaphysics. But it's worth observing that, even for philosophers generally well-disposed to this pro-

¹⁴See, for instance, Lowe (2009, pp. 18–9). See also Horsten (2010).

gramme, two sizeable gaps need to be filled if the argument from sortal restriction is to make a well-supported case against absolutism.

First, supposing we agree with the sortalist that non-trivial criteria of identity for F s are needed in order to render contentful *numerically definite* quantifiers such as ‘exactly one F ’, why think the same is required in the case of *universal* quantifiers, such as ‘every F ’? The connection between identity and quantification is much less apparent in the latter case. Indeed, even if we lack the means to count the red items, as in Geach’s example, we may still be able to straightforwardly observe, for instance, that every red item in the room fails to exceed a cubic metre in volume.

Second, assuming the first gap can be filled, the sortalist still needs to establish that the absolutist’s putatively universal nominal—‘thing’, let’s say—lacks a non-trivial criterion of identity. It’s not enough here simply to observe that no candidate criterion is immediately apparent. After all, the same is true for supposedly paradigm examples of sortal terms such as ‘person’ and ‘river’. Moreover, supposing the various sorts exhaust the contents of the universe, and that we are optimistic about the prospects of framing a non-trivial criterion of identity for each limited sort, the absolutist can lay down a criterion of identity for ‘thing’ which is parasitic on the others:

Criterion of Identity for Thing. One thing is identical to another if and only if, for some sort F , they are both F and meet the non-trivial criterion for F -identity.

This criterion of identity seems to be as good a *prima facie* candidate for non-triviality as any; it’s certainly no logical truth. To close the gap, the sortalist needs to frame a well-motivated sense of non-trivial, and demonstrate that the proposed criterion fails to meet it.

1.3 The argument from metaphysical realism

A second anti-absolutist argument connects the absolutism–relativism debate to issues in metaontology. The absolute generality debate is usually set up in terms of universal quantifiers: ‘everything’ or $\forall x$. In ontology, by contrast, existential quantifiers—‘something’ or $\exists x$ —come to the fore. But the difference in focus is superficial. Existential quantifiers achieve absolute generality, if they do, in exactly the same way universal ones do: namely, by ranging over an absolutely comprehensive domain. Some relativists have argued against absolutism on the grounds that such generality leads to an objectionable position in metaontology.

To introduce the objection, let’s rehearse a well-worn example from Putnam (1987a, 1987b). Imagine two linguistic communities whose members appear to espouse different views about mereology (while retaining the syntax of English). Members of the first community have long considered themselves staunch mereological nihilists. The second community, on the other hand, appears to be made up of devout mereological universalists. Its members uphold the Principle of Un-

restricted Composition:¹⁵ ‘for any one or more things—no matter how scattered or unrelated—something is their mereological fusion’.

Imagine now that the two communities meet for the first time, and a member of the nihilist community attempts to convey their mereological worldview to the universalists with the usual sort of nihilist utterance (having first done their best to remove any contextual restrictions on her quantifiers):

- (5) It’s not the case that something is non-simple.

The universalists’ spokesperson rejoins:

- (6) Something *is* non-simple.

Some philosophers claim that, contrary to appearances, there is no substantive disagreement between the two communities. We can legitimately conceptualize reality with or without non-trivial mereological structure. The members of both communities speak truly relative to their linguistic framework/conceptual scheme/language in virtue of operating with different interpretations of the existential quantifier. Under the nihilist’s interpretation, even when she succeeds in removing all contextual restrictions, the existential quantifier ranges only over simples, rendering (5) true. The universalist’s utterance of (6) is likewise true with her quantifier interpreted to express existential quantification over a wider domain.¹⁶

This apparent possibility of equivocating on the (unrestricted) existential quantifier raises a metaontological question: are questions of the sort that occupy first-order ontologists—e.g. ‘is something non-simple?’—substantive questions for which the world supplies a definite framework/scheme/language independent answer?

Some relativists, apparently endorsing a negative answer to this question, argue against absolutism on the grounds that it is committed to a position that sustains a positive answer. Charles Parsons writes:

What seems to me a potential problem [for absolutism] is that if our quantifiers can really capture everything in some absolute sense, then some form of what Hilary Putnam calls ‘metaphysical realism’ seems to follow. As I understand it that is that there is some final answer to the question what objects there are and how they are individuated. (2006, p. 205)

Geoffrey Hellman deploys similar considerations in one of his arguments against absolutism:

The absolutist must insist that... at most one of the frameworks is correct, the one (if any) that quantifies over only those objects in the range of the absolute quantifiers, the objects that ‘really exist’ (*REALLY EXIST*?). (2006, p. 87, emphasis his)

In a slogan: absolutism implies metaphysical realism.

Is a commitment to a species of realism of this kind a problem for absolutism? One obvious point here is that the dialectical effectiveness of this consideration

¹⁵See, for instance, Lewis (1986, pp. 212–3).

¹⁶See, for instance, Carnap (1950), Putnam (1987a, 1987b) and Hirsch (2002, 2005, 2009).

is sensitive to the ambient metaphysics. Many absolutists, I suspect, will find a metaontological outlook where the absolute domain serves as the ultimate arbiter of ontological questions quite congenial.

Second, and more importantly, are Parsons and Hellman right to maintain that absolutism implies metaphysical realism? To answer this question, we need a better grip on some of the key metaontological terms of art. What's supposed to be 'final' about the 'final answers' to ontological questions sought by the metaphysical realist (according to Parsons)? What is the relevant sense of 'really exist' (or indeed '*REALLY EXIST*') in Hellman's formulation? The metaontology literature abounds with technical terms and metaphors used to describe realist attitudes of the kind Parsons and Hellman seem to be driving at. The final answer as to what 'really exists' is given using 'the quantifier that God would use', the one whose interpretation is 'metaphysically privileged'; substantive ontology is conducted using quantification that best 'carves nature at the joints' or is part of the 'fundamental structure of reality'.¹⁷

The terms of art permit us to rephrase our question in more evocative terms: why think that absolutists are committed to a metaphysically privileged/joint-carving existential-quantifier-interpretation (that God would use)? The only apparent answer is because the absolutist is committed to attaching this special status to the existential-quantifier-interpretation that he takes to achieve absolute generality:

Biggest is Best. If there is an absolutely general existential-quantifier-interpretation, it is the unique metaphysically privileged/maximally joint-carving existential-quantifier-interpretation.

This assumption is clearly present in the passage from Hellman quoted above. And assuming that the biggest interpretation really is (metaphysically) best, the Parsons–Hellman implication from absolutism to metaphysical realism would seem to be an immediate corollary.

But should we accept the Biggest is Best assumption? The assumption clearly has some intuitive pull. Granted the availability of an absolutely comprehensive domain, why make do with a less-comprehensive one? To frame metaphysical theories by quantifying over the smaller domain may seem to 'ignore' items that are available to be quantified over.

The usefulness of pre-theoretic intuitions in such deep metaphysical territory, however, is limited. To make further progress we need to unpack the crucial terms of art. Here we confront something of an irony in the metaontology debate: in their dispute over whether the participants in first-order ontological disputes equivocate on the existential quantifier, metaontologists often seem to attach very different meanings to their preferred term for 'metaphysically privileged'/'joint-carving'. Significantly, however, prominent figures on both sides of the debate elucidate the crucial metaontological terms in ways that call into question the Biggest is Best assumption.

¹⁷The first two are from Hirsch (2002, p. 61), the second two from Sider (2011, pp. 1,3).

Eli Hirsch (2002) is one prominent opponent of metaphysical realism. He instead advocates *quantifier variance*, which denies that there is ‘one metaphysically privileged sense of the quantifier’ (p. 61). On his view, the mark of metaphysical distinction is expressive power: a non-metaphysically-privileged quantifier-interpretation ‘would leave us without adequate resources to state the truth properly’ (p. 61). He elaborates on the relevant resources in glossing the ‘basic idea’ of his view:

‘the basic idea of quantifier variance can be nicely formulated by saying that the same (unstructured) facts can be expressed using different concepts of “the existence of a thing”, that statements involving different kinds of quantifier can be equally true by virtue of the same (unstructured) facts in the world. (p. 59)

Hirsch’s focus on *unstructured* facts and propositions sets the expressive bar comparatively low by permitting sentences with radically different syntactic structures to express the same proposition. On the unstructured account, sentences uttered in different languages (and contexts) express the same proposition if they are true in the same possible worlds (as interpreted according to their respective languages and contexts).¹⁸ Suppose, for instance, that the universalist makes a modest start to the project of cataloguing facts by uttering:

(7) Something is a table.

The nihilist can plausibly capture the same (unstructured) fact by uttering a nihilist-translation of (7), which only deploys quantification over simples but expresses the same (unstructured) proposition:

(8) Some simples are arranged tablewise.

This toy example is enough to show that there’s no obvious connection between how widely a quantifier ranges and whether its interpretation counts as ‘metaphysically privileged’ on Hirsch’s account. Even if we suppose that the universalists quantify over a domain that is absolutely comprehensive, why doubt that the non-absolutely-general quantification available in the nihilist’s language can match the universalist’s in terms of coarse-grained expressive power, provided we allow for enough other nihilist-friendly expressive resources?¹⁹ Understanding ‘metaphysical privilege’ in terms of Hirsch’s coarse-grained expressive criterion, then, it’s far from clear that the Biggest is Best assumption holds.

Hirsch’s account of the crucial metaontological term, however, is by no means the only option. Theodore Sider, on the opposing side of the metaontology debate, offers a radically different account of what it takes for a quantifier to be ‘joint-carving’ or ‘fundamental’ (to use some of his preferred terms). Sider follows David Lewis (1983) in taking it to be a brute fact about the world that it has metaphysical structure. Lewis’s account posits that some properties are more natural, or joint-carving, than others. *Inter alia*, naturalness underwrites

¹⁸See Hirsch (2009, p. 234); compare Hirsch (2002, p. 57).

¹⁹This style of translation is due to van Inwagen (1990); see Uzquiano (2004) and Sider (2009) for discussion of the required expressive resources.

objective similarity. If we follow Lewis in conceiving of properties liberally, any two items, *a* and *b*, however similar or dissimilar, share infinitely many properties (e.g. *identical-to-a-or-b*, *identical-to-a-or-b-or-pink*, and so on) and differ on infinitely many more (e.g. *identical-to-a*, *non-identical-to-b*, and so on). But sharing natural properties makes for genuine similarity. Two gluons are, *ceteris paribus*, more objectively similar than a gluon and a glue stick because the property *gluon* shared by the first pair is more natural—better joint-carving—than the property *gluon-or-glue-stick* shared by the second pair.²⁰

Sider (2009, 2011) generalizes Lewis's account of naturalness to also apply to quantifier-interpretations. On his account, there is a wide range of existential-quantifier-interpretations available to us. These include both less comprehensive nihilist-friendly interpretations that render (5) true and more comprehensive universalist-friendly interpretations that render (6) true. Nonetheless, it is a fundamental fact about the world's metaphysical structure that some quantifier-interpretations are better joint-carving than others.²¹

What becomes of the Biggest is Best assumption in this metaontological framework? Despite its apparent remoteness from ordinary enquiry, Sider (2011, sec. 2.3) contends that we can find out about the world's fundamental metaphysical structure by following a familiar set of Quinean criteria for theory choice. We should accept the theory that does best overall in terms of theoretical virtues such as simplicity, explanatory power, integration with other good theories, and so on. Sider, however, proposes one crucial addition to this methodology concerning the ideology (i.e. primitive terms) of our best theories:

A good theory isn't merely likely to be true. Its ideology is also likely to carve at the joints. For the conceptual decisions made in adopting that theory—and not just the theory's ontology—were vindicated; those conceptual decisions also took part in a theoretical success, and also inherit a borrowed luster. So we can add to the Quinean advice: regard the ideology of your best theory as carving at the joints. We have defeasible reason to believe that the conceptual decisions of successful theories correspond to something real: reality's structure. (p. 12)

Assuming we accept this methodology, it's far from clear we should accept the Biggest is Best assumption. Sider (2011, ch. 13) tentatively sketches a worldview which eschews the more comprehensive interpretations of the existential quantifier that he takes to be available. Instead, this view takes a more limited nihilist-friendly interpretation to be the unique perfectly joint-carving existential-quantifier-interpretation. On this view, even if there is an absolutely general existential-quantifier-interpretation available to us, the less comprehensive interpretation is better joint-carving. In theorising about the world's fundamental structure, it may be better to ignore mereologically complex objects if quantifying over them requires us to carve the joints less well.

Doubtless there is much to question in both Hirsch's and Sider's metaontology. But we've waded into the metametaphysics deep enough to see that the

²⁰See Lewis (1983, pp. 346–7).

²¹See Sider (2009, esp. pp. 392, 407–8; 2011, sec 9.2).

Bigger is Better assumption is far from immediate. And without it, there's no obvious reason to sustain the Parsons–Hellman implication from absolutism to metaphysical realism.

1.4 The argument from indefinite extensibility

In the previous two sections, we failed to find a compelling reason to reject absolutism about quantifiers. Of course, this brief discussion of the arguments from sortal restriction and metaphysical realism far from rules out their being developed into effective anti-absolutist arguments. But since I can see no promising way to do so, these arguments are set aside in the chapters that follow.

The primary anti-absolutist argument that is developed in this book draws on considerations of a quite different kind. At least since Russell (1908) there has been a suspicion that excessive generality is somehow bound up with Russell's paradox, and the other set-theoretic antinomies. Considerations of this kind are influentially taken up by Michael Dummett (1981, chs. 14–16, 1991, ch. 24) as the basis of a popular and powerful argument against absolutism. Central to Dummett's argument is the thesis that some concepts F are *indefinitely extensible*: to a first approximation, this is to say that given any domain comprising F s, however extensive, a further F can always be specified, giving rise to a wider domain.²²

This section considers two examples of putatively indefinitely extensible concepts: *collection* and *interpretation*. It's worth emphasizing at the outset that our first pass presentation of the argument here is no more than that. We return to consider some of Russell's and Dummett's arguments in Chapter 2, and to offer my preferred version of the argument from indefinite extensibility in Chapter 7.

Collection

Start with the concept *collection*, in something approximating its pre-theoretic use. A collection, in the relevant sense, is an arbitrary extensional collection of zero or more members. A collection is said to *comprise* certain items, when each of these items, *and nothing else*,²³ is a member of the collection.

To say that a collection is *arbitrary* is to say that there need be no non-arbitrary relation between the members it comprises. The members of a collection need not be the property of a single collector; they need not be relevantly similarly or metaphysically joint-carving; and they need not be specified by a formula of a formal language, or a predicate of a natural one. The collection comprising Weston-super-Mare, the electron third closest to the centre of mass of the solar system, and my favourite ordinal is no less a collection than the collection of glass flowers in the Harvard Museum of Natural History or the collection of natural numbers.

²²For now we set aside some of the nuances in Dummett's presentation. We return to his view in more detail in Section 2.5.

²³We henceforth use 'comprise' in this exhaustive sense, usually leaving the 'and nothing else' clause tacit.

To say that a collection is *extensional* is to say that it is individuated according to the Axiom of Extensionality: a collection is identical to another if and only if they each comprise the same members.

Elucidated in this way, the concept *collection* is a prime candidate to be an indefinitely extensible concept.²⁴ For suppose we initially quantify over a domain D . No matter how extensive D may be, we seem able to specify a collection that is demonstrably not a member of D . The ‘new’ collection in question is the domain’s *Russell collection*, the collection that comprises the collections in D which lack themselves as members (i.e. the collection of non-self-membered collections in D). Let us label this collection r_D . Adapting the reasoning of Russell’s paradox, we can then show that r_D is not in the domain D .

Rather than leading to an outright contradiction, the Russellian argument becomes a *reductio* on the assumption that r_D is a member of D . Indeed the argument has much in common with the argument Zermelo uses to show that every set M has a subset $\{x \in M : \neg x \in x\}$ which it lacks as an element.²⁵ To distinguish the argument from Russell’s paradox proper, let’s call it the *Russell Reductio*. Its demonstration is straightforward.

The Russell Reductio. Note first that r_D only contains *non-self-membered* collections. Consequently, if r_D itself is self-membered, then r_D is *not* a member of r_D —i.e. r_D is non-self-membered. This suffices to show, outright, that r_D is a non-self-membered collection.

Now suppose for *reductio* that r_D is in D . It follows from our intermediate conclusion that r_D is a *non-self-membered collection* in D . But r_D contains *all* non-self-membered collections in D . So, r_D is a member of r_D , i.e. r_D is self-membered.

This contradicts our earlier conclusion that r_D is non-self membered. Since the *reductio* hypothesis leads to a contradiction, we have established its negation: r_D is not in D .

Before we move on to our second example, four comments on the Russell Reductio are in order. First, the argument makes very few assumptions about the nature of collections. In particular (unlike Zermelo), we do not assume that the domain D is itself a collection (or any other kind of set-like object).²⁶ The conclusion that r_D is not in D follows simply from the assumption that an item is a member of r_D if and only if it is a non-self-membered collection in D .

Second, the argument is unusual among informal mathematical demonstrations in having a seemingly-essential performative aspect: if the argument is to succeed, its utterance needs to bring about a shift in domain. For we suppose that we initially quantify only over D . But the whole point of the argument is

²⁴Compare Dummett (1981, pp. 530–1; 1991, p. 317).

²⁵See Zermelo (1908, thm. 10). For the set-theoretic notation, see Table 2.1.

²⁶In other words, we do not invoke what Cartwright (1994) dubs the ‘All-in-One’ principle. See Section 2.5.

to identify an item outside this domain.²⁷

Third, assuming we can always specify r_D in this way, the Russell Reductio establishes that *collection* is indefinitely extensible. An immediate corollary is that a quantifier such as ‘every collection’ cannot range over a domain comprising absolutely every collection. For whatever domain D of collections the quantifier ranges over, we can always specify a collection—namely, r_D —outside the domain.

Last, however, this is not all the argument establishes. It also provides a consideration against the characteristic thesis of absolutism that our quantifiers sometimes range over an absolutely comprehensive domain. The argument immediately generalizes in this way because it relies on no assumptions about the domain D . Whatever domain D the absolutist may claim to be absolutely comprehensive, the Russell Reductio purports to show that D lacks something: namely, r_D .

This gives us a first pass at an instance of the argument from indefinite extensibility. The absolutist’s plausible-seeming view about quantifiers is in tension with a prima facie attractive view about collections. The absolutist, however, may be tempted to dismiss this case against his view out of hand. First, he may claim, even if Russell’s paradox was a problem, a local problem within set theory should be solved within set theory. Second, he may add, set theory has *already* solved this problem by dispensing with the incoherent, naive conception of collection which led to the paradoxes.

I will go to some lengths to argue that this second rejoinder is mistaken: when the argument is properly developed, the case from indefinite extensibility flows from a coherent conception of set that is perfectly consonant with standard set theory.²⁸ But before we come to that, let’s dispense with the first objection, by widening our pool of examples of apparently indefinitely extensible concepts to include examples not involving collections.

Interpretation

The second apparently indefinitely extensible concept we will consider is the concept of *interpretation*. For present purposes, let’s focus on interpretations of a standard first-order language containing a unary predicate P . An interpretation of the language specifies which zero or more things P applies to; in other words, that is, it specifies what satisfies the formula Px . Standardly it also supplies denotations for the language’s names (if any), a domain for its quantifiers, and so on. But any such additional features of interpretations don’t matter here. Focusing on the interpretation of P , then, it seems we are free to specify which items it does and does not apply to however we choose. There’s an interpretation of P under which it applies to all and only donkeys; a second interpretation of

²⁷This point is emphasized by Glanzberg (2006). See also Fine (2006), who suggestively labels this kind of shift from one domain to another ‘the Russell jump’. We return to consider their views in more detail in Chapter 4.

²⁸See Section 7.3.

P takes it to apply to nothing at all; a third takes P to apply to all and only sets; and so on.

Elucidated in this way, the concept *interpretation* is another plausible candidate to be an indefinitely extensible concept. For suppose, as before, we initially quantify over a domain D . Then we seem able to specify an interpretation that is demonstrably not in D —namely, the interpretation i_D which interprets P to apply to the interpretations in D which do not interpret P to apply to themselves (i.e. the interpretation under which P applies to all and only non-self- P -applying interpretations in D). The structure of the argument is just the same as the Russell Reductio; this time we apply Zermelo’s reductio strategy to an interpretation-based variant of Russell’s paradox due to Timothy Williamson:²⁹

The Williamson–Russell Reductio. Note first that i_D interprets P to apply only to non-self- P -applying interpretations. Consequently, if i_D is self- P -applying, then P does not apply to i_D under i_D : i.e. i_D is non-self- P -applying. This suffices to show, outright, that i_D is a non-self- P -applying interpretation.

Now suppose for *reductio* that i_D is in D . It follows from our intermediate conclusion that i_D is a *non-self- P -applying interpretation* in D . But i_D interprets P to apply to all non-self- P -applying interpretations in D . So, P applies to i_D under i_D , i.e. i_D is self- P -applying.

This contradicts our earlier conclusion that i_D is non-self- P -applying. Since the reductio hypothesis leads to a contradiction, we have established its negation: i_D is not in D .

Note that, this time, the argument makes no assumptions about sets or collections whatsoever. It’s common practice in model theory and semantics to encode an interpretation as a set of a certain kind; in some cases, for instance, we might identify an interpretation of P with a set-extension (i.e. the set of items P is interpreted to apply to). But the Williamson–Russell Reductio relies on no such assumptions about the nature of interpretations.³⁰ All it relies upon is the truisitic-seeming assumption that there is an interpretation under which P applies to precisely the interpretations in D that fail to apply P to themselves.

As with the Russell Reductio, however, the Williamson–Russell Reductio has a similarly performative character. If it succeeds, the argument requires us to shift from quantifying over D at the start to quantifying over a domain containing an item outside D by the end. Moreover, as before, the argument impugns a domain comprising absolutely everything just as much as a domain comprising absolutely every interpretation.

The absolutist cannot hope, then, to dismiss indefinite extensibility as a mere quirk of set theory. The Williamson–Russell Reductio does for the concept *interpretation* what the Russell Reductio does for *collection*. And this style of argument for indefinite extensibility extends in the obvious way to other seman-

²⁹Williamson (2003, sec. IV).

³⁰Compare Williamson (2003, p. 426).

tic concepts, such as *extension*, *intension*, *property*, and so on.³¹ Moreover, by instead adapting the reasoning of the Burali-Forti paradox, we may argue in an analogous way that the concept *ordinal* is indefinitely extensible.³²

The naivety rejoinder

The absolutist still has his first objection to fall back on. The objection is simply stated: doesn't the argument from the indefinite extensibility of *collection* trade on a naive conception of collection that Russell's paradox shows to be incoherent?

The absolutist may elaborate on his concern as follows. In the case of the Russell Reductio, the crucial step in the argument is the assumption, for a given domain D , that *there is* such a collection as r_D (the collection comprising the non-self-membered collections in D). But in the crucial case, when D is the domain that comprises everything, this assumption is tantamount to the following:

- (9) There is a collection that comprises every non-self-membered collection (and nothing else).

And—he continues—if anything is the prime lesson of Russell's paradox, surely it's that there is *no* such collection. Indeed the original Russellian argument (as opposed to the Russell Reductio) shows that the formalization of (9) is inconsistent in classical logic (and indeed in weaker logics).³³

In light of this, the absolutist may be tempted to offer the following rejoinder to the argument from indefinite extensibility: he replies that Russell's paradox shows the argument to be unsound by revealing its key premiss to be inconsistent. An exactly analogous rejoinder is available against the case for the indefinite extensibility of *interpretation* based on the Williamson–Russell Reductio, which has the same logical structure. Once again, the naivety rejoinder goes, the argument from indefinite extensibility offers no *reductio* on the availability of an absolutely comprehensive domain. Instead, the key plenitude assumption employed in the argument—this time: there is an interpretation under which P applies to all and only non-self- P -applying interpretations—collapses under its own weight. Let's call this style of response the *naivety rejoinder*.

Relativists are seldom moved by accusations of naivety. More significantly, the naivety rejoinder flatly ignores an important feature of the first-pass formulation of the relativist's argument. The assumption (9) that the absolutist reads into her argument quantifies over a *single* domain D . It states, in effect, that there is a collection *that belongs to D* that comprises every non-self-membered collection in D .

But the relativist makes no such assumption. Instead, as we noted in Section 1.4, the first-pass presentation of the argument from indefinite extensibility has a performative aspect. It relies on the relativist coming to quantify over a new

³¹See, for instance, Grim (1991, p. 119–20) and Parsons (2006, p. 209).

³²See, for instance, Shapiro and Wright (2006, pp. 256–7). See Section 2.1 for further details.

³³Compare, for instance, Cartwright (1994, sec. VI).

domain, D' , say. And it is from this potentially more liberal perspective that she can state the key plenitude assumption driving this instance of the Russell Reductio:³⁴

- (10) There is a collection (in D') which comprises every non-self-membered collection in D .

Unlike (9) this plenitude assumption does not, *on its own*, engender Russell's paradox. To obtain a contradiction we need to assume additionally that D contains every member of D' . If the absolutist assumes this because he assumes that D is absolutely comprehensive, why think it is the relativist's liberal attitude towards 'collectability' rather than the absolutist's insistence on absolute generality that is to blame for the paradox?

This offers the relativist the beginnings of a response to the naivety rejoinder. But in order to dispel lingering absolutist doubts about this argument for relativism, she needs to offer a much fuller account of indefinite extensibility. The most pressing task she faces is simply to establish that there's a genuine view to defend. In particular, she needs to give a clear and coherent account of the plenitude principles she takes to drive indefinite extensibility. The trouble, as we will see in Chapter 2, comes when we try to generalize plenitude assumptions such as (10). Merely establishing the coherence of indefinite extensibility, however, is not enough. The relativist also needs a well-motivated account of the crucial domain-shifts her argument relies on. How is it that, on her view, no matter how extensive the initial domain, running through the Russell Reductio, or similar, leads to a new, wider domain of quantification?

1.5 The objection from mysteriousness

The two straightforward challenges outlined at the end of the last section run to the heart of relativism. The challenges were raised against a particular argument in favour of relativism but they are closely bound up with two of the central objections that have been raised against the view itself: (i) *the objection from mysteriousness* questions whether the relativist is able to adequately explain what stands between our quantifiers and absolute generality; (ii) *the objection from ineffability* questions whether the relativist is able to coherently express her view.³⁵

Both objections seem to me to make a clear and reasonable demand of the relativist. Her best response is to tackle both challenges head on by giving a clear, well-motivated, account of relativism. Different relativists however can be expected to go different ways. Opposition to absolutism admits of considerable variation, along several dimensions. And it will be helpful to have a sense of the lay of the land before we take up these issues in more detail later on. This section

³⁴Compare, for instance, the plenitude principle (R) that drives Fine's (2006, pp. 21–22) version of the argument from indefinite extensibility.

³⁵The two objections are succinctly posed by Lewis (1991); the latter is taken up at greater length by McGee (2000) and Williamson (2003). See Chapter 5.

and Section 1.6 take up the two objections in turn and briefly survey some of the main relativist lines of response, contrasting the species of relativism I defend with some of its main rivals.

Let's begin with the explanatory burden facing relativism. Even if we seldom have call for absolute generality outside of metaphysics, logic and set theory, why doubt that it is available? What's to stop us from quantifying over an absolutely comprehensive domain simply by dropping any restrictions applied to 'everything'? Unless she can give a compelling answer to these questions, the relativist's ban on absolutely general quantification would seem to be unacceptably mysterious.³⁶

Several answers have been explored. We set aside sortal restriction in Section 1.2. But even if we assume, as we henceforth do, that universal nominals such as 'thing' or 'item' are available, at least one other source of quantifier domain restriction is commonly recognized: quantifiers not subject to a restriction explicit in their syntax may still be subject to restrictions supplied by their context of utterance. What has been said, what is salient in our surroundings, and so on, often restricts the range of 'everything' to things that are contextually relevant. As we noted in Section 1.1, however, the widespread operation of quantifier domain restriction is perfectly compatible with absolutism provided that some contexts permit 'everything' to range over an absolutely comprehensive domain. Why can't we obtain such a context simply by placing no non-vacuous restriction on the quantifier?

One way to address this challenge is to deploy a sophisticated relativist-friendly account of quantifier domain restriction due to Michael Glanzberg (2006). In his view, quantifiers exhibit two sorts of context sensitivity: the context supplies both a *background domain* associated with the determiner and a local contextual restriction attaching to the nominal. On this view, we are free to operate in contexts where no non-vacuous local restriction comes into play. Such locally unrestricted quantifiers may then range over the entire background domain. Nonetheless, Glanzberg does not accept that such locally unrestricted quantification achieves absolute generality. Suppose we begin with a background domain D^* . Glanzberg develops a pragmatic account of how we may exploit Russell's paradox to shift to a wider background domain containing D^* 's Russell set. This provides one way to make sense of the performative aspect of the Russell Reductio noted in Section 1.4.

Kit Fine (2005, 2006, 2007) offers a rather different account of the kind of domain-shift he takes to lie behind indefinite extensibility. In Fine's terminology, Glanzberg's view may be reasonably described as a version of *restrictionism*:³⁷ a

³⁶See, for instance, Lewis (1991, p. 68).

³⁷Glanzberg does not self-apply this label. On the contrary, he notes that his view seems to have an expansionist character (2006, n. 5). Although he also concedes that it's 'fair enough' to describe background domain relativity as a '*kind of contextual restriction*' (2006, n. 4). There's a perfectly good sense of 'restriction' and 'expansion' on which these claims are not in tension. (See the discussion of crypto-restrictionism in Section 4.4.) On the elucidation of

quantifier's domain is always subject to restriction (specifically, on Glanzberg's account, a quantifier invariably ranges over members of a contextually determined, non-absolutely-comprehensive background domain).

Fine eschews restrictionism in favour of what he calls *expansionism*. This view allows for 'unrestricted quantification' in a more full-blooded sense than on Glanzberg's account. On Fine's view, quantifiers may be wholly free from restrictions, *of any kind*, supplied by the context of utterance. Nonetheless, according to expansionism, the domain of such a wholly unrestricted quantifier fails to be absolutely comprehensive. This is because it is open to expansion: we can come to a wider domain by introducing 'new' objects into the initial one.

Of course, the mere introduction of expansionism does not dispel the objection from mysteriousness. Indeed the charge may seem all the more pressing: *how* can we expand the domain of an unrestricted quantifier? Not by a shift of context if the quantifier was already free from contextual restriction. Nor, surely, is the sort of domain shift at issue in the Russell Reductio a question of literally bringing new items into being, by a shift in the circumstances.³⁸ But at least two further options are available.

On my preferred account, the kind of domain shift that lies behind indefinite extensibility is due to a shift in the interpretation of quantifiers. Semantic change, of course, is commonplace. A predicate's extension may change as its use evolves. For example, it's not implausible to think that 'hoover' once applied only to a *brand* of domestic appliance rather than a *kind* of domestic appliance. If the predicate has shifted its extension in this way, this need not show that it is indexical or otherwise context sensitive. More plausibly, such a shift is due to our coming to use the expression in a more inclusive way, and thereby liberalizing the interpretation of our lexicon to attach a wider extension to the predicate. Similarly, in the case of quantifiers, the interpretational expansionist may seek to de-mystify domain expansion by assimilating it to more familiar cases of semantic change.

Fine defends a different version of expansionism, which he calls *procedural postulationism*. Again, domain expansion is not achieved by changing the circumstances. But nor, on his view, is it effected by changing the content of our expressions, either through a shift of context or through semantic change. Instead, he suggests that there is a third parameter, 'the ontology', which is 'intermediate, as it were, between a change in content and a change in circumstance, as these are normally conceived' (2006, p. 39).

Of course, in this case, as in the others, much more needs to be said if the relativist is to dispense with the charge of mysteriousness. We return to this issue in Chapter 4, which also assesses the significance of the restrictionism–expansionism divide more generally. Sometimes the difference is unimportant,

the restrictionist–expansionist divide given in Section 4.1, however, Glanzberg's view counts as restrictionist. (See Section 4.2.) The importance of the distinction, so drawn, is defended in Chapter 4, and remains whatever terminology we may choose to employ.

³⁸See Section 2.4 for further discussion.

and we may continue to cluster restrictionist and expansionist accounts together under the generic heading of ‘relativism about quantifiers’. But on other occasions the difference matters. In particular, Williamson (2003) objects that the relativist is (i) unable to adequately capture the semantics she ascribes to quantifiers and (ii) unable to express harmless-seeming kind generalizations such as ‘No donkey talks’. Chapter 4 argues that these would-be general objections against relativism are ineffective against its more promising variants. We return to fill in some of the metasemantic details of my preferred account of domain expansion in Chapter 8.

1.6 The objection from ineffability

While the objection from mysteriousness challenges the relativist’s ability to motivate her view, the objection from ineffability goes one step further and questions whether she has a view to motivate. The difficulty that the relativist faces in giving a satisfactory statement of relativism becomes apparent as soon as she tries. Suppose, for instance, that she attempts to capture her opposition to the absolutist’s contention that there is an absolutely comprehensive domain with the following utterance:

(11) No quantifier’s domain comprises everything.

On her view, the quantifier ‘everything’ in (11) ranges over a limited domain (in its context of utterance). Consequently, in uttering (11), she says, in effect, that we are unable to quantify over every member of this limited domain. But this, of course, is not her position. The relativist has no grounds to deny the availability of quantification over everything in a suitably limited domain. Still less has she grounds to deny the availability of quantification over the limited domain *she just quantified over*.

The absolutist can offer an easy explanation of the difficulty:

What the relativist would like to say, of course, is that no domain contains *absolutely everything* (understood my way). But to state her view that way would be to *use* exactly the kind of quantification she seeks to *ban*.

More generally, difficulties of this nature sometimes lead to the charge that relativism is self-defeating: the view cannot be coherently maintained.³⁹

The objection from ineffability should not be dismissed lightly. Even if the relativist is confident that absolutism fails to fill up logical space, leaving room for her view to occupy the gaps, she cannot hope to give a rigorous argument for relativism unless she can frame its conclusion.

Shaughan Lavine (2006) suggests a schematic characterization of relativism. Relativists, especially when motivated by indefinite extensibility, often dispense with an absolutely comprehensive domain in favour of an open-ended sequence of ever-wider ones: D_0, D_1, D_2, \dots . Given this picture, the relativist has no difficulty in coherently denying the comprehensiveness of, say, D_1 : she can straightforwardly achieve this by uttering ‘ D_1 does not comprise everything’ with her

³⁹See, for instance, McGee (2000); we return to his version of the objection in Section 5.1.

quantifier ‘everything’ ranging over D_2 . In order to capture her view, therefore, relativists of this stripe can seek to deploy a schema whose instances state that D_0 does not comprise everything in D_1 , that D_1 does not comprise everything in D_2 , and so on. Relativists tempted by this style of formulation may claim that relativism is comparable to theories such as first-order Peano Arithmetic which admit of infinite axiomatizations, using schemas, but cannot be finitely axiomatized.

Lavine further claims that schemas provide a relativist-friendly proxy for absolutely general quantification. For example, what the absolutist claims to achieve with an absolutely general quantifier in an utterance of ‘Absolutely everything is self-identical’, the relativist may claim to achieve with a schema whose instances state that everything in D_0 is self-identical, that everything in D_1 is self-identical, and so on.⁴⁰ Parsons (1977, 2006) and Glanzberg (2004) make a similar move, taking some quantifiers to be ‘systematically ambiguous’.⁴¹

The use of the intensifier ‘absolutely’ here requires brief comment. In ordinary English, the intensified quantifier ‘absolutely everything’ is often subject to the same sort of contextual restriction as its plain counterpart. But it’s useful to have a term to flag when absolute generality is intended. Were an absolutist speaking, he might make the following stipulation:

The quantifier ‘absolutely everything’ is henceforth to be interpreted as expressing absolutely general quantification.

By the relativist’s lights, however, such stipulations inevitably misfire: ‘absolutely everything’ quantifies over a less-than-absolutely-comprehensive domain. She may instead treat sentences containing ‘absolutely everything’ as an invitation (where possible) to supply a suitable schema or some other relativist-friendly paraphrase. Similar remarks apply to ‘absolutely comprehensive’, and so on.⁴²

An alternative means for relativists to simulate absolutely general quantification is proposed by Fine (2006). As a relativist about quantifiers, he opposes the absolutist’s contention that we can *quantify* over absolutely everything. At the same time, he claims, in effect, that—so to speak—we can *generalize* about absolutely everything with the help of a suitably-interpreted modal operator. On this view, even though the quantifier $\forall x$ does not achieve absolute generality, the operator–quantifier string, or ‘modalized quantifier’, $\Box \forall x$ does. Related views have been suggested in the context of set-theoretic quantifiers by Parsons (1977, 1983) and Linnebo (2010, 2013).⁴³

This use of operator–quantifier strings to generalize about items outside the current domain of $\forall x$ is analogous to the use of $\Box \forall x$, with \Box interpreted as metaphysical necessity, to generalize about possible items outside the domain of the actual world. But Fine (2006) is clear that the intended interpretation of the

⁴⁰See Lavine (2006, sec. 5.9).

⁴¹See Section 5.4 for further discussion.

⁴²See Sections 5.4 and 6.2.

⁴³See Fine (2006, p. 41). We borrow the term ‘modalized quantifier’ from Linnebo (2010). See Section 6.1 for further discussion.

relativist's modal operator is not a 'circumstantial' modality such as metaphysical or physical modality.⁴⁴ His elucidation of the relevant modality is coupled to his preferred third-parameter version of relativism, but advocates of contextual and interpretational versions of relativism may instead appeal to contextual or interpretational modality. To a very first approximation, the relevant necessity operator might be schematically glossed: 'no matter how the domain is admissibly extended'. If available, the modality provides a much fuller means for the relativist to mimic absolutely general quantification. In particular, Fine outlines how the relativist may use these resources to express her view in a single modal sentence.⁴⁵

We will have much more to say about the objection from ineffability, and the relativist use of schemas and modal operators respectively in Chapters 5 and 6. But for now let us confine ourselves to noting that the question of whether modalized quantifiers achieve absolute generality can be expected to lead to a schism within relativism. A relativist about quantifiers who gives a positive answer to this question might naturally be described as adopting a hybrid view: she adopts relativism about *quantifiers* but absolutism about *modalized quantifiers*. Not all relativists can be expected to follow suit. An advocate of a more thorough-going version of relativism is unprepared to accept even this much absolutism; instead she adopts relativism both about quantifiers and modalized quantifiers (although, if she uses schemas to state her view, she may yet need to concede the schemas do achieve some form of absolute generality).⁴⁶

We do better, then, not to dichotomize the absolute generality debate as a straight choice between two views about quantifiers.⁴⁷ Even if this has been the main flashpoint in recent discussions, it is not the only place where the absolutism–relativism line may be drawn. As we will see in Chapters 6 and 7, absolutism about *modalized* quantifiers differs in some substantive ways from the corresponding view about quantifiers (which helps the proponent of the hybrid view to deflect the charge that her view collapses into absolutism about quantifiers). Nonetheless, the two absolutist views also share some important similarities. And some of the most important considerations that come into play in the absolutism–relativism debate about quantifiers have analogues in the corresponding debate about modalized quantifiers.⁴⁸

My view here is somewhat tentative since the latter debate has yet to play out in full. The defence of relativism offered here, however, is ultimately a defence of a thorough-going version of relativism. The hybrid view has much to recommend it, but it comes with problems of its own. Most worryingly, absolutism about modalized quantifiers falls victim to a version of the argument from indefinite

⁴⁴See Fine (2006, p. 33).

⁴⁵See Fine (2006, p. 30). See Section 6.3.

⁴⁶When it's clear what species of absolutism or relativism is in play, we continue to use the terms 'absolutism' and 'relativism' without further qualification.

⁴⁷Thanks to Øystein Linnebo for emphasizing this point to me.

⁴⁸See Section 7.5.

extensibility. And—for the present, at least—no satisfactory means has been forthcoming to defend absolutism about modalized quantifiers from what I take to be the driving motivation for adopting relativism about quantifiers in the first place.

REFERENCES

- Bach, K. (1994). Conversational implicature. *Mind & Language*, **9**(2), 124–162.
- Bach, K. (2000). Quantification, qualification and context: A reply to Stanley and Szabó. *Mind & Language*, **15**(2-3), 262–283.
- Barwise, J. and Cooper, R. (1981). Generalized quantifiers and natural language. *Linguistics and philosophy*, **4**(2), 159–219.
- Benacerraf, P. and Putnam, H. (eds) (1983). *Philosophy of Mathematics: Selected Readings* (2nd edn). Cambridge University Press, Cambridge.
- Boolos, G. (1971). The iterative conception of set. *The Journal of Philosophy*, **68**(8), 215–231. Reprinted in (?). Page references to reprint.
- Boolos, G. (1984). To be is to be a value of a variable (or to be some values of some variables). *The Journal of Philosophy*, **81**(8), 430–449. Reprinted in (?). Page references to reprint.
- Boolos, G. (1989). Iteration again. *Philosophical Topics*, **17**, 5–21. Reprinted in (?). Page references to reprint.
- Boolos, G. (1993). Whence the contradiction? *Aristotelian Society Supplementary Volume*, **67**, 213–233. Reprinted in (?). Page references to reprint.
- Boolos, G. (1995). *The Logic of Provability*. Cambridge University Press, Cambridge.
- Brandom, R. (1998). *Making it Explicit: Reasoning, Representing, and Discursive Commitment*. Harvard University Press, Cambridge, MA.
- Braüner, T. and Ghilardi, S. (2007). First-order modal logic. In P. Blackburn, J. van Benthem and F. Wolter (eds), *Handbook of Modal Logic*, Elsevier, Amsterdam.
- Bueno, O. and Shalkowski, S. A. (2015). Modalism and theoretical virtues: toward an epistemology of modality. *Philosophical Studies*, **172**(3), 671–689.
- Bull, R. and Segerberg, K. (2001). Basic modal logic. In D. Gabbay and F. Guenther (eds) *Handbook of Philosophical Logic*, Vol. 3, 2nd edn, Kluwer, Dordrecht.
- Burgess, J. P. (2004). E pluribus unum: Plural logic and set theory. *Philosophia Mathematica*, **12**(3), 193–221.
- Burgess, J. P. (2005). *Fixing Frege*. Princeton University Press, Princeton, NJ.
- Burgess, J. P. and Rosen, G.A. (1997). *A Subject with No Object: Strategies for Nominalistic Interpretation of Mathematics*. Oxford University Press, Oxford.
- Cantor, G. (1899). Letter to Dedekind. In (?), 113–117.
- Carnap, R. (1950). Empiricism, semantics, and ontology. *Revue internationale de philosophie*, **4**(11), 20–40.
- Cartwright, R. L. (1994). Speaking of everything. *Nous*, **28**(1), 1–20.
- Cartwright, R. L. (2005). Remarks on propositional functions. *Mind*, **114**(456), 915–927.

- Church, A. (1976). Comparison of Russell's resolution of the semantical antinomies with that of Tarski. *The Journal of Symbolic Logic*, **41**(4), 747–760.
- Church, A. (1996). *Introduction to Mathematical Logic*. Princeton University Press, Princeton, NJ.
- Clark, P. (1998). Dummett's argument for the indefinite extensibility of set and real number. *Grazer Philosophische Studien*, **55**, 51–63.
- Corcoran, J. (2006). Schemata: the concept of schema in the history of logic. *Bulletin of Symbolic Logic*, **12**(2), 219–240.
- Davidson, D. (1967). Truth and meaning. *Synthese*, **17**(1), 304–323.
- Davidson, D. (1973). Radical interpretation. *Dialectica*, **27**(3–4), 313–328.
- Davidson, D. (1974a). On the very idea of a conceptual scheme. In *Proceedings and Addresses of the American Philosophical Association*, Volume 47, pp. 5–20.
- Davidson, D. (1974b). Replies to David Lewis and W. V. Quine. *Synthese*, **27**(3), 345–349.
- Dummett, M. A. E. (1981). *Frege: Philosophy of Language* (2nd edn). Harvard University Press, Cambridge, MA.
- Dummett, M. A. E. (1991). *Frege: Philosophy of mathematics*. Duckworth, London.
- Dummett, M. A. E. (1994a). Chairman's address: Basic Law V. *Proceedings of the Aristotelian Society*, **94**, 243–251.
- Dummett, M. A. E. (1994b). What is mathematics about? In *Mathematics and Mind* (ed. A. George), pp. 11–26. Oxford University Press, Oxford.
- Elbourne, P. (2008). The argument from binding. *Philosophical Perspectives*, **22**(1), 89–110.
- Feferman, S. (1988). Weyl vindicated: “das Kontinuum” 70 years later. In *Atti Del Congresso Temi E Prospettive Della Logica E Della Filosofia Della Scienza Contemporanea* (ed. C. Cellucci and G. Sambin), pp. 59–93. Clueb, Bologna.
- Fine, K. (1977). Prior on the construction of possible worlds and instants. Postscript to A. N. Prior and K. Fine, *Worlds, Times and Selves*, Duckworth, London.
- Fine, K. (1981). First-order modal theories I—sets. *Nous*, **15**(2), 177–205.
- Fine, K. (2003). The problem of possibilia. In M. Loux and D. Zimmerman (eds), *The Oxford Handbook of Metaphysics*, Oxford University Press, Oxford.
- Fine, K. (2005). Our knowledge of mathematical objects. In T. S. Gendler and J. Hawthorne (eds), *Oxford Studies in Epistemology*, vol. 1, Clarendon Press, Oxford.
- Fine, K. (2006). Relatively unrestricted quantification. In [Rayo and Uzquiano \(2006a\)](#).
- Fine, K. (2007). Response to Alan Weir. *Dialectica*, **61**, 117–125.
- Florio, S. (2014a). Unrestricted quantification. *Philosophy Compass*, **9**(7), 441–454.
- Florio, S. (2014b). Untyped pluralism. *Mind*, **123**(490), 317–337.

- Forbes, G. (1992). Melia on modalism. *Philosophical Studies*, **68**(1), 57–63.
- Forster, T. (2008). The iterative conception of set. *The Review of Symbolic Logic*, **1**(01), 97–110.
- Fraenkel, A., Bar-Hillel, Y., and Lévy, A. (1973). *Foundations of Set Theory*. North-Holland, Amsterdam.
- Frege, G. (1891). *Funktion und Begriff*. Blackwell. English edition: 1980. Function and Concept. Translations from the Philosophical Writings of Gottlob Frege, 3rd edn, Geach P and Black M (eds), Blackwell, Oxford.
- Frege, G. (1893). *Grundgesetze der Arithmetik*, Volume I. Verlag Herman Pohle, Jena. Translated into English by P. Ebert and M. Rossberg as *The Basic Laws of Arithmetic*, Oxford University Press, Oxford, 2013.
- Geach, P. T. (1968). *Reference and Generality: An Examination of Some Medieval and Modern Theories*. Cornell University Press.
- Geach, P. T. (1972). *Logic Matters*. Blackwell, Oxford.
- Glanzberg, M. (2004). Quantification and realism. *Philosophy and Phenomenological Research*, **69**(3), 541–572.
- Glanzberg, M. (2006). Context and unrestricted quantification. In [Rayo and Uzquiano \(2006a\)](#).
- Gödel, K. (1947). What is Cantor’s continuum problem. *The American Mathematical Monthly*, **54**(9), 515–25. Page references to the revised and expanded 1964 version, reprinted in [Benacerraf and Putnam \(1983\)](#).
- Gödel, K. (1999). Russell’s mathematical logic. In [Benacerraf and Putnam \(1983\)](#).
- Grandy, R. (1973). Reference, meaning, and belief. *The Journal of Philosophy*, **70**(14), 439–452.
- Grice, H. P. (1975). Logic and conversation. *Syntax and Semantics 3: Speech acts*, 41–58.
- Grim, P. (1991). *The Incomplete Universe: Totality, Knowledge, and Truth*. MIT Press, Cambridge, MA.
- Hallett, M. (1984). *Cantorian Set Theory and Limitation of Size*. Oxford University Press, Oxford.
- Hazen, Allen P (1993). Against pluralism. *Australasian Journal of Philosophy*, **71**(2), 132–144.
- Heck, R. (1996). The consistency of predicative fragments of Frege’s Grundgesetze der Arithmetik. *History and Philosophy of Logic*, **17**(1-2), 209–220.
- Hellman, G. (1989). *Mathematics without Numbers: Towards a Modal-Structural Interpretation*. Oxford University Press, Oxford.
- Hellman, G. (2002). Maximality vs. extendability: Reflections on structuralism and set theory. In *Reading Natural Philosophy: Essays in the History and Philosophy of Science and Mathematics*, (ed. D. B. Malament), pp. 335–361. Open Court, La Salle, IL.
- Hellman, G. (2006). Against ‘absolutely everything’! In [Rayo and Uzquiano \(2006a\)](#).

- Hellman, G. (2011). On the significance of the Burali-Forti paradox. *Analysis*, **71**(4), 631–637.
- Hewitt, S. (2012). Modalising plurals. *Journal of Philosophical Logic*, 1–23.
- Hewitt, S. (2015). When do some things form a set? *Philosophia Mathematica*, **23**(3), 311–337.
- Hirsch, E. (2002). Quantifier variance and realism. *Philosophical Issues*, **12**(1), 51–73.
- Hirsch, E. (2005). Physical-object ontology, verbal disputes, and common sense. *Philosophy and Phenomenological Research*, **70**(1), 67–97.
- Hirsch, E. (2009). Ontology and alternative languages. In D. Chalmers and D. Manley and R. Wasserman (eds), *Metametaphysics*, Oxford University Press, Oxford.
- Hodges, W. (2013). Model theory. In *The Stanford Encyclopedia of Philosophy* (Fall 2013 edn) (ed. E. N. Zalta). Metaphysics Research Lab, Stanford University.
- Horsten, L. (2010). Impredicative identity criteria. *Philosophy and Phenomenological Research*, **80**(2), 411–439.
- Jech, T. J. (2003). *Set Theory* (3rd, revised edn). Springer, New York, NY.
- Kanamori, A. (2010). Introductory note to 1930a. In [Zermelo \(2010\)](#).
- Kaplan, D. (1989). Demonstratives. In J. Almog, J. Perry and H. Wettstein (eds), *Themes from Kaplan*, Oxford University Press, Oxford.
- Kleene, S. C. (2002). *Mathematical Logic*. Dover Publications, Mineola, NY.
- Klement, K. C. (2010). The functions of Russell’s no class theory. *The Review of Symbolic Logic*, **3**(04), 633–664.
- Kreisel, G. (1972). Informal rigour and completeness proofs. In *Problems in the Philosophy of Mathematics* (ed. I. Lakatos), pp. 138–157. North-Holland, Amsterdam.
- Kripke, S. (1975). Outline of a theory of truth. *The Journal of Philosophy*, 690–716.
- Lavine, S. (2006). Something about everything: Universal quantification in the universal sense of universal quantification. In [Rayo and Uzquiano \(2006a\)](#).
- Lepore, E. and Ludwig, K. (2007). *Donald Davidson’s truth-theoretic semantics*. Oxford University Press, Oxford.
- Lévy, A. (1960). Axiom schemata of strong infinity in axiomatic set theory. *Pacific Journal of Mathematics*, **10**(1), 223–238.
- Lévy, A. and Vaught, R. (1961). Principles of partial reflection in the set theories of Zermelo and Ackermann. *Pacific journal of mathematics*, **11**(3), 1045–1062.
- Lewis, D. K. (1970). General semantics. *Synthese*, **22**(1), 18–67.
- Lewis, D. K. (1974). Radical interpretation. *Synthese*, **27**(3), 331–344.
- Lewis, D. K. (1975). Languages and language. In *Minnesota Studies in the Philosophy of Science* (ed. K. Gunderson), Volume 7, pp. 3–35. University of Minnesota Press, Minneapolis, MN.
- Lewis, D. K. (1979). Scorekeeping in a language game. *Journal of Philosophical Logic*, **8**(1), 339–359.

- Lewis, D. K. (1983). New work for a theory of universals. *Australasian Journal of Philosophy*, **61**(4), 343–377.
- Lewis, D. K. (1986). *On the Plurality of Worlds*. Cambridge University Press, Cambridge.
- Lewis, D. K. (1991). *Parts of Classes*. Basil Blackwell, Oxford.
- Lindström, P. (1966). First order predicate logic with generalized quantifiers. *Theoria*, **32**, 186–195.
- Linnebo, Ø. (2006). Sets, properties, and unrestricted quantification. In [Rayo and Uzquiano \(2006a\)](#).
- Linnebo, Ø. (2009). Bad company tamed. *Synthese*, **170**(3), 371–391.
- Linnebo, Ø. (2010). Pluralities and sets. *The Journal of Philosophy*, **107**(3), 144–164.
- Linnebo, Ø. (2012). Reference by abstraction. *Proceedings of the Aristotelian Society*, **112**(1), 45–71.
- Linnebo, Ø. (2013). The potential hierarchy of sets. *The Review of Symbolic Logic*, **6**(2), 205–228.
- Linnebo, Ø. (2014). Plural quantification. In *The Stanford Encyclopedia of Philosophy* (Fall 2014 edn) (ed. E. N. Zalta). Metaphysics Research Lab, Stanford University.
- Linnebo, Ø. (2016). Plurals and modals. *Canadian Journal of Philosophy*, **46**(4–5), 654–676.
- Linnebo, Ø. and Nicolas, D. (2008). Superplurals in English. *Analysis*, **68**(3), 186–197.
- Linnebo, Ø. and Rayo, A. (2012). Hierarchies ontological and ideological. *Mind*, **121**(482), 269–308.
- Linsky, B. (2002). The resolution of Russell’s paradox in Principia Mathematica. *Noûs*, **36**(16), 395–417.
- Lowe, E. J. (2009). *More Kinds of Being: A Further Study of Individuation, Identity, and the Logic of Sortal Terms*. Wiley-Blackwell.
- McGee, V. (1992). Two problems with Tarski’s theory of consequence. *Proceedings of the Aristotelian Society*, **92**, 273–292.
- McGee, V. (1997). How we learn mathematical language. *The Philosophical Review*, **106**(1), 35–68.
- McGee, V. (2000). ‘Everything’. In G. Sher and R. Tieszen (eds), *Between Logic and Intuition: Essays in Honor of Charles Parsons*, Cambridge University Press, Cambridge.
- McGee, V. (2006). There’s a rule for everything. In [Rayo and Uzquiano \(2006a\)](#).
- McGee, V. (2015). The categoricity of logic. In *Foundations of Logical Consequence* (ed. C. R. Caret and O. T. Hjortland), pp. 161–185. Oxford University Press, Oxford.
- Menzel, C. (2014). Wide sets, ZFCU, and the iterative conception. *The Journal of Philosophy*, **111**(2), 57–83.
- Mitchell, J. (1986). *The Formal Semantics Point of View*. Ph. D. thesis, University of Massachusetts, Amherst.

- Mostowski, A. (1957). On a generalization of quantifiers. *Fundamenta Mathematicae*, **44**(1), 12–36.
- Myhill, J. (1974). The undefinability of the set of natural numbers in the ramified Principia. In *Bertrand Russell's Philosophy* (ed. G. Nakhnikian), pp. 19–27. Duckworth, London.
- Negri, S. (2005). Proof analysis in modal logic. *Journal of Philosophical Logic*, **34**, 507–44.
- Oliver, A. (1998). Hazy totalities and indefinitely extensible concepts: An exercise in the interpretation of Dummett's philosophy of mathematics. *Grazer Philosophische Studien*, **55**, 25–50.
- Oliver, A. and Smiley, T. (2013). *Plural Logic: Second Edition, Revised and Enlarged*. Oxford University Press, Oxford.
- Parsons, C. (1974). Sets and classes. *Noûs*, **8**(1), 1–12.
- Parsons, C. (1977). What is the iterative conception of set? In R. Butts and J. Hintikka (eds), *Proceedings of the 5th International Congress of Logic, Methodology and Philosophy of Science 1975, Part I: Logic, Foundations of Mathematics, and Computability Theory*, Reidel, Dordrecht. Reprinted in [Benacerraf and Putnam \(1983\)](#). Pages references to reprint.
- Parsons, C. (1983). Sets and modality. In his *Mathematics in Philosophy*, Cornell University Press, Ithaca, NY.
- Parsons, C. (2006). The problem of absolute universality. In [Rayo and Uzquiano \(2006a\)](#).
- Partee, B. H. (2004). Binding implicit variables in quantified contexts. In *Compositionality in Formal Semantics*, pp. 259–281. Blackwell, Oxford.
- Paseau, A. (2007). Boolos on the justification of set theory. *Philosophia Mathematica*, **15**(1), 30–53.
- Peacocke, C. (1978). Necessity and truth theories. *Journal of Philosophical Logic*, **7**(1), 473–500.
- Pelletier, F. J. (1972). Sortal quantification and restricted quantification. *Philosophical Studies*, **23**(6), 400–404.
- Peters, S. and Westerståhl, D. (2006). *Quantifiers in Language and Logic*. Oxford University Press, Oxford.
- Poincaré, H. (1906). Les mathématiques et la logique. *Revue de métaphysique et de morale*, **14**(3), 294–317.
- Potter, M. (2004). *Set Theory and its Philosophy: A Critical Introduction*. Oxford University Press, Oxford.
- Priest, G. (2002). *Paraconsistent Logic*, pp. 287–393. Springer, Dordrecht.
- Priest, G. (2006). In *Contradiction: A Study of the Transconsistent*. Oxford University Press, Oxford.
- Putnam, H. (1967). Mathematics without foundations. *The Journal of Philosophy*, **64**(1), 5–22.
- Putnam, H. (1987a). *The Many Faces of Realism*. Open Court, La Salle, IL.
- Putnam, H. (1987b). Truth and convention: On Davidson's refutation of conceptual relativism. *Dialectica*, **41**(1-2), 69–77.

- Putnam, Hilary (2000). Paradox revisited II: Sets—a case of all or none. In ?).
- Quine, W. V. O. (1937). New foundations for mathematical logic. *American mathematical monthly*, 70–80.
- Quine, W. V. O. (1960). *Word and Object*. MIT Press, Cambridge, MA.
- Quine, W. V. O. (1966). Russell’s ontological development. *The Journal of Philosophy*, **63**(21), 657–667.
- Quine, W. V. O. (1981). *Mathematical Logic*. Harvard University Press, Cambridge, MA.
- Ramsey, F. P. (1925). The foundations of mathematics. *Proceedings of the London Mathematical Society*, **25**(5), 338–384.
- Rayo, A. (2002). Word and objects. *Noûs*, **36**(3), 436–464.
- Rayo, A. (2006). Beyond plurals. In [Rayo and Uzquiano \(2006a\)](#).
- Rayo, A. (2013). *The Construction of Logical Space*. Oxford University Press, Oxford.
- Rayo, A. and Uzquiano, G. (1999). Toward a theory of second-order consequence. *Notre Dame Journal of Formal Logic*, **40**(3), 315–325.
- Rayo, A. and Uzquiano, G. (ed.) (2006a). *Absolute Generality*. Oxford University Press, Oxford.
- Rayo, A. and Uzquiano, G. (2006b). Introduction. In [Rayo and Uzquiano \(2006a\)](#).
- Rayo, A. and Williamson, T. (2003). A completeness theorem for unrestricted first-order languages. In *Liars and Heaps: New Essays on Paradox* (ed. J. C. Beall), pp. 331–356. Oxford University Press, Oxford.
- Recanati, F. (2002). Unarticulated constituents. *Linguistics and Philosophy*, **25**(3), 299–345.
- Recanati, F. (2004). *Literal Meaning*. Cambridge University Press, Cambridge.
- Resnik, M. D. (1988). Second-order logic still wild. *The Journal of Philosophy*, 75–87.
- Restall, G. (2005). Multiple conclusions. In P. Hajek, L. Valdes-Villanueva and D. Westerstahl (eds) *12th International Congress on Logic, Methodology and Philosophy of Science*, Kings’ College Publications, London.
- Russell, B. (1906). On some difficulties in the theory of transfinite numbers and order types. *Proceedings of the London Mathematical Society*, **4**, 29–53.
- Russell, B. (1908). Mathematical logic as based on the theory of types. *American Journal of Mathematics*, **30**(3), 222–262.
- Russell, B. (1956). *Logic and Knowledge*. George Allen and Unwin, London.
- Russell, B. (1973). On ‘insolubilia’ and their solution by symbolic logic. In *Essays in Analysis* (ed. D. Lackey). George Allen and Unwin, London.
- Russell, B. and Whitehead, A. N. (1910). *Principia Mathematica*, Volume 1. Cambridge University Press, Cambridge.
- Sainsbury, R. M. (2010). *Russell*. Routledge.
- Salmon, N. (1986). *Frege’s Puzzle*. MIT Press, Cambridge, MA.
- Schlenker, Philippe (2003). A plea for monsters. *Linguistics and philosophy*, **26**(1), 29–120.

- Shapiro, S. (1991). *Foundations without Foundationalism: A Case for Second-order Logic*. Oxford University Press, Oxford.
- Shapiro, S. (2003). All sets great and small: And I do mean ALL. *Philosophical Perspectives*, **17**(1), 467–490.
- Shapiro, S. and Wright, C. (2006). All things indefinitely extensible. In [Rayo and Uzquiano \(2006a\)](#).
- Sider, T. (2009). Ontological realism. In D. Chalmers and D. Manley and R. Wasserman (eds), *Metametaphysics*, Oxford University Press, Oxford.
- Sider, T. (2011). *Writing the Book of the World*. Oxford University Press, Oxford.
- Soames, S. (1987). Direct reference, propositional attitudes, and semantic content. *Philosophical Topics*, **15**(1), 47–87.
- Soames, S. (2008). No class: Russell on contextual definition and the elimination of sets. *Philosophical Studies*, **139**(2), 213–218.
- Soysal, Z. (2017). Why is the universe of sets not a set? *Synthese*, 1–23.
- Stalnaker, R. (1994). The interaction of quantification with modality and identity. In *Modality, Morality and Belief: Essays in honor of Ruth Barcan Marcus*. (ed. W. Sinnott-Armstrong). Cambridge University Press, Cambridge.
- Stanley, J. (2002a). Making it articulated. *Mind & Language*, **17**(1-2), 149–168.
- Stanley, J. (2002b). Nominal restriction. In *Logical Form and Language* (ed. G. Preyer and G. Peter), pp. 365–388. Oxford University Press, Oxford.
- Stanley, J. and Szabó, Z. G. (2000a). On quantifier domain restriction. *Mind & Language*, **15**(2-3), 219–261.
- Stanley, J. and Szabó, Z. G. (2000b). Reply to Bach and Neale. *Mind & Language*, **15**(2-3), 295–298.
- Stanley, J. and Williamson, T. (1995). Quantifiers and context-dependence. *Analysis*, **55**(4), 291–295.
- Studd, J. P. (2013). The iterative conception of set: a (bi)-modal axiomatisation. *Journal of Philosophical Logic*, **42**(5), 697–725.
- Studd, J. P. (2016). Abstraction reconceived. *The British Journal for the Philosophy of Science*, **67**(2), 579–615.
- Szabó, Z. G. (2013). Compositionality. In *The Stanford Encyclopedia of Philosophy* (Fall 2013 edn) (ed. E. N. Zalta). Metaphysics Research Lab, Stanford University.
- Tait, W. W. (1998). Zermelo’s conception of set theory and reflection principles. In *The Philosophy of Mathematics Today* (ed. M. Schirn), pp. 469–483. Oxford University Press, Oxford.
- Tarski, A. (1935). Der Wahrheitsbegriff in den formalisierten Sprachen. *Studia Philosophica*, **1**, 261–405. English edition: 1983. The Concept of Truth in Formalized Languages. In: *Logic, Semantics and Metamathematics*, 2nd edn, Corcoran J. (ed), Hackett, Indianapolis, IN.
- Urquhart, A. (1988). Russell’s zigzag path to the ramified theory of types. *Russell: The Journal of Bertrand Russell Studies*, **8**(1).
- Urquhart, A. (2003). The theory of types. In *The Cambridge Companion to*

- Bertrand Russell* (ed. N. Griffin). Cambridge University Press.
- Uzquiano, G. (1999). Models of second-order Zermelo set theory. *Bulletin of Symbolic Logic*, **5**(3), 289–302.
- Uzquiano, G. (2002). Categoricity theorems and conceptions of set. *Journal of philosophical logic*, **31**(2), 181–196.
- Uzquiano, G. (2003). Plural quantification and classes. *Philosophia Mathematica*, **11**(1), 67–81.
- Uzquiano, G. (2004). Plurals and simples. *The Monist*, **87**(3), 429–451.
- Uzquiano, G. (2006). Unrestricted unrestricted quantification: The cardinal problem of absolute generality. In Rayo and Uzquiano (2006a).
- Uzquiano, G. (2009). Quantification without a domain. In Ø. Linnebo and O. Bueno (eds) *New Waves in the Philosophy of Mathematics*, Palgrave, Basingstoke.
- Uzquiano, G. (2011). Plural quantification and modality. *Proceedings of the Aristotelian Society*, **111**(2), 219–250.
- Uzquiano, G. (2015). Varieties of indefinite extensibility. *Notre Dame Journal of Formal Logic*, **56**(1), 147–166.
- van Inwagen, Peter (1990). *Material Beings*. Cornell University Press, Ithaca, NY.
- Viganó, L. (2000). *Labelled Non-Classical Logics*. Kluwer, Dordrecht.
- von Fintel, K. (1994). *Restrictions on quantifier domains*. Ph. D. thesis, University of Massachusetts.
- von Neumann, J. (1927). Zur Hilbertschen Beweistheorie. *Mathematische Zeitschrift*, **26**(1), 46.
- Wallace, J. R. (1965). Sortal predicates and quantification. *The Journal of Philosophy*, 8–13.
- Warren, J. (2017). Quantifier variance and indefinite extensibility. *Philosophical Review*, **126**(1), 81–122.
- Weir, A. (2007). Honest toil or sheer magic? *Dialectica*, **61**(1).
- Wiggins, D. (2001). *Sameness and substance renewed*. Cambridge University Press, Cambridge.
- Williamson, T. (1998a). Bare possibilities. *Erkenntnis*, **48**(2-3), 257–273.
- Williamson, T. (1998b). Indefinite extensibility. In J. Brandl and P. Sullivan (eds) *New essays on the philosophy of Michael Dummett*, Rodopi, Amsterdam.
- Williamson, T. (2003). Everything. *Philosophical Perspectives*, **17**(1), 415–465.
- Williamson, T. (2004). Philosophical ‘intuitions’ and scepticism about judgement. *Dialectica*, **58**(1), 109–153.
- Williamson, T. (2006). Absolute identity and absolute generality. In Rayo and Uzquiano (2006a).
- Williamson, T. (2007). *The Philosophy of Philosophy*. Blackwell, Oxford.
- Williamson, T. (2010). Necessitism, contingentism, and plural quantification. *Mind*, **119**(475), 657.
- Yablo, S. (2006). Circularity and paradox. In *Self-Reference* (ed. T. Bolander, V. F. Hendricks, and S. A. Pedersen). CSLI, Stanford.

- Zermelo, E. (1908). Untersuchungen über die Grundlagen der Mengenlehre. i. *Mathematische Annalen*, **65**(2), 261–281. Page reference to the English translation in [Zermelo \(2010\)](#).
- Zermelo, E. (1930). Über Grenzzahlen und Mengenbereiche: Neue Untersuchungen über die Grundlagen der Mengenlehre. *Fundamenta mathematicae*, **16**, 29–47. Page reference to the English translation in [Zermelo \(2010\)](#).
- Zermelo, E. (2010). Collected Works/Gesammelte Werke: Volume I/Band I - Set Theory, Miscellanea/Mengenlehre, Varia. Springer, Heidelberg.