How to Commit to an Individual: Logic, Objects and Ontology

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Abstract

In this thesis I propose an improved theory of ontological commitment, one which is neutral on epistemology. Although Quine's quantificational criterion of ontological commitment has many advantages over its competitors, like its univocal treatment of being and existence, its clear account of ontological reduction and its capacity to accommodate implicit commitments, I argue that it has a fatal flaw: the inability to account for ontological commitment to individuals. Quine's choice of a first-order language of regimentation without constants is so entwined with his holist epistemology that imputations of existence cannot be made except to objects-*qua*-*F*, *qua* some wholly third-personal description. Commitments of those who believe that minds reach out directly to objects by means of acquaintance or introspection, encoded in language by constants, are ungrammatical in Quine's language. This breakdown of grammaticality, on my view, is an avoidable result of Quine's behaviourism and holist epistemology filtering into his choice of canonical language. I opt for a broader conception of ontological commitments as incurred by formalised theories with one or more semantic categories of categorematic objectual expressions, whose function is to stand for objects. I expand the language of regimentation at least to first-order logic with constants and identity. This preserves the attractive features of Quine's position. It retains its elegant treatment of reduction and implicit ontological commitments, and its capacity to explain away Meinongian confusions, without being beholden to global holism. My canonical language makes room for acquaintance and first-personal methods as sources of ontological commitment. It has the advantage of allowing theories like Quine's, which confine themselves to objects-*qua*-*F*, to be regimented as well as non-holist theories whose criteria of ontological commitment are 'to be is to be the referent of a name' or 'to be is to be the value of a constant or variable'.

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Contents

Introduction

Quine's criterion of ontological commitment states that a theory's ontology is determined by appealing to the existentially quantified consequences of its translation into a first-order formal language, closed under consequence. It has recently come under fire as neo-Carnapian, Meinongian, and natural-language based approaches, among others, have gained support. I take as a point of departure a mostly-neglected challenge of a different kind: the problem of ontological commitment to individuals. It is a curious consequence of Quine's view that it prohibits the use of constants, names, or any directly referential expressions in the language of regimentation, ruling out commitment to an individual *qua* individual. I intend to make a case for a more liberal conception of ontological commitment—more wide-ranging than Quine's—which allows for commitment to individuals, with an improved logical language of regimentation. The reason for Quine's prohibition on commitment to individuals, I argue, is that his choice of canonical language is heavily informed by his holist epistemology, in which objects are just posits, always potentially dispensable. But non-holists can coherently attempt to commit to individuals using directly referential expressions, modelled in a formal language as constants. While holding on to the insight that a logical language is a helpful medium for ontology, I will propose instead a more permissive language of regimentation, one expanded to permit (at least) the use of constants to record attempts to commit to individuals. It allows us to regiment non-holist theories with alternative name-based or name-and-variable-based criteria of commitment as well as Quinean theories.

Ontological commitment, in the wider sense in which I use the term, is borne by those theories that contain a certain semantic category, or categories, whose function it is to denote objects: the *objectual* expressions. An objectual expression should be taken as committing to the object it stands for. The first chapter will be mostly expository, laying out the details of Quinean commitment and showing where and how it is indebted to holism and behaviourism. The only kind of committing expression Quine countenances is the pronoun—that is, in formalised theories, the objectual first-order variable. Pronouns, according to him, serve to introduce reification into a theory by marking the presence of a posit on the intersection of significant observations. Pronominal expressions turn non-logical observations into complex sentences with a logical part, the variable, and an

ideological part, the non-logical predicate. In this way, logical grammar separates *being* (existence, being an object) from *nature* (what is true of the objects). Quine also takes this to imply that theories can only be committed to objects-*qua*-*F*, objects insofar as they satisfy some open formula. His idea of what an object is is imbued with global holism, which equates objecthood with positing an entity where observations overlap, any object being always potentially dispensable. He explains how by semantic ascent, taking note of what kinds of expressions a rival theory uses to refer to things, we can make sense of ascribing an ontology to someone else without endorsing it. Ascending to the metalanguage means we are in a position to disquote and identify the objectual expressions, those whose semantic role is object-involving, without having to use them ourselves to refer. Semantic ascent allows us to avoid talking past each other. Formal languages have two major advantages over natural languages: they show on the surface which expressions are the objectual ones, and, having well-defined consequence relations, they can yield a determinate set of existential consequences, including those that would have remained implicit in natural-language theories.

Critics of Quine typically argue that an alternative meta-ontology, a wholly different strategy for asking and answering ontological questions, is called for: one that gives pride of place to ordinary language, or is framed in a non-classical canonical notation. The challenge I am interested in, commitment to individuals, does not demand a radical overhaul of that kind. I want to amend the language of regimentation to allow for criteria of commitment compatible with foundationalist or intermediate epistemologies, for which 'to be is to be the value of a variable' is not sufficient in all cases. My emendations preserve the idea that the committing expressions of a regimented language reveal the theory's ontology. In chapter 2, I explain how ontological commitment with regimentation (in the broad sense I have introduced above) is able to withstand some classic attempts to undermine it that some say augur for an alternative meta-ontology. In particular, we can answer those advocating ordinary language or Meinongian languages as a means of settling ontological questions. Unlike natural languages, formal canonical languages have the advantage of determinate consequence relations, are free from ambiguity, and provide an elegant treatment of ontological reduction and elimination. First-order logical grammar neatly separates *being*, connoted by the logical variables, from *nature*, ascribed by the non-logical predicates. Advocates of commitment would aim to translate any purported ontological vocabulary into the vocabulary of *being*, or *objecthood*, that quantifier-variable notation brings to the language, and all other vocabulary as ascribing different natures. Logic is the most inclusive and impartial theory, whose subject matter comprises being, or objecthood. The objects' natures are filled in by the special sciences. Instead of giving in to so-called 'ways of being', we should translate all differences as differences in nature between objects that are alike in being. Unless the notion of a being or object is itself deficient, what could be wrong with taking all and only words whose function is just to single out objects as ontologically committing?

Yet the question remains why genuine proper names, or words like 'I', or 'this', or 'that', should not under some circumstances count as committing expressions. This is the subject of chapter 3. Intuitively, we commit to an object when we mention it by name, explicitly assert it exists, or quietly rely upon it for our explanations. The latter two are covered by Quine's criterion. Existence claims, implicit or explicit, all come out as existentially quantified consequences of a regimented theory. But direct reference seems to invite commitment in a different way: it can be used to capture in language acts of ostension, acquaintance or other forms of direct contact with objects. Although these expressions appear to us to be clearly objectual, Quine's language of regimentation lacks individual constants to model direct reference. His claim that this is for reasons of grammatical economy conceals a more likely explanation: Quinean commitment only countenances objects-*qua*-F because holism demands that contact with an object is always mediated by a complete theory. It seems counter to the aims of meta-ontology, though, to declare commitment to an individual simply ungrammatical. Ontological questions arise for philosophers all across the epistemic spectrum, for foundationalists as well as for holists.

Quine managed to avoid reducing non-existence claims to nonsense by ascending to the semantic plane, distinguishing between disquoting a coherent statement and endorsing it, between meaningful expressions and referential ones. That irenic strategy avoids the disputants talking past one another, each taking the opposition to speak nonsense. If direct reference has no equivalent in the language of regimentation, though, this will still be the fate of attempts to commit by direct reference, such as Descartes' *cogito*. There are theoretical contexts where commitment can only be direct, not indirect. The *cogito* is essentially first-personal and resists translation into Quine's strictly third-personal, behaviourist idiom. Millian names, which denote without connoting, cannot, as Quine recommends, be translated away as descriptions, since there may be strong evidence to suggest that although a satisfies all the same open formulae as b, a is nonetheless distinct from b. But this possibility is blocked off on Quine's holist treatment of individuals, so another uncomfortable consequence of his view is that it leads him to treat identity as indiscernibility-within-a-language, satisfaction of all the same open formulae.

Adding constants to the language of regimentation will ensure that more imputations of existence can be translated as such, without giving up the precision and clarity of quantified logic. Such a language would have two categories of committing expressions: variables and constants. But one of the advantages of using logical grammar as a medium for settling ontological questions was that it forces a split between the logical/ontological and the non-logical/ideological vocabulary. Chapter 4 addresses the objection that all committing expressions must be logical expressions if we are to maintain the kind of logical realism which supports the view that logic helps us separate *being* from *nature*. In the second chapter I defended a Quinean-inspired view of existence as the most expansive category (everything there is exists) on the grounds that logic treats all objects equally, leaving the sorting and ordering of them to the special sciences. Still, that does not imply that

objectual expressions are all logical expressions, only that some expressions denote without connoting, leaving all connotation to the ideological vocabulary. Constants can fill that role as well as variables. Quine's account demands that committing expressions must be logical expressions, because variables represent objecthood by their role of introducing a posit. But the idea that objecthood equals positing is indebted to holist epistemology. It might be argued that science demands of us that we view objecthood as equivalent to positing, because science is only concerned with objects insofar as they play a particular role in a system, not as individuals. That, though, has the uncomfortable consequence that we must think of identity as indiscernibility after all, and proscribes the use of any first-personal, introspective, or ostensive methods in the sciences under any circumstances, even where such methods promote the aims of science, notably in psychology.

The main attraction of Quine's account becomes apparent when it is considered independently of the holism he espouses: logic is a useful vehicle for asking and answering ontological questions, because logic, the most general theory of all, incorporates the notion of a being or object, and ontology aims to provide an inventory of the beings. Chapter 5 considers what the argument is to keep objecthood as a logical notion, if we let go of the idea that all object-involving words are logical words. First of all, logic's having a subject matter, even when the subject matter includes *being*, is despite appearances perfectly compatible with logic's being topic-neutral. Topic-neutrality, for modern logic, is not the Kantian claim that logic is not about being at all, concerned only with the form of thought or language. That claim presents logic as being a fundamentally different kind of theory from all others, a merely linguistic discipline whose truth is independent of any fact. In my view logic is not different in kind from other theories, but continuous with them. It differs from them in being more general, not in being any less concerned with reality. Logic is about objects, but it treats all objects equally, not discriminating according to the nature of things: it is an impartial enquiry. The truths of logic, like all other truths, are true because they represent their subject matter correctly. The subject matter of logic includes *objecthood*: objects in the most general sense, independently of their natures.

Quine, as we noted before, has his own independent reasons for having a logical notion of objecthood, though a rather thin one: no more than being the value of a variable sitting where observations stubbornly overlap. Its characteristic expressions, the variables, are logical expressions. But the idea that a posit is no more than the locus of some confluence of natures carries in its wake Quine's view of identity as indiscernibility-within-the-theory. His thin objects are hard to accept for non-holists, for whom contact with an object is sometimes direct rather than mediated by a complete theory. Chapter 6 is concerned to show how our language of regimentation can accommodate thinner as well as richer conceptions of objecthood compatible with a wide spectrum of epistemological positions. To this effect I combine Frege's contention that logic incorporates the notion of different representations centring on a common object with Barcan Marcus' degrees of extensionality. Instead of mandatory criteria of identity, this allows us the option to introduce principles

of extensionality for particular ontological categories, stipulating that their members can be declared identical for the purposes of a theory in particular theoretically salient circumstances. Sets, for instance, are explicitly extensionalised: they are considered identical whenever they have all and only the same members. This tallies well with our mode of access to these kinds of things: for ontological categories whose members we can only access by description or abstraction, some kind of identification of indiscernibles holds; objects taken by a certain theory as being accessed directly may be discerned directly, ostensively, or introspectively, even where they are indiscernible descriptively. Identity, on this view, can be primitive for some theories we translate into canonical notation: foundationalist theories which countenance only direct access to objects. Holist systems are rendered as having extensionalising principles for all kinds of entities. Intermediate systems can have primitive identity for some metaphysical categories, extensionalised equivalence for others. The translation process should take into account whether the theory being translated into canonical notation allows for direct or indirect access to objects, or both. So we will be in a position to conclude in favour of a conception of ontological commitment with regimentation as translation into a properly logical language and identifying the objectual expressions, without having to accept behaviourism or holism. Direct, indirect and hybrid criteria of commitment are all made possible using a canonical language with the expressive strength of at least first-order logic with constants and identity. Besides upholding the positive features of Quinean commitment—a univocal treatment of *being*, clear explanations of ontological reduction and implicit commitment, a realist theory of logic and quantification—it also makes room for alternative epistemologies and first-personal commitment.

I intend to advocate for a broader kind of ontological commitment with a more inclusive formal language of regimentation, showing that ontological commitment in my sense—determining the values of the committing expressions of a theory translated into a logical language—is compatible with many otherwise un-Quinean positions on metaphysics, philosophy of logic and epistemology. Part of my goal is irenic: to show that adopting what I think of as the good parts of Quine—clear and rigorous methods, keeping philosophical ontology continuous with the scientific practice of introducing objects where there is an indispensable need for them—is an option for more philosophers than previously supposed. Not only does the possibility of direct commitment by acquaintance or ostension make a commitment-based approach to ontology available to the votaries of such methods in epistemology, but they are also potentially of interest to the philosophy of psychology and psychiatry. Scientists working in those disciplines have now mostly renounced behaviourism and are open to non-behaviourist methodology. It seems likely that first-personal posits will play some role in the regimented versions of their theories.

The philosophical ramifications of epistemology-neutral commitment may well extend to many even more expansive potential languages of regimentation, to go with alternative criteria of commitment space does not permit me to discuss. I do not want to delimit the

range of languages of regimentation except to rule out Meinongian and neo-Meinongian ones: those that are incompatible with a univocal treatment of *being* and *existence* and its attendant vocabulary. I propose a modest expansion, the addition of constants, because it lets me keep a strict separation between ontology and ideology, which, as evinced by chapter 2, I see as a safe way to maintain a completely univocal treatment of existence. But more permissive languages of regimentation may well be made consistent with doctrines in the philosophy of logic which lack my requirement of strong impartiality. It can be argued that they have been proposed already: for instance, Boolos [Boo84] can be read as proposing a plural language of regimentation with the expressive power of monadic second-order logic. Shapiro appears to indicate a wish to regiment in a second-order language standardly interpreted [Sha00], while Williamson feels drawn to higher-order posits, but takes properties to be the values of their variables. As he also takes modal vocabulary to be indispensable to the ideology, he appears to be a proponent of a higher-order modal language of regimentation [Wil13]. I have avoided discussing higher-order and modal questions, partly for reasons of space, partly because of the difficulties of viewing all their values as forming a single all-encompassing domain, which I think is needed to be able to think of *being* as forming one maximally inclusive subject matter. But I certainly do think of them as potential issues of commitment, with potential languages of regimentation to go with them.

Since it is not particularly my ambition to present a Quinean account of commitment, or to defend the historical Quine, there will be no exhaustive list of challenges to Quine and responses on his behalf. There are also some stalwarts of Quinean systematic philosophy which will occasionally be discussed, but on which I will not take a firm position, such as semantic holism, the analytic-synthetic distinction, and modality. I have no wish to support him on all counts. Another kind of challenge to Quine that will not make an appearance here at all is that which takes one metaphysical category to function as the touchstone of commitment, like truth-making or grounding. My interest here is in the intersection of ontology with language, logic and epistemology. There are deep questions related to commitment about how our minds reach out to objects (directly? indirectly via a complete theory?) and how our language and our background theory allows us to talk about them, about which these approaches seem to have nothing to say. I appreciate Quine's attempts to adhere to scientific methodology and his insistence that philosophy should not contradict science, but be continuous with it. One of the points I take from him and want to expand on is that logical grammar should not normally limit the theoretical identifications that can be made. But the problem is that Quine himself limits developments in this way, by barring first-personal methods and blocking investigation of mental states, the observer, selves, etcetera. This is a consequence of his holism and behaviourism, not of any defensible philosophical or contemporary scientific methodology.

Chapter 1

Ontological Commitment

1.1 Talking about Objects

Ontological questions are questions about what there is. Some are about what there is in the very general sense of asking for an inventory of the world, a complete catalogue of all the beings—'What is there?'—others in the more specific sense of asking whether there are things that answer to some particular description, or go into a circumscribed category—'Are there persons?', 'Are there numbers?', 'Is there a God?'. Besides ontology *tout court*, we sometimes speak of a particular ontology: what there is according to someone. To find out about someone's ontology, we listen to what she says: what she makes reference to, what she explicitly says exists, and what we can assume she must believe in in order for her claims to make sense. On the surface, it is a simple matter to confirm or falsify someone's ontology: we check whether there is a being in the world for each item on her list, and she will be caught out if she assumes there are things of a certain kind when the world contains no such things.

A person's ontology may prove much more elusive than appearances suggest. A speaker intending to speak truly about the world can be assumed to have made an imputation of existence to entities she invokes in the course of theorising: the things she mentions, explicitly asserts there are, or tacitly relies upon. But there is no clear method to determine whether some statement of English definitively does or does not invoke an entity. Whether a sentence in isolation means that there is an object is often difficult to work out, even for a true, unambiguous sentence which appears to be about some object or other. Does it follow from the truth of 'Rome was built on seven hills' that there are such things as hills, or Rome? Perhaps not; apparently referential terms like 'Rome' might be explained away as convenient fictions, or as referring, not to a single thing, but to many things arranged in a certain way. We cannot be sure, on the basis of an isolated claim, whether the speaker

means such words to function as genuine names, or deny them referential status. Does 'Rome was built on seven hills' entail that there is a number, namely seven? It does if 'Rome was built on seven hills' is to be explained as 'The number of hills on which Rome was built is equal to seven'. Assuming a Russellian theory of descriptions, the latter sentence does logically entail the claim 'there is a number'. How can we tell if this is the correct analysis of 'Rome was built on seven hills', though?

Not even sentences that explicitly contain the phrase 'there is' are an infallible guide to the speaker's ontology. A sociologist may truly say 'There is a net migration from Mexico to the USA.' She does not mean that migrations are really objects out there in the world, but would explain that this is an optional *façon de parler*. She would explain that 'there is a net migration from $< x, y, z >$ to $< u, v, w >$' means that more people move from $< x, y, z >$ to $< u, v, w >$ than from $< u, v, w >$ to $< x, y, z >$, so 'There is a net migration from Mexico to the USA' is only a convenient shorthand for 'More people move from Mexico to the USA than from the USA to Mexico.'

Sometimes people attempt to get out of apparent existence claims. Perhaps they say they didn't mean to utter something *true*, but were making a joke or using poetic licence. Or they protest that they expressed themselves inexactly. They didn't mean that there is such a person as 'the average mother'; they meant to make general pronouncements about mothers. New-found evidence may supplant old existence claims in some cases. Carefully analysing the presuppositions of someone's utterance can force them into accepting an existence claim, or relieve them from one. This usually proves onerous because it is unclear exactly which sentences they believe, or are rationally compelled to accept.

1.2 Criteria of Ontological Commitment

The above suggests that we need a general strategy to work out what there is according to someone. If we are to use what someone says as a guide to her ontology, we must identify the expressions that betray her existential assumptions. Such a set of expressions is hard to pin down. Certainly not every use of a noun or predicate comes with an object, since nouns or predicates may be used in negative existentials, like 'Unicorns do not exist' or 'There is no such thing as Pegasus'. If 'Pegasus' or 'unicorns' carried an implicit imputation of existence, such statements would be self-contradictory. Not every meaningful word stands for a thing; some are used in some contexts to indicate that they do not refer, or that they do not apply to anything. But there must be some words that (at least in some contexts) we cannot deny must stand for things. If there were no stopping point to the denial of ontological presuppositions, we could never ascribe an ontology to anyone.

I define a criterion of ontological commitment broadly as a principle that identifies certain parts of a language, which we may call the *committing expressions*, as those that

presume the existence of an object. Questions about what the correct criterion of ontological commitment should be, and whether it is possible to give one, are not about being but about imputations of being. They are a subset of what are now frequently called meta-ontological questions [vI98, Man09]: those concerned with the strategy we employ to formulate, interpret and answer ontological questions. Criteria of ontological commitment are also meta-criteria in the sense that they are in the metalanguage: they mark out certain words as the words whose role it is to indicate the presence of a thing.[1]

1.2.1 Desiderata

Judging from the above, there are at least four desiderata for ontological commitment.

1. First of all, there must be some **ontologically committing expressions**, and some expressions that are not committing. A language without committing expressions cannot have any pretensions to an ontology. But a language in which every word is presumed to come with an entity attached cannot express coherent statements of non-being.
2. Secondly, there should be **true and coherent negative existentials**, or statements of non-being. A true statement of the form ⌜There is no x such that Fx⌝, or ⌜There is no x such that $a = x$⌝, is true because 'F', or 'a', does not apply to anything.
3. Thirdly, it must count as commitments not only those entities someone explicitly asserts there are or refers to, but also those that she **implicitly** relies on.
4. Fourthly, **interdependence** between metaphysical categories should be explained. Social scientists should not be committed to trends, migrations and average mothers if they can explain statements apparently featuring such things in terms of less controversial entities. Some account must be given of what it means for someone's ontology if they explain certain kinds in terms of others: if they say that migrations are people moving from one place to another, that mental states are brain states, or that propositions are sets of possible worlds.

I will refer to philosophers who favour a commitment-based view of meta-ontology as 'commitmentphiles', not as 'Quineans', reserving the label 'Quineans' for those who adhere to Quine's specific quantificational criterion of ontological commitment, or (occasionally)

[1] Whether *being*, *existence* and *being an object* are all equivalent is itself a meta-ontological question. For the time being I will use 'being' and 'existence' interchangeably, as well as other ontological vocabulary such as 'being real', 'being part of the world' and the like. I will do the same for 'thing', 'object', 'entity', and 'being' (the noun), for some suitably liberal reading of these words, putting no constraints on what they are like (e.g. concrete). The argument for doing this will emerge in 1.4 and 2.2.

those who hold some other explicitly Quinean doctrine. Quineans about commitment are members of a subset of the set of commitmentphiles.

1.3 Quine's Quantificational Criterion of Ontological Commitment

The archetypal criterion of ontological commitment, which has until recently dominated the scene in meta-ontology, is Quine's quantificational criterion. According to Quine, saying that there is something, mentioning something, and implicitly presupposing an entity all come down to making some first-order existentially quantified claim. He abstracts away from the superficial difficulties of ascribing an ontology to a person whose utterances are vague or incomplete by concentrating, instead, on what a *theory* says there is. A theory should always be stated in a form that makes it unambiguous what it says there is. Quine's solution is translation into a formal language closed under consequence.

Quine's idiom of choice, his canonical language of regimentation, is bivalent first-order logic without individual constants. He regards this as the only properly logical language. In 1.4 and 1.5 I will make my case that his choice of logic and committing expressions is rooted in his holist epistemology. According to Quine, there is only one way to introduce objects into a theory: when pronouns or their formal analogue, variables, begin to be used to mark significant intersections in its observations, indicating the presence of a posit. Quinean commitment results in a flat ontology: there is only one kind of quantifier, one domain of all the objects. Variables are logical vocabulary, and thus, perhaps surprisingly, objecthood itself is a logical primitive. Predicates, being derived from observations, are by virtue of their semantic role non-logical; they talk about what is true of the objects. So logical grammar separates talk of *being* from talk of *nature*, assigning the former to logic, the latter to ideology.

1.3.1 Motivations

Quine's criterion of commitment is explicitly metalinguistic. One of his motivations is to avoid becoming entangled in what he calls 'Plato's Beard' [Qui48, p. 21]: the idea that non-existents must have some kind of being to be coherently spoken of. If Anne denies, and her opponent Bea affirms, that there are things that are F, Anne would not want to describe the situation as 'there are some entities, namely Fs, that I do not believe in', because such a statement would be paradoxical.[2] Quine wants to resist the inference that because Anne acknowledges that Bea has said something coherent in affirming the existence

[2]Cf. Moore's paradox: 'p but I do not believe that p'.

of Fs, Anne herself must *refer* to Fs to say that there are no Fs. She would then be pushed towards the uncomfortable position that to coherently deny there are Fs she must assign them to some umbrageous realm of subsistents or possibilia, because *in some sense* she must have referred to *something*. Instead, Anne can discuss Bea's ontology speaking only of entities that are common to the dialects of both warring factions: linguistic expressions [Qui48, p. 31]. As long as it is clear which of Bea's words are unequivocally supposed to be referential, Anne can conclude, whenever Bea uses such a word concatenated with 'F', that Fs exist according to Bea. Anne then denies that there are any such by stating that 'F' applies to nothing, and by refusing to affirm any sentence that concatenates 'F' with referential expressions.

Being meaningful (or significant, as Quine prefers to say) is not the same as being referential. It is perfectly coherent to maintain that some expressions, like punctuation, truth-functions, and arguably predicates,[3] are syncategorematic: meaningful in context, designating nothing. Syncategoremata, in other words, are never committing expressions. If words like 'existent' or 'real' are to be more than 'empty honorifics' [Qui39, p. 704], though, there must be some expressions of which it cannot be denied that their role is to designate. To use such an expression in a true sentence is to be committed to a corresponding entity. For Quine, there is only one such expression: the variable. Variables are the kinds of words that take entities as values. Instead of the mediaeval 'categoremata' I will call such words 'objectual' words: those whose function is to stand for an object. Objectual words are always committing.

Even some uses of variables, Quine says, can be eliminable from a theory if contextual definitions are supplied that show them to be no more than 'an eliminable shorthand' [Qui39, p. 708]. Apparent commitment to propositions or migrations can be paraphrased away by providing a template to translate them out in favour of a longer, more cumbrously expressed, but more parsimonious theory. Sentences which apparently presuppose propositions or migrations can be transformed without loss of information into sentences not mentioning them, which is proof of the absence of commitment.

Another motivation is to safeguard philosophy from positivistic attacks by showing it to be continuous with natural science. Analytic philosophers' interest in ontology wavered with the positivists, who thought of ontological questions as meaningless or misguided. Metaphysics, according to Quine, is made respectable once again by showing it to be no different in kind from the natural sciences. Scientific enquiry is of the same sort as ordinary knowledge-seeking, but more sophisticated and efficient. 'I see metaphysics, good and bad, as a continuation of science, good and bad' [Qui88, p. 117]. The entities there

[3]Quine avails himself in [Qui39, Qui43b, Qui47a] of the venerable mediaeval argument that predicates are syncategorematic to argue for nominalism. I do not take belief in the referentiality of predicates to be incompatible with belief in ontological commitment in my sense, although it appears hard to square with classic Quinean commitment. See 1.5 and 5.3 below.

are according to metaphysics are justified in the same way that talk of entities is justified in the sciences: by appeal to their indispensable explanatory role in our best theory of the world. Metaphysical theories are thus subject to the same methodological constraints as scientific ones. Ontological questions are answerable questions subject to the constraints of theory choice [Qui48, p. 36]. This must always be a holist and pragmatist pursuit: there is no vantage point outside our best theory, and if recalcitrant data occur, the weakest link in the system as a whole must give way. There will always be interdependence between the different categories of explanatory posits, and any of them will be subject to revision if they prove inadequate [Qui81d, Qui81a].

1.3.2 Things as Posits

The reason that pronouns inescapably stand for things is to do with the way theories grow out of observations. Quine believes that acquiring a theory, whether in infancy, or via translation, or in a scientific setting, is no more and no less than acquiring a language. Theory-building starts with observation sentences: 'Tree'; 'Green'; 'Rose'; 'Red'; 'Rabbit'; 'Furry', etcetera. The very early stages of theorising are composed of nothing except these observation sentences, used by the budding theorist to label features in her experience.[4] From mere individual observations nothing follows. All we can do is venture them and see what reactions we encounter. The first additions to the emerging theory are 'yes' and 'no', based on the reactions of assent and dissent. The use of truth-functional operators such as negation, conjunction, disjunction, and the conditional can now be learned by the nascent theorist. Thus far all of the theory is empirically conditioned, directly based on experience. It is possible for theories never to develop beyond this point. Such theories remain, structurally speaking, on the level of sentential logic, and have no ontology. There are only atomic sentences and truth-functional connectives to link them [Qui79].

Nevertheless, further developments have great explanatory benefits. We are able to distinguish much more fine-grained kinds of evidence if we are able to discuss and explain which observations are frequently co-located and why. Our vehicle for locating patterns within the observations is the pronoun, the introduction of which turns observations into predicates, and leads the language to be enriched with further logical vocabulary: quantifiers binding the variables. The language learner will begin to use pronominal expressions when she notices significant intersections in her observations. The difference between intersections and mere conjunctions is marked by inserting a pronoun where observations coincide in an interesting way. 'Green. And Tree' is true in the presence of a green field and a copper beech. 'This is green and it is a tree', though, says something more: that greenness and

[4] Quine often speaks of them as though the philosophical story he is telling here exactly mirrors infant development [Qui60b, p. 47, p. 92], [Qui92, p. 23]. Of course I don't mean to defend this particular aspect of Quine's philosophy.

treehood persistently overlap here. The ontological vocabulary is the vocabulary used to pinpoint these intersections. The notion of objecthood enters the theory when, in response to recurrent evidence of such overlap, we posit an object as a likely explanation of the pattern of overlap. Pronouns signal an increase in explanatory capacity of a burgeoning theory. 'This is where I see bodies materializing, ontologically speaking: as ideal nodes at the foci of intersecting observation sentences' [Qui92, p. 24]. The introduction of pronouns into the observation sentences imposes a structure on the sentences that was not previously there: instead of an undivided whole, they now have a pronominal part and a predicative part. The predicative part is what is left over from the observation sentence. Observation sentences are feature-placing, *cf.* [Str59, p. 212], not attributive. They do not contain a word for an object and a word that attributes something to the object. The addition of variables divides the language into expressions that purport to say *what there is* and those that purport to say what is *true* of those beings. The former are the ontological expressions, and the latter the ideological expressions [Qui51b]. The ideology comprises all the characteristics ascribed to the beings: what is said about their natures and their relations to each other. But for such ascriptions of natures and reference and relatedness to make sense, we first need to presume that something is there to have such characteristics ascribed to it. Pronouns are used to herald the presence of an object.

As the theory progresses, more sophisticated posits and methods will ensue. Scientific standards of rigour may be formulated within it, so the theory itself will be judged by standards of simplicity and familiarity, and how well it matches the data [Qui60b, pp. 20-21]. Eventually, the only posits left could be numbers and particles, which are not directly obervable at all. Questions will arise about which intersections are the significant ones; these questions are not answerable on purely empirical grounds. But according to Quine all posits, naïve or sophisticated, stem from the introduction of an entity on the intersection of continuous observations by linking their corresponding observation sentences together with a pronoun. Pronouns get the process of reification off the ground. As a result, our best theory, couched in the clearest, least ambiguous language we can muster, will tell us exactly what it says there is: the values of its pronominal expressions.

Quine is not done yet. He has expounded a just-so story purporting to show how the pronominal expressions will furnish us with information about what is said to be by someone creating a new theory, but as we saw above, any theory worth its salt will also serve to make clear what existence claims are entailed by it globally. Otherwise, our evidence is once again reduced to the habits of individual persons. What follows from a set of statements in ordinary language, though, is usually difficult to pin down, which is why formalisation is in order.

1.3.3 Regimentation

The idea behind ontological commitment is that the entities that there are according to a theory are those it talks about. A theory is a set of sentences, and it 'talks about' something when it either explicitly says it exists, mentions it, or entails its existence. On Quine's fully developed criterion of commitment[5], all three reduce to first-order quantification in a regimented theory, a theory translated in its entirety into a logical language [Qui60b, ch. 5]. As the formal theory is closed under consequence, it will always be determinate whether some existentially quantified claim is, or is not, entailed by it. Existence claims, implicit commitment, and reference, despite their different surface structures, all share the deep logical structure '$\exists xFx$'. There is no more to existence than what is captured by existential quantification; to be is to be the value of a bound variable in our best formalised theory.

Quine's logical language is bivalent first-order logic without constants [Qui60b, ch. 5]; [Qui70]. Some of the reasons for this choice emerge in section 1.5 below. Regimentation simplifies the theory and eliminates the vagueness and ambiguity that beset ordinary language. In addition, it reduces those posits whose existence is explicitly asserted and those that are merely presupposed to the same level: existentially quantified sentences entailed by the regimented theory. If in the natural language version of the theory no explicit mention of Fs is made, the regimented version can show that there is some appeal to Fs once all of the statements of the theory are spelled out in full, because among the sentences entailed by them is an existentially quantified statement about Fs. The committing expressions are the formal analogues of pronouns: variables. He adopts the objectual interpretation of quantifier-variable notation, according to which variables denote elements in the domain of discourse, as explicating natural-language 'there is'.

Variables as Committing Expressions: From Pronouns to Variables

Quine advocates regimenting the unwieldy structure of natural languages on the grounds that it reworks statements we already understand into a more uniform and perspicuous form [Qui40, pp. 65-71]; [Qui69a]. As part of the theory of arithmetic, we can say in English, of a number:

1. Either this number is less than 0, or this number is equal to 0, or this number is greater than 0.

[5] Quine doesn't mention regimented or logical languages in "On What There Is" [Qui48], except perhaps obliquely in his references to Russell's theory of descriptions. He does deploy formal machinery in the earlier papers [Qui39], [Qui40], [Qui43a], [Qui43b], [Qui45], [Qui47b], [Qui47a] including appeals to paraphrase by contextual definitions. As he is a holist, it makes sense to suppose that commitments belong to the regimented theory as a whole, but this is not stated clearly until [Qui60b, ch. 5].

Sentence 1. is true, but cannot be turned into a general truth by substituting 'every number' for 'this number'. When we try that, we end up with:

2. Either every number is less than 0, or every number is equal to 0, or every number is greater than 0.

Sentence 2. is obviously not true. How can we rephrase this sentence so it expresses its intended meaning? We must turn to pronouns:

3. Every number is such that either it is less than 0, or it is equal to 0, or it is greater than 0.

Pronouns are capable of talking about the things within their range *generally*, prepared to stand for any one of them. A predicate plus the appropriate number of pronouns is a 'sentence matrix' or open formula [Qui40, p. 71], which yields clear and determinate truth conditions for a sentence in which it is bound by a quantifier such as 'all' or 'some': true, for the first one, if the formula is satisfied by everything in the pronoun's range; for the second, if it is satisfied by at least one of the objects. But there is still some ambiguity left. Think about the following sentence:

4. Whatever two numbers you may select, they are such that either it is less than it, or it is equal to it, or it is greater than it.

The pronouns of 4. retain the property of standing for things generally, but fulfil a special additional role. Any pair can be singled out by 'whatever two numbers', even one with two identical co-ordinates. In this context, though, one pronoun stands for the first co-ordinate of such a pair, the other for the second co-ordinate. Here formal pronouns have a clear advantage over English, which has to make do with locutions like 'the former', or 'the first-mentioned'. That can be cumbersome in longer clauses. We would prefer something unambiguous and brief, and resort to:

5. Whatever two numbers it_1 and it_2 you may select, they are such that either it_1 is less than it_2, or it_1 is equal to it_2, or it_1 is greater than it_2.

Sentence 5. provides a hint of Frege's variable-binding strategy.[6] [Fre67]. Quine proposes to tidy up our grammar by rendering all theories in first-order logic, revealing the underlying form of 5. to be:

6. $\forall x \forall y (Nx \wedge Ny \rightarrow (x < y \vee x = y \vee x > y))$

[6]This should not be taken to mean that Frege's interpretation of quantification coincides with Quine's. Quine's objectual interpretation is originally Tarski's [Tar56a]. Frege did not conceive of variables as ranging over a domain; instead he construed quantifiers as second-level properties. According to his interpretation, '$\exists x Fx$' means that the concept corresponding to 'F' has at least one instance.

Quantification, Satisfaction and Truth

Quine favours standard first-order predicate logic (but without individual constants) as the canonical notation for all theories. Once a complete statement of the theory—a set of sentences closed under consequence—is achieved, we uncover its ontological commitments by solving for the domain of quantification that its variables must range over. We isolate all its existentially quantified sentences and posit a value of each variable, using a Tarskian objectual reading of the quantifiers. A non-empty set is given as the domain of discourse, over which the variables of the language are said to range. An existentially quantified statement '$\exists xFx$' is true if and only if there is some element of the domain of which 'F' is true. '$\forall xFx$' is true if and only if 'F' is true of every element of the domain. 'Being true of' is explained in terms of satisfaction. Informally, an element of the domain a satisfies the open formula 'Fx' iff Fa. A fuller, more formal treatment is given when we say that open formulae are satisfied by sequences. A sequence $< a, b, c, ... >$ satisfies a formula 'Fx' iff Fa, as 'x' is the alphabetically first variable of 'Fx', a is the first coordinate of $< a, b, c, ... >$, and the open formula applies to it. Similarly, $< a, b, c, ... >$ satisfies 'Rxy' iff Rab: alphabetically first and second variables, first and second coordinates, and it truly applies. And so on for formulae and sequences of any length. (Following a suggestion from Boolos, we may stipulate, with Quine, that we can append repetitions of the final coordinate if the formula exceeds the sequence in length [Qui70, p. 38].) The advantage of this definition is that truth of closed sentences comes out as a limiting case of satisfaction: satisfaction by all sequences. An existentially quantified sentence whose quantifier binds the alphabetically i^{th} variable is true of a sequence iff its open formulae is true of some sequence that is just like it, except perhaps with respect to its i^{th} coordinate; and a universally quantified sentence whose quantifier binds the alphabetically i^{th} variable is true of a sequence iff its open formulae is true of all sequences that are just like it, except perhaps with respect to their i^{th} coordinate.

This interpretation of quantification is rightly called the 'objectual interpretation': the interpretation assigns the variables directly to objects. This fact tallies well with the idea that they are committing expressions: they do nothing but to stand for elements of the domain. The whole syntactic category of variables is one which the interpretation always explicitly assigns to objects, so they are inalienably objectual expressions. Whenever a speaker utters something equivalent to '$\exists xFx$', she says that there is something such that 'Fx' is true of it. This is an imputation of existence, the existence of Fs, because her statement will only be true if the domain contains F things. 'The variables of quantification, 'something', 'nothing', 'everything', range over our whole ontology, whatever it may be; and we are convicted of a particular ontological presupposition if, and only if, the alleged presuppositum has to be reckoned among the entities over which our variables range in order to render one of our affirmations true.' [Qui48, p. 13]. This is the most that can usefully be said about the meaning of 'exists'. All there is to the existence of Fs is that

something satisfies 'Fx'. 'Existence is what the existential quantifier expresses' [Qui69b, p. 166] and 'to be is to be the value of a variable' [Qui39, p. 708], [Qui48, p. 32]; that is, a bound variable in our best theory. The only ontologically committing expressions are the only objectual expressions: the variables.

1.3.4 Quinean Interdependence

Although making definitive claims about what exists is the business of theories, not primarily of individual agents, there is a rational constraint on people to accept the existence of the things that there are according to a theory they endorse. Of course, they are not committed to each claim they make in passing. Individual agents can escape a commitment by realigning the boundaries of their theories. One way of doing so is to deny that the sentence they uttered was intended to form part of a theory. Some sentences are not thought of as true, or even truth-evaluable, at all. As far as ontology is concerned, they can be left out of consideration entirely. Quine mentions fictional sentences as an example where 'an attitude of frivolity' [Qui53d, p. 103] is apposite. Other potential candidates include jokes and formulaic or merely phatic statements. When the speaker's objective is to amuse, flatter, or pacify an audience, rather than to say something true, their utterances do not directly contribute to the furthering of our collective knowledge and methodology. This does not mean that such statements are of no theoretical interest in any way. In particular, theories *about* fiction, pragmatics, or social customs may (or may not, if they are reductive) add commitments to our best theory, and this in no way contradicts frivolity.[7]

Elimination, Reduction and Paraphrase

Escaping commitments is possible even where the statement in question is a declarative sentence intended to be part of a theory. A theorist avoids having an existence claim attributed to her if she improves her theory by providing a permissible paraphrase. Her overall theory allows her the option to work out whether a posit is really necessary for explanatory purposes, or in fact turns out to be dispensable. A permissible paraphrase is a translation of old, natural language, parts of theories, into new, regimented ones, 'expand[ing the apparent existential assertion] into an idiom sterile of such assertions' [Qui53d, p. 103] to demonstrate that the ostensible commitment can be explained away.

I distinguish between eliminativism and ontological reduction. An eliminativist about Fs believes that all talk of Fs is so far from being true or useful that there is no point in translating sentences about Fs into a regimented theory. Instead, all sentences involving Fs are

[7] E.g. see [vI77] for a Quinean defence of the claim that meta-fictional sentences carry commitment.

simply dropped. Eliminativism is different from frivolity because the eliminativist thinks discourse involving Fs is intended as part of a theory, but is not worth preserving because it is a part wholly without merit.[8] A philosopher who is a reductionist about Fs, on the other hand, does not want to dismiss talk of Fs as altogether useless, even though she does not countenance Fs as posits and wants her language of regimentation not to speak of Fs. To reduce Fs to Gs is to provide rules of translation that allow talk of Fs to be explained in terms that only contain mention of Gs. Such translation can be direct, translating one predicate as another predicate (e.g. using 'significant' instead of 'meaningful') or indirect, translating a simple attribution of a predicate as a complex sentence involving multiple predicates (e.g. translating 'Susan has schizophrenia' as 'Susan's brain is affected by synaptic disregulation which causes overactive D2 receptors', which, in its regimented form, quantifies over synapses and receptors and expounds their relations to each other). It is possible for a reductionist and an eliminativist to arrive, by different routes, at the exact same regimented theory. They could, for instance, each end up quantifying only over parts of brains and other physical things and agree completely on what things there are and how they are. The difference is that the reductionist formulated her theory in the belief that it is the best possible translation of various scientific disciplines conjoined with folk psychology. By contrast, the eliminativist arrived at her regimented theory without giving any thought to folk psychology, believing it to be deficient, and used as her source only physically-based theories of the brain.

Parsimony: No Cardinality Limit on Ontology

One of the aims of ontological reduction is parsimony: not multiplying entities beyond necessity. The multiplication of entities, which Ockham frowned upon, pertains to kinds, not individuals. Other things being equal, we should prefer theories with smaller ontologies, but the aim is not for fewer values of variables, but fewer kinds—for Quine, fewer predicates. There is no legitimate cardinality limit on ontology. Ontological commitments are incurred to items that fall under some indispensable kind F. Without it, we would be unable to explain all we want to explain, which is no small matter. So it would be unwise to dismiss indispensable posits because our intuitions tell us their extensions are too large. And who could tell where the cut-off point for 'too large' should be? Accepting a kind means accepting it with all its concomitant instances. It is not paradoxical for ontological reduction by paraphrase to result in an increase in the cardinality of a theory. The reduction is legitimate if the translated sentence posits fewer kinds than the original sentence. Take

[8] Some philosophers draw the distinction in the same way I do; e.g. Churchland: 'Eliminative materialism is the thesis that our common-sense conception of psychological phenomena constitutes a radically false theory, a theory so fundamentally defective that both the principles and the ontology of that theory will eventually be displaced, rather than smoothly reduced, by completed neuroscience.' [Chu81, p. 67]. Others use 'eliminativism' in a looser sense: 'In principle, anyone denying the existence of some type of thing is an eliminativist with regard to that type of thing.' [Ram07, sec. 1].

the sentence 'There is a net migration from Mexico to the USA because there is a large disparity in GDP between the two countries.' On the surface this statement leads us to posit only six objects, belonging to five kinds: two countries, a migration, a product and a disparity. Imagine an economist who painstakingly supplies contextual definitions that transform this simple sentence into one in which the quantifiers range solely over people. As a result of her labours, she ends up positing 424 million individuals on the basis of this statement, rather than six. But the only kind posited is that of *Homo sapiens*, and one kind is more parsimonious than five.

1.3.5 Translation

Quine's aim to keep philosophy continuous with natural science leads him to justify the posits of metaphysics in the same way that posits are justified in science: in terms of their explanatory value to an overall theory. Ontological commitments belong to the theory as a whole, and ostensible surface commitments may be dispensable, so all claims entailed by a theory must be taken into account for its commitments to come to light. Formalised languages, with their well-defined consequence relations [Hod01, Bla01], are ideally suited to this end, and give the theory the additional virtue of simplicity [Qui81c, Qui53a]. Another great advantage of regimentation is that it equalises the status of implicit and explicit commitments. All posits are equal from the standpoint of the formalised theory, which is just a set of sentences closed under consequence. No existentially quantified sentence takes precedence over another.

Not only does Quine's holism cause him to have very little interest in isolated existence questions, he is also pessimistic about the possibility of extracting an unambiguous set of entailments from a collection of natural language claims, with their attendant vagueness and ambiguity [Qui60b, ch. 4]. At times he doubts that the idea of a common-sense or folk ontology can be spelled out in enough detail to be coherent. '[A] fenced ontology is just not implicit in ordinary language ... Ontological concern is not a correction of a lay thought and practice; it is foreign to the lay culture, though an outgrowth of it' [Qui81c, p. 9]. Although objectual quantification elucidates natural-language 'there is'/'exists' and the like, the natural-language expressions it improves upon are not themselves, strictly speaking, ontological vocabulary. To count as such, all purported existence claims must first be translated into canonical notation.

Ordinary language, of course, does contain locutions like 'there is', 'exists', etcetera, as well as pronouns, but various complications arise to cast doubt on the idea that these are themselves committing expressions. Natural-language pronouns are not always purely objectual, but convey ideological information. In English, 'it' may be thought of as the sort of word that indicates only that an object is present. But the range of 'it' is restricted to inanimate objects, non-animal life forms and, in some contexts, animals. Persons and

often other sentient creatures are referred to by a separate category of pronouns, which are also differentiated by gender. Instead of merely indicating that there is an object present, as the variables of formal logic do, these also convey information about what kind of object this is. This is at odds with Quine's presentation of the role of the pronoun, namely to locate a node on the intersection of observations: a peg to hang the ideological information on, which does not contain information of its own. Informative pronouns, like those connoting the gender or species of their values, are not purely objectual, nor strictly speaking ontological. We must separate the objectual function of the pronoun from the built-in information. This is achieved by the kind of translational strategy we saw Quine undertake in [Qui40, pp. 65-71] (see section 1.3.2). Regimentation can come in stages, and languages can be formalised to greater or lesser degrees. We see examples of this in jargon of what we would ordinarily be happy to call natural language; think of the kind of disambiguations inherent in a mathematician's use of 'there is something x such that', or a lawyer's use of 'the party of the fifth part'. They delineate the scope of the quantifier or, in the second case, disambiguate which member of the sequence is to satisfy the expression following it.

Meaning Equivalence?

The question now arises, though, to what extent this process of formalisation is like translation at all. Some critics of Quine, like Alston, profess to be puzzled at the claim that ostensible commitments can be paraphrased away. Alston contends that if paraphrase is indeed a form of translation, then various ordinary strictures on the translation of sentences of one language into another must apply: at the very least, a sentence and its translation must share a meaning. 'For if the translation of (1) ['There is a possibility that James will come'] into (2) ['The statement that James will come is not certainly false'], for example, is adequate, then they are normally used to make the same assertion' [Als58, pp. 9-10].

But the ordinary strictures do not apply to translation into canonical notation, which is guided by pragmatic concerns distinct from those of natural-language translation. The aim is not to preserve as much as possible of the source language's content, structure, subtlety, connotations or poetic quality. The aim of regimentation is to bring to light what is entailed by a theory, and to reveal its primitive predicates and its posits. To translate a theory into canonical notation is to move from one theory to another, couched in a new formalised idiom—since a theory is just a set of sentences closed under consequence, a language no more than the corresponding set of well-formed formulae. Proposing a new theory to supplant the old is justified by the constraints of theory choice: the new theory is preferred because of some explanatory benefit. There is no God's eye perspective from which we can judge rival theories. The only way to make progress is to move from an old theory to a new one, always working within the best available theory. This goes for its posits, too:

we accept a new theory with all its posits, and if we wish to reject some of them, we must propose a new coherent theory according to which no such objects exist. 'Everything to which we concede existence is a posit from the standpoint of a description of the theory-building process, and simultaneously real from the standpoint of the theory that is being built ... we can never do better than occupy the standpoint of some theory or other, the best we can muster at the time' [Qui60b, p. 22]. Translation into canonical notation is a process whereby the recognition of some defect in the old theory leads to a new one rising from its ashes. Meaning-equivalence is not required, nor even full material equivalence. Since the old theory was deficient, some of its sentences were false. Nevertheless, most of it was worth preserving, leading to new, true, improved sentences taking the place of the old, false ones while preserving overall coherence. It is true that the natural-language version of a theory has its own advantages which the regimented version lacks. For instance, it is better suited to human communication; it respects conventional connotations and linguistic subtleties. The regimented theory, on the other hand, scores much more highly on scientific precision, well-defined consequence and clarity. It also separates ontological from ideological expressions, making it an ideal vehicle for asking and answering ontological questions without muddying the waters.

Although Alston's puzzlement, expressed in the late 1950s, is understandable with respect to Quine's earlier papers, from *Word and Object* onwards it is clear that his notion of translation is specifically radical translation [Qui60b, ch. 2, ch. 5]. When the field linguist maps sentences to sentences, engaged in the project of radical translation, the order of acquisition is just the one sketched in 1.3.2. First the linguist identifies the native's observation sentences, mapping them onto her own observation sentences. Next she attempts to identify the native equivalents of 'Yes' and 'No', betokening assent and dissent. With the help of these expressions, she begins to link observations and translate truth-functional constructions. So far everything is radically translatable, because it is empirically conditioned. The evidence for it is, with some refinements, just based upon third-personally accessible stimulus meanings, including assent and dissent [Qui60b, pp. 32-33, pp. 57-60]. The trouble comes when the linguist tries to reify. She wants to move from observation sentences like 'Rabbit' to terms like 'rabbit', and refer to objects whenever the native speakers do. But the transition from feature-placing sentences to variable-predicate sentences introduces indeterminacy. Theories allow for reification when feature-placing sentences receive a newfound structure by locating a pronoun on the intersection of significantly overlapping observations; the combination of variables, quantifiers, truth-functions and identity amounts to predicate logic. But this development is not an empirically conditioned one. Observations plus assent and dissent cannot be enough to fix the boundaries of objects, neither to decide which overlapping observations are the significant ones nor to determine numerical identity. If objects are the sorts of things that are hypostatised on the intersections of significant observations, they are not themselves directly observable. Which intersections are assigned a posit and which are not is not an empirically based matter.

There are several equally explanatory arrays of posits for any given quantified theory.

The linguist can never be sure that her patterns of reification match those of the native speakers. The third-personally accessible evidence is consistent with 'rabbit' as a translation of 'gavagai', but equally consistent with such translations as 'rabbit stage', 'part of the rabbit fusion', or 'manifestation of rabbithood' [Qui60b, p. 54]. To try to rule out any of these alternatives by asking questions would be to impose her own apparatus of reification on the source language. When she thinks she's asking 'Is this the same rabbit as before?', she cannot empirically verify that her question cannot be translated 'Is this a rabbit stage of the same series?'[9] [Qui68a, p. 189].

Indeterminacy of translation has another, metaphysical, consequence which would turn Alston's complaint on its head. It provides grist to Quine's mill in his complaint against the 'myth of a museum' full of meanings for words [Qui68a, p. 186]. The metaphysical consequence is that there are no such things as meanings. A very minimal criterion of identity for meanings must include as a component that they remain stable under translation. But indeterminacy of translation reveals that even this modest part of a criterion of identity is too much to ask; no such stability is forthcoming for first-order languages. So we cannot help but conclude that meanings are just not out there in the world. Alston's quest to preserve meaning in translation was too ambitious to begin with.

I want to endorse the pragmatic line on formalisation, according to which formalised theories are not expected to preserve all features of their ordinary language precursors, but need only provide a good medium for ontological enquiry. I do not want to commit myself to the idea that all translation is radical translation, or that formalisation only ever occurs by translating radically. The modern commitmentphile does not need to adopt this part of Quine's view, as she is under no obligation to accept his behaviouristic model of language-slash-theory acquisition. Liking the idea of asking and answering ontological questions in a language with a well-defined consequence relation in no way entails that all languages are the result of moving from observation sentences via behaviouristic truth functions to selecting idealised nodes where features intersect. Contemporary commitmentphiles do not have to follow Quine in taking only first-order logic as the quintessential language of regimentation.

[9] Chomsky [Cho69] reads indeterminacy as a species of underdetermination of theory by data. Commentators tend to concur with the Chomskian line [Wri97, Bal06], but I think this is a misinterpretation. When indeterminacy results, the reason is not that our evidence is insufficient. Observation of linguistic behaviour is all the evidence we could ever hope to have, because linguistic behaviour (in Quine's opinion) is all there is to language. There may be genuine facts of the matter about, say, physics which our theory cannot settle, but any question about language that cannot be settled by the collection of all available facts about behaviour is one about which there is genuinely no fact of the matter. So the indeterminacy argument really does entail the metaphysical conclusion that meanings do not exist. Also see [Gau06] for a thorough overview and refutation of underdetermination/indeterminacy confusions in the literature.

Relativity

A second famous objection to Quinean commitment originates with Cartwright, and was likewise published in the 1950s. His complaint is that the quantificational criterion cannot be stated without leaving the realm of the scientifically sound theory of reference and sliding into the theory of meaning Quine disavows [Qui53c] as replete with suspicious notions like *meaning* and *analyticity*. A theory which is not already in quantificational form, Cartwright asserts, cannot be translated into canonical notation without the help of the theory of meaning [Car54, p. 3]. An early temporal slice of Quine agrees [Qui53c, p. 131], but any post-1960 Quine-stage need only admit that imposing quantificational form on such a theory leads to inscrutability. Quine's considered position at this later stage is that there may be different candidate domains that could make the theory come out true. A theory that quantifies over cats, but leaves it open what colour they are, can make do with a domain of black cats or white cats, or a domain of cat-stages, or undetached cat parts. All that matters in specifying the domain is what is true of its members, or how we, in empirically unconditioned ways, delineate them. Indeterminacy leads to ontological relativity [Qui68a].

There are two distinct potential ways to determine the domain of discourse of a regimented theory. The first way gives us the ontology in the sense of an inventory of all the objects, an enumeration of them. Having excerpted all the existentially quantified claims, we are left with a list of sentences: '$\exists x(Fx \wedge Gx \wedge Hx)$', '$\exists y(Iy \wedge Jy \wedge Ky)$', '$\exists z(Lz \wedge Mz)$', ... The objects can be enumerated in these terms: there is something in the domain which is F, G and H; something which is I, J and K; something which is L and M, all of them are distinct. From this list we can derive the domain's cardinality.

A second way of specifying the ontology is to give an exhaustive catalogue of natures and their relations to each other. Suppose there is a predicate or open formula φ satisfaction of which is entailed by all of the other characteristics ascribed by the theory, e.g. if $\ulcorner \forall x(Fx \rightarrow \varphi x) \urcorner$, $\ulcorner \forall x(Gx \rightarrow \varphi x) \urcorner$, and so forth for all the predicates of the ideology. An example of such a predicate would be 'is material' in a physicalist theory. If there is such a φ, the domain can be concisely specified as $\{x\colon\ \varphi x\}$. (Standard Tarskian model theory requires that the domain be set-sized.) But the inscrutability of reference which carries ontological relativity in its wake led the historical Quine to lose interest in this second option. He noted that if all predicates allow for interchangeable but non-equivalent translations, the only stable factor is the cardinality of the theory.[10]

Cartwright also argues that a quantificational criterion of commitment cannot be stated without using modal language. He thinks that Quine must specify the domain of the regimented theory by appeal to objects that *would* make the theory true, that *would* form

[10]From time to time Quine goes so far as to suggest that the Lowenheim-Skolem theorem implies an ontology consisting only of the natural numbers [Qui68a, p. 207]; [Qui92, p. 33].

the domain, or that *would* be F if the theory were true: 'information concerning the nature of those conceivable or possible universes in which the axioms of the theory would be satisfied' [Car54, p. 8]. If true, this would be bad not only because (that temporal part of) Quine rejects modal ontology[11] but also because, *contra* Cartwright [Car54, p. 7], impossible ontologies ought to be describable. *Cf.* Scheffler and Chomsky's case of a theory T which contains the sentence '$\neg\exists x(x$ is a unicorn)' as well as the sentence '$\exists x(x$ is a table)', but whose predicate 'is a table' is best translated as our 'is a unicorn'. Their complaint is that this is a different theory from the surface-inconsistent T' which contains both '$\neg\exists x(x$ is a unicorn)' and '$\exists x(x$ is a unicorn)' [SC58, p. 81]. For proponents of regimentation, by contrast, the regimented translations of the two theories coincide, which is a virtue of regimentation as it shows T to be just as hollow at heart as T'.[12] But it seems to me that my description of the enumerative inventory of the beings constitutes a way in which Quine can sidestep the demand for a possible universe which satisfies the axioms of the theory. He simply radically translates the theory, excerpts all the existentially quantified claims, and disquotes them. He is then in a position to say, non-modally, that *if* these sentences are true then *there are* those things. He need not appeal to sets of entities that satisfy, or would satisfy, the descriptions, but only to the existential claims entailed by the regimented theory. That was part of the irenic project of ascending to the meta-language: one party can talk about what the other believes in without referring to any non-linguistic entity. All the first party needs is the second's objectual variables and the implications of her theory. In general, the commitmentphile's *modus operandi* is to translate the theory into a logical language of their choice, close it under consequence, select the sentences which contain committing expressions and disquote those sentences. Since not all commitmentphiles will opt for radical translation, the issue of ontological relativity is one I want to remain neutral about. I will also set aside all modally based objections from this point onwards. Modal philosophy is in and of itself compatible with being a commitmentphile[13] but it is not my

[11] In the 1940s and 50s, he considers the very idea of a *possibile* incoherent owing to the lack of a clear criterion of identity [Qui48, p. 23]. He does not object to all uses of modal logic—he praises the syntactic treatment of [Bar46b, Bar46a, Bar47] in [Qui47c]—but during that period he categorically rejects interpreted modal logics. He regards them as inextricably mired in analyticity: 'The result of prefixing "$\Box$" to any statement is true if and only if the statement is analytic' [Qui47b, p. 45]. Consequently he reads 'x is essentially F' as "'Fx" is analytic', which he decries as at best relative to a description, at worst an outright category error: 'rationality is involved in the meaning of the word "man" while two-leggedness is not; but two-leggedness may at the same time be viewed as involved in the meaning of "biped" while rationality is not ... it makes no sense to say of the actual individual, who is at once a man and a biped, that his rationality is essential' [Qui51c, p. 22]. In the late 60s he softens his position with respect to possible worlds, perhaps under the influence of [Lew68], if 'worlds' are conceived as describable distributions of matter over space-time points [Qui68b, p. 12]. See also section 1.4.4 below.

[12] For these translations to be accurate, T must have had two predicates 'is a table' and 'is a unicorn' with identical satisfaction conditions. So to affirm, in the language in question, the existence of tables while denying the existence of unicorns is incoherent, though not surface-inconsistent. The regimented theory closed under consequence reveals the inconsistency which is hidden by the natural-language surface structure.

[13] Certainly Lewis is a Quinean about commitment, see especially his [Lew68, Lew86, Lew90]. Williamson

focus here, and space does not permit any further discussion of modality.

1.3.6 Quinean Commitment and the Desiderata

In 1.2, I laid out some desiderata for ontological commitment: 1. that there must be some ontologically committing expressions, and some non-committing expressions; 2. true and coherent negative existentials; 3. an account of implicit commitment; 4. an account of interdependence between categories. Quinean commitment performs quite well on these counts.

His committing expressions are pronominal: specifically, the variables of a theory translated into a properly logical language. All other vocabulary will either be logical operators or predicates; these are not committing. It is therefore perfectly coherent to assert a statement of the form ⌜There is no x such that Fx⌝. The 'F' is not itself committing; it is not referential at all, but syncategorematic. So '$\neg\exists xFx$' will be true iff nothing satisfies 'F'. A speaker can escape commitment even when she utters a declarative sentence intended to be part of a theory, by providing a permissible paraphrase: a clear and formalised rewording of the earlier, ostensibly existential, sentence which does not make the existence claim she wants to avoid. To show that Fs just are Gs, all she needs to do is show that talk of Fs can always, without loss of information, be translated into talk of Gs. Imputing existence Fs and Gs usually only forms a small part of theorising, though; theories often simply mention the things they assume there are in passing, or rely in their explanations on objects that are never invoked explicitly. We surmise what a theory implicitly assumes there is by thinking about what existence claims logically follow from the claims it makes. Natural languages such as English can be obscure about their entailments because of their inherent vagueness and ambiguity. So we should always concentrate on formalised theories, which make it unambiguously clear on the surface what they say there is. Quine accounts for implicit commitments by treating all commitments as existentially quantified consequences of a regimented theory closed under consequence.

1.4 Metaphysical Embroidery upon Quinean Themes

According to Quine, objects are introduced into a theory when pronouns begin to be used to mark significant intersections in its observations. The role of the pronoun is to indicate the presence of a posit: an object is posited to account for the persistent intersection of observations. The historical Quine, wary as he was of succumbing to the traditional metaphysician's temptation to talk nonsense, would be reluctant to engage in discourse

is also plausibly described as proposing a modal language of regimentation, though not apparently one with Lewis's flat ontology [Wil00a, Wil02, Wil13].

about notions of objecthood, existence, or being. But, proceeding with caution and bearing in mind that by 'notion of objecthood' I mean mostly what vocabulary is used in talking about objects, and how it is used, I will trace a path towards the separation of sense from nonsense in this area.

1.4.1 Objecthood as a Logical Notion

Languages which contain no reifying vocabulary cannot be said to express anything about objecthood. As Strawson says, 'feature-placing sentences do not introduce particulars into our discourse' [Str59, p. 244]. Strawson's remark applies to Quine's observation sentences, since they are feature-placing. Objecthood is introduced only when it becomes possible to express that an object is present. The objectual expressions of a language are those whose semantic role is just to signal the presence of a thing. They cannot be used except to stand for a presumed object, and are therefore committing expressions: expressions that indicate that the speaker is making a presumption of existence or being. If the speaker is wrong in making that presumption, her sentence will be false. Formal languages may have syntactic categories which the interpretation explicitly assigns to objects: in the case of Quine's language of regimentation, that category comprises the first-order variables.

Quine is most naturally read as identifying objecthood with playing the role of a posit. Variables indicate no more and no less than that a thing is needed here for explanatory purposes. The leap from 'Green. And Tree' to 'x is green and x is a tree' is a leap from a feature-placing language, labelling observations, to a richer logical form with objectual vocabulary in addition to the observational vocabulary. The objectual vocabulary denotes an object, but connotes nothing; it only brings in objecthood. This is contrasted with the ideological vocabulary, the leftover part formed from the observation sentence. The predicates specifically do not denote. The objectual vocabulary was introduced expressly to discharge the denotative role. The ideology is a vestige from the kind of language, a feature-placing language, that lacked reifying vocabulary and only noted phenomena without having any such role as denotation within it.[14]

The contrast between objectual language and ideology can be put, borrowing a phrase from van Inwagen [vI09], as the contrast between talk of *being* and talk of *nature*. A logical language cleanly separates being from nature: variables are concerned with being, predicates ascribe natures. When we talk about natures, characteristics, or kinds in this context, it is not to be read as reifying natures, etc. A kind or nature in this sense only

[14]This could perhaps form the basis of argument for Quine's rejection of realism about universals and of second-order logic: predicative vocabulary is designed not to stand for anything, because it is what is left over from a feature-placing language once all the expressions designed to stand for things have been assigned to things. I don't think that line of thought is unassailable, but I will not pursue it here in any detail; it comes up briefly in 5.3 below.

means something that is said of an object, within the context of a theory. According to Quine's view of commitment, reification of properties and relations should proceed via first-order quantification.

The idea that logical languages force a useful separation between being and nature dovetails with the proposal that a purely objectual expression is committing because it communicates nothing except that its denotation is a thing, leaving everything else that can be said about it to the ideology. Variables, designed to herald the presence of an object, belong to the logical vocabulary. So perhaps surprisingly, it appears that the notion of objecthood itself must be reckoned to logic, too. Predicates, on the other hand, are paradigmatically non-logical. Predicates are what is left of observations when objectual vocabulary gets a grip; they constitute the ideology, the part of the language that serves to express ideas and ascribe characteristics [Qui51b]. In this way the syntax of the language of regimentation helps us make it clear why we only need one kind of quantification and one realm of being, not ever-widening concentric circles of subsistence and beyond: the use of a variable indicates only that an object is present, and that is enough for logical purposes. All other differences between things are resigned to the ideology. No matter how different in nature two things are, that will never suffice for showing that they are not both *things* when considered from the point of view of logical grammar. The differences in nature are expressed by means of predicates, and differences in being are incoherent because they are not expressible by logical grammar at all: being is simply being, appearing as a value of a variable in the domain.

Quine's committing expressions, the first-order variables, are a clear case of expressions that cannot be used except to stand for an object. Whenever they are used, a corresponding object's failing to exist invalidates the claim that is made by means of them. But does their being objectual in that sense, that whatever else is the case they *at least* denote in any true context, also mean that they should be purely objectual, i.e. do nothing *except* to denote? It is unclear whether van Inwagen means his point to be stretched quite this far, though he is certainly opposed to wider and narrower notions of being. Quine appears to rely on the idea that committing expressions must be purely objectual, and restricts the available committing expressions accordingly. By contrast to formal-logic variables, ordinary-language pronouns are not always purely objectual. Some of them convey information about gender, case, or kind in addition to denoting an object. But their sanitised formal cousins, the variables, are purely objectual vocabulary. Nothing is communicated by them except that an object is present. A slightly more controversial category of potential committing expressions are the individual constants of first-order logic, assigned elements in the domain as their values. These are denied admission to Quine's language of regimentation, possibly because he regards them as impurely objectual. We will return to his reasons for this strict admissions policy in section 1.5 and chapter 3 below. More contentiously, second-order variables may also be thought of as committing expressions [Sha00]. On the standard interpretation, they are assigned objects of a particular kind,

namely subsets of the first-order domain. The fact that their values must be sets arguably weakens their case to be called committing expressions, since we can infer from the use of a second-order variable in a standard second-order logic that its value is a set. Even though nothing can be deduced about what its members are, it must be a set, so the case could potentially be made that second-order expressions are not purely objectual expressions.[15] A commitment-based meta-ontology that admits committing expressions that are objectual—whose semantic function is to denote—without being purely objectual—their function is at least to denote, but may also include information—is possible. Examples of such expressions might include higher-order variables, typed variables, propositional variables, type-indexed names or sortal-indexed names. Such a theory, though, would have to face questions about the role of logic in commitment—particularly, whether it could maintain a view of logic as treating all objects completely impartially, without ordering them according to their natures. My interest here is in purely objectual expressions, and subsequent discussion will mostly focus on them.

1.4.2 Thin Objects

Using metaphysical language that might make the historical Quine uneasy, I would call his notion of objecthood a relatively thin one. To be an object is no more than to be posited on the intersection of observations. At least on the Quinean picture we have so far been considering, there is only one kind of objectual expression, and it is purely objectual. van Inwagen makes the plausible suggestion that all questions people attempt to raise about different kinds of being are in reality questions about differences in nature. Since there is only one kind of objectual language, and it reveals no information about the thing it denotes, questions about different kinds of existence must always be framed in ideological terms or appear senseless. To be a thing is just to be a good explanation of some pattern in our observations: a pragmatic imposition which we keep because it works. Quine ends up identifying being, existence and being an object, but not for no good reason. They are all the result of reification, or the introduction of objectual vocabulary. It is because there is a single semantic category whose function it is to signal that reification has taken place, namely the variables. Here there is the germ of a reply to obfuscatory questions such as 'What is it to be an object?' or 'Are there really objects?' (e.g. Heideggerian distinctions between ontic and ontological questions [Hei62], or the 'pure ontology' of [Jac02]). To be an object is nothing more than to be posited as a good explanation of overlap. There is only one such notion, simply because there is only one kind of role for the pronoun, which is to flag the presence of significantly overlapping observations. If there were no such intersections, the question would not be raised because the language would not be

[15] Quine never makes this case, and I want to remain neutral on the issue, but it might be considered a natural motivation for his rejection of second-order logic [Qui70, pp. 66-68]. We will come back to this in section 5.3.

first-order, but retain the structure of sentential logic.

1.4.3 Commitment to Entities-*qua*-*F*

In a regimented language, the variable connotes no more, and no less, than existence; being an object. All the interesting information about what is true of the thing is confined to the ideology of the theory: its predicates. We choose our logical language such that it confines talk of natures to its non-logical vocabulary, and reflects logical truths in the particles of its grammar. A logical language thus cleanly separates being from nature: quantificational vocabulary conveys no information about the things, only that they are things; only the predicates speak of natures. Commitment only applies to things insofar as they fall under some kinds describable in the theory: a theory is committed to whatever satisfies some predicate or concatenation of predicates belonging to it: objects-*qua*-*F*. Although concatenations of predicates can be highly specific, even to the point of singling out only one single being, the individuals themselves are only relevant insofar as they satisfy some open sentence couched in terms of the predicates of the theory. They are there not *qua* individuals but *qua* locus of persistently intersecting observations. A theory cannot be committed to an individual *qua* individual under any circumstances, an issue to which we shall return in chapter 3. It can be committed at most to the existence of something-*qua*-*F*, for some '*F*' which only that individual satisfies.

1.4.4 Flat Ontology

Ontological commitment *à la* Quine yields a flat ontology. The term 'flat ontology' is not Quine's, and as far as I can tell is first found in Castañeda [ned90, p. 47].[16] The ontology of the theory is arrived at by determining the domain of the regimented version of the theory. A domain of discourse is a set: an unordered collection of existents that provide values for the variables. All values of variables show up as items on a list the order of which is irrelevant. Sets, being equally order-insensitive, are a fitting model for domains in this sense. However the members of two sets may be presented or arranged, if all of them coincide, the sets are pronounced identical. Since variables are the semantic category that represent the introduction of reification, or positing beings, the beings are all on a par. There is no ordering or hierarchy imposed on them. The beings themselves feature only as objects-*qua*-*F*, only insofar as the open sentence governed by an existential quantifier is true of them. The flat ontology models the underlying philosophy of existence quite well:

[16] Castañeda [*ibid.*] uses the term to contrast this kind of ontology with what he views as a hierarchical ontology found in Aristotle, classifying supervenience as premised on a flat ontology. Interestingly, there is a continental use of the the term 'flat ontology' as well. It seems to be much in vogue with human geographers, who tend to credit the term to Deleuze [Del94] and use it in the sense of 'an ontology composed of complex, emergent spatial relations', where its antonym is 'transcendent ontology'; e.g. see [MIW05].

there are no different kinds of being or existence that would have to be represented by a hierarchy or ordering of posits *qua* beings. There are only differences in nature, which are expressed by the predicates that are true of the posits. Logical grammar represents this difference between being and nature. The presence of a variable signals only that its value is a thing; nothing is revealed about what sort of thing it is, and only one notion of thing is in play—the most general one.

Another way to explicate the flat ontology is that there is only one domain of discourse, a single category of all the objects. In the case of Quinean commitment this entails specifically that there is only one kind of quantifier and variable. A being is anything that is in the range of the quantifiers. Any theory formulated in a way that appears to indicate more than one type of quantifier must be translated into a language with only one kind of quantification to be considered intelligible. By way of illustration, consider Lewis's explanation of how possible worlds can be made to fit into a flat ontology [Lew68]. Previously, Quine had criticised *possibilia* as lacking clear criteria of identity (see footnote 12 above). This problem is only exacerbated by the introduction of Kripke semantics [Kri63], with their proliferation of domains of discourse, intended to model possible worlds. His interpretation appears to entail that there are really two kinds of quantifier, the pair '$\Box$' and '$\Diamond$' and the pair '$\exists$' and '$\forall$', where the latter perform their normal function, while the former range over possible worlds. The ordinary quantifiers, presumably, range over objects contained within the worlds. This makes a mystery of how to translate world-quantifiers into ordinary quantifiers, and how to interpret trans-world identity statements. If there is no single unified domain of quantification, but multiple ones existing side by side, there is no obvious answer to the question whether an object in some world is identical to an object in another. Lewis translates away the appearance of a hierarchical ontology of worlds whose contents are only locally quantified over, by letting ordinary first-order quantifiers range over worlds as well as their contents (that is, their parts). The scope of our quantifiers is much broader than we normally assume, encompassing all of modal space, but it is ordinary first-order quantification all the same. On his reading, it follows that two things located in distinct possible scenarios are never identical, since they are parts of distinct worlds and occupy different points in the pluriverse, just like two different time-slices of the same thing are never identical with each other. There has been a large domain expansion, but nothing ontologically untoward is going on; worlds and possibilia may have some unusual characteristics, but they are simply beings *tout court*. Although Quine is still an extensionalist after 1968, he has ceased to complain about the unintelligibility of possible worlds. In [Qui68b, Qui70] he accepts that some senses of 'possible world', such as 'cosmic distribution of particles' are scientifically kosher, although he still complains that 'this idea affords us no general way of equating sentences in real life' [Qui70, p. 4].[17]

[17] See also [Qui81e, Qui81b].

1.5 Ontology and Quine's Philosophy of Logic

Formalisation is useful for explaining interdependence and for levelling implicit with explicit commitments. Any existential consequences of a formalised theory are commitments, whether they were explicitly stated pre-formalisation or only implied. Objectual quantifiers, as defined by the formal languages we have encountered, unlike purportedly ontological expressions in natural language, have the force of full generality. Formalising a theory also confers upon it the theoretical virtue of simplicity. But now the question arises which formal language is the one best suited for ontological enquiry. Is there only one suitable candidate, or many? Quine's ontological idiom of choice is bivalent first-order logic without individual constants, which he claims is the only truly logical language. His reasons for this choice turn out to be more informed by his overall epistemology than they seem.

1.5.1 Chasing Truth up the Tree of Grammar: Quine's Conception of Logic

One compelling reason for determining commitments only after translation into a formal language of regimentation, we have already seen, has to do with the originally Tarskian objectual interpretation of quantification. Variables are interpreted as ranging over a domain, with '$\exists xFx$' being true if and only if at least one of its elements satisfies the open formula 'Fx'. Formally, truth is defined in terms of satisfaction by sequences, as described in section 1.3.3, and truth for closed sentences is a limiting case: satisfaction by all sequences, because closed sentences have open formulae as constituents. The truth values of compound sentences are determined by the truth values of their components, and this is specifiable recursively. Quine is also interested in using Tarski's work to give a disappearance theory of truth. He wants to say that 'Snow is white' is true iff snow is white, 'Roses are red' is true iff roses are red, and so forth: in short, that instances of the schema 'x is a true sentence if and only if p' where any sentence is substituted for 'p', and a name or other singular term for that sentence is substituted for 'x', 'could serve as partial definitions of the truth of a sentence or more correctly as explanations of various concrete turns of speech of the type "x is a true sentence"' [Tar56a, p. 155]. Since that explanation collapses on the liar sentence, which says of itself that it is not true, it needs some refinement. The refinements Tarski proposes are principally 1. restricting it to languages that do not contain their own semantic vocabulary and 2. relativising the truth predicate to the object language for which it is defined.[18] The truth schema thus becomes 'x is true-in-L iff p', where 'x' is to be replaced by a name or structural description of a sentence in the object

[18] Strictly speaking, Tarski does not claim to provide a truth definition when he proposes his schema, but only makes the weaker point that if a definition is formally correct, and the true sentences of the language form a subset of the set of all its sentences, and it conforms to the schema, such a definition will be materially adequate [Tar56a, p. 188].

language, 'L' by the name of the object language, and 'p' by a metalanguage translation of that sentence. Quine agrees with Tarski's point about paradox [Qui66b], even though he sometimes leaves these refinements implicit. He favours the Tarskian view of truth because it allows him to elucidate a link he sees between truth as a device of generalisation, semantic ascent and logical consequence.

The apparatus of reification—variables plus quantification, with a little help from the truth functions—enables us to generalise over objects. Everything in the domain satisfies '$x = x$': Hypatia = Hypatia; Parvati = Parvati; 1=1. From these individual truths we can generalise to '$\forall x(x = x)$', abstracting away from their individual names. Logic enables us to generalise over sentences in virtue of their logical form. For instance, all sentences of the form 'p or not p' are true in a bivalent logic—'1 is prime or 1 is not prime', 'Hypatia is a woman or Hypatia is not a woman', etcetera. But sentences are not unproblematically names of things in the domain, and in fact Quine proscribes quantificational generalisation into sentence position: "'p or not p for all things p of the sort that sentences are names of" ... is simply incoherent; it uses "p" both in positions that call for sentence clauses and in a position that calls for a noun substantive' [Qui70, pp. 11-12]. The quantified sentence '$\forall p(p \vee \neg p)$' would be in the object language, leaving the logician scrambling for propositional objects. Quine prefers to ascend to the metalanguage, and use the truth predicate to generalise over sentences with a certain form, e.g. 'p or not p'. A sentence is a logical truth iff its truth is preserved under all substitutions of the non-logical vocabulary. In this case that means that whatever sentence is substituted for the schematic sentence letter 'p', the resulting complex sentence will be true. A logically true sentence is thus true in virtue of its grammatical form.

Quine's views on consequence are closely linked to his views on truth. Logic, he says, is 'the systematic study of the logical truths' [Qui70, p. xi], those which remain true under all lexical substitutions. Logical consequence, for him, is a derivative notion. The entailment relation's holding between φ and ψ is, given the deduction theorem, equivalent to the logical truth of the corresponding conditional, $\ulcorner \varphi \rightarrow \psi \urcorner$ [Qui70, p. 53-55]. The explanation of logical truth in virtue of its formal properties extends to consequence: he proposes a substitutional account of logical consequence.

To say that logic is formal, or concerned with the laws of truth, is not to say that it is primarily linguistic. Logical truth, and truth in general, is predicated of sentences, but that does not mean that the subject matter of logic is linguistic objects. Sentences, after all, are true both in virtue of what their component words mean and in virtue of how the world is [Qui70, pp. 10-11]. 'Hypatia is a woman' is true because 'Hypatia' denotes Hypatia, and Hypatia is, in fact, a woman. Were the name 'Hypatia' to denote a continent, the sentence would be false; it would also be false if Hypatia were a goddess instead of a woman. 'If Hypatia is a woman, then she is human' is similarly about Hypatia and true of Hypatia, even though the open formula 'if x is a woman, then x is human' is satisfied by every

element of the domain. 'Either Hypatia is a woman or Hypatia is not a woman' is, in the same vein, equally about Hypatia, and not about the sentence 'Hypatia is a woman', even though no amount of substituting other singular terms for 'Hypatia' and other predicates for 'is a woman' could falsify it. In the case of 'If Hypatia is a woman, then she is human', we can generalise by using a quantifier. Any substitution of a singular term for 'x' in '$\forall x$ (x is a woman $\rightarrow$ x is human)' will produce a true sentence. But in the case of 'Either Hypatia is a woman or Hypatia is not a woman', that kind of generalisation is impossible since it would imply that sentences are names of things in the domain. So we resort to talking about form, without losing sight of the fact that what we are interested in the most general laws of *truth*, which involves reality as well as language. The truth predicate 'preserves . . . contact with the world, where [the logician's] heart is' [Qui70, p. 35].

Formality and Continuity between Logic and Other Sciences

Even though the laws of logic are in the metalanguage, unlike the generalities of the special sciences, the conclusion to be drawn is not that logical truths are true in virtue of language while the truths of the special sciences are true in virtue of reality. Quine sees no sharp separation between truths of language and truths of fact, as a consequence of his blurring of the analytic-synthetic boundary [Qui36b, Qui51c]. His view is not that there are only synthetic truths, nor even that the extension of the concept 'analytic truth' is necessarily empty. (He does not see any way of explaining necessity without appeal to analyticity; see footnote 12 above.) It is that all truths are true both in virtue of what the world is like and what their words mean. If Phaenarete had never had a son, 'Phaenarete is the mother of Socrates' would have been false; it would similarly have been false if 'is the mother of' had meant 'is younger than'. Sentences do not divide up into a language-component and a fact-component, where the analytic sentences are just those whose fact-component happens to be empty, and all others are synthetic. There are no analytic sentences in that sense, but there are no synthetic sentences in that sense either—the distinction itself is specious. For Quine, this is related to holism: he has no wish to hang on to the positivist orthodoxy [Car37] that the analytic parts of theories are confirmed by any findings whatsoever. In exceptional circumstances, he thinks, the best way to improve a theory is to adjust the definitions of its words [Qui52, Introduction]. Though logic is about the laws of truth, there is no contradiction in its being simultaneously about reality, because truth itself is determined by both language and reality, and language is not distinct from reality.

Identity

Since Quine draws the boundary between logic and non-logic at semantic ascent, his philosophy of logic relies on a strict separation between the lexicon (the ideology) and the logical

vocabulary. The logical truths are those whose truth is unaffected by any and all lexical substitutions, no matter how much we may expand the lexicon. It follows that predicates are never logical vocabulary, not even the identity predicate. If an exception were made for the identity predicate, then there would be some object-language logical truths after all, like '$\forall x(x = x)$'. Quine attempts to dissolve the need for a logical predicate by noting that a 'serviceable facsimile' for identity can be defined for any first-order language with a finite number of predicates. '$x = y$' would be defined as short for some clause that expresses indiscernibility by any of the predicates in that language. He gives the example of a language with a one-place predicate 'A', two two-place predicates 'B' and 'C' and a three-place predicate 'D', in which '$x = y$' can be defined as (3) '$Ax \equiv Bx \wedge \forall z(Bzx \equiv Bzy \wedge Bxz \equiv Byz \wedge Czx \equiv Czy \wedge Cxz \equiv Cyz \wedge \forall z'(Dzz'x \equiv Dzz'y \wedge Dzxz' \equiv Dzyz' \wedge Dxzz' \equiv Dyzz'))$'. 'If, instead of reckoning '=' to the lexicon of our object language as a simple predicate, we understand all equations as mere abbreviations of complex sentences along the lines of (3), then all laws of identity become mere abbreviations of logical truths of the purely quantificational sort' [Qui70, p. 64], i.e. sentences which keep their truth value regardless of lexical substitutions.

Quine admits that his definition of identity does not amount to a relation which partitions the domain into singleton equivalence classes [Qui70, p. 63]. There may be differences between objects that the predicates of the language fail to capture. But he avers that from within the language, such differences are inexpressible. It appears counterintuitive that a language can speak of two distinct objects and not be able to distinguish them, even if its predicates are limited. Could we not refer to each of them by name, and refuse to assert that they are identical? Not in Quine's logic. He dispenses with names, blithely declaring that for logical purposes, they are 'frills' [Qui70, p. 25], and instead of names like 'a', we can simply resort to uniquely identifying predicates like 'A'. The objects cannot be distinguished by giving them distinct individual names, since such names have been eliminated. Logical languages *à la* Quine have no primitive identity predicate either, only his defined facsimile. Its grammatical categories are limited to the predicates, the variables, the connectives and the quantifiers (and brackets, but these are strictly speaking optional as Polish notation could be deployed to dispense with them). So the only way to distinguish one object from another is by the predicates, or the open formulae it satisfies. The line between identity and indiscernibility cannot be drawn in such languages.

Quine's line of reasoning here is one we will find reason to doubt in chapters 3-6. His tendency to equate *being the same thing* with *being the same with respect to all predicates of the theory* is probably informed by his thin conception of objecthood as whatever sits on the intersection of persistently overlapping observations: just an x that marks the spot where characteristics coincide.

1.5.2 Quine's Criteria for Logicality

There are several good reasons for using logic as a tool for determining ontology, and translating theories into a properly logical language: simplicity, a determinate consequence relation, equal status of implicit and explicit commitments. But why bivalent first-order logic without constants specifically? The reason for choosing that particular canonical language of regimentation is to do with Quine's views on the nature of logic and the criteria a language must meet to count as a logical language. Quine is explicit about his definition of logic as the systematic study of the logical truths and his substitutional account of logical consequence [Qui70, ch. 4], but offers a mixed bag of criteria of logicality. While some of these would go well with any commitment-based view of ontology, others are more beholden to particular doctrines of Quine's that have less widespread appeal.

Quine's particular conception of formality, going hand in hand with his substitutional theory of logical consequence, leads him to draw the boundary between logic and non-logic at semantic ascent. Semantic ascent as used here has much in common with his use of semantic ascent in ontological commitment. To avoid making reference to the entities whose existence he wants to deny, Quine ascends to the metalanguage. From this comfortable vantage point he can demonstrate where his opponent uses a variable and thereby makes a commitment to an entity. Logical laws are also stated in the metalanguage, in order to eschew quantifying into sentence position, or using sentence letters in contexts where a name should go. Quine deplores any kind of commitment to propositional objects. But the first use of semantic ascent does not mandate the second. Appealing to committing expressions in the metalanguage to avoid having to refer to objectionable entities does not entail that logic must be carried out exclusively in the metalanguage. Although drawing the line between logic and nonlogic precisely at semantic ascent does entail that, this is uncomfortable for those who would prefer to keep identity as a logical predicate, perhaps feeling uneasy at Quine's thin conception of objecthood as positing. Nor is Quine's position on logical consequence the only option; notable alternatives include Tarski's permutation invariance [Tar56b]. Though Tarski seems a good match for commitmentphiles, modal consequence [Bla00, Etc90] or inferentialism [Pra65] are not obviously ruled out either. Still, there are other criteria for logicality to be found in Quine besides having laws statable only by semantic ascent.

Probably the least controversial among these is what he terms 'versatile ancillarity': 'the ubiquity of use of logic. It is a handmaiden of all the sciences, including mathematics' [Qui70, p. 98]. Frege makes a similar remark in the *Grundlagen* about logic's applicability to everything that is thinkable [Fre80a, p. 21]. The next criterion, 'the lack of special subject matter' [Qui70, p. 98] seems to invite similar levels of popular acclaim, but upon further inspection is a bit more entrenched in Quine's systematic philosophy. When he elaborates on what 'lack of special subject matter' means, his answer suggests that it entails a substitutional theory of consequence: 'logic favors no distinctive portion of the

lexicon, and neither does it favor one subdomain of values of variables over another' [*ibid.*]. That particular explanation is incompatible with the idea that some predicates, such as '=' are universally satisfied as a matter of logic. In the end, Quine resolves this conundrum by appeal to a defined indiscernibility which takes the place of identity, maintaining that predicates do not belong to logic, but to the special sciences. Yet he understands the temptation to count identity as logical, because 'it treats of all objects impartially' [Qui70, p. 62].

Impartiality and the Flat Ontology

Impartiality, the property of applying to all of reality without discriminating according to nature, is another possible explanation of 'lack of special subject matter', one which non-Quinean realist might prefer because is not beholden to Quine's substitutional theory of consequence. A theory which has predicates of its own can still be impartial, as long as it treats all values of variables equally. If it does have predicates, those predicates must not exclude from consideration any branch of the special sciences [Qui70, pp. 62, 98].

Logic is concerned with things generally, not with the attributes some of them have and others lack. Quantification theory concerns the most general laws of being, while the predicates of the theory supply information about the natures of the things they talk about. That is why logic is useful in providing a backdrop against which to settle, with improved clarity, the question of which predicates are really satisfied by things in the world. There is no need for different levels of being or existence; everything that exists shows up in the domain as an object, independently of its particular characteristics. The flat ontology requirement is linked with the idea that 'existence' (or 'being') is *univocal*: all existents show up somewhere in the domain, regardless of their differences. This reflects the fact that there are no different kinds of being or existence, but only differences in nature, expressible in ideological terms. Logical grammar talks about being, leaving all talk of nature to the predicates, elucidated by the special sciences. Any theory that excludes some objects from consideration could not be logic, since it would not be impartial. Some more comprehensive theory that talks about all objects would be logic.

Obviousness

Lastly, Quine cites as a criterion of logicality 'the remarkable obviousness or potential obviousness of logical truth'. The kind of obviousness he has in mind is behaviouristic: 'when I call "1 + 1 = 2" obvious to a community I mean only that everyone, nearly enough, will unhesitatingly assent to it' [Qui70, p. 82]. It is apparent from the quotation that obviousness is not a sufficient condition for logicality, because both mathematics and observation sentences are obvious. Of all the criteria of logicality, obviousness is the most

deeply embedded in Quinean epistemology. He introduces the idea in the context of logic's relationship to radical translatability. In *Word and Object* Quine had maintained that after matching her own observation sentences to the native speaker's, the linguist proceeds to identify the native equivalents of 'Yes' and 'No'. She is then in a position to radically translate truth functions. Her evidence for translating 'bla' as 'and' consists in the native speakers' tendency to assent to 'p bla q' wherever they assent to p and assent to q, and dissent from it otherwise [Qui60b, pp. 58-59]. He continues to rely on this thought in *Philosophy of Logic*, where he infers that because observation sentences and expressions of assent and dissent are obvious, their obviousness carries over into logical theory. But it cannot be the case that all logic must be radically translatable; the apparatus of reification belongs to logic and yet it is not empirically conditioned. It introduces inscrutability. So another quality that a quantified theory loses compared to its sentential predecessor is obviousness. At first it may appear as though this should mean that not even first-order logic counts as logic, but only the translationally determinate truth-functional systems. Quine avoids this conclusion by distinguishing between the obvious and the potentially obvious, and adds that proof-theoretic rules count as obvious.[19] Now he feels justified in saying 'every logical truth is obvious, actually or potentially. Each, that is to say, is either obvious as it stands or can be reached from obvious truths by a sequence of individually obvious steps' [Qui70, pp. 82-83]. Obviousness is therefore preserved in complete proof procedures. Hence, first-order logic is obvious too, or at least potentially obvious, because it is complete [Qui70, p. 97].

Awarding the status of logic only to obvious or potentially obvious truths of a peculiarly ancillary and impartial sort does constitute something of a principled reason for denying the status of logic to incomplete systems. When Boolos asks why Quine is so adamantly opposed to second-order logic, his question, 'Why completeness [as a criterion of logicality] rather than decidability?' [Boo75], looks rhetorical. It is often thought to be one Quine has no answer to. On his own terms, he does: it is based on a peculiarly behaviouristic version of cognitive primacy. It is a necessary condition for logic that it commands near-universal unhesitating assent, either immediately or through a series of proof-theoretic steps each of which has that same property. Second-order logic does not meet that criterion. Decidable systems do, but they are rather weak. While sentential logic is straightforwardly obvious, monadic first-order logic is decidable but not as interesting theoretically as full first-order logic, which can express relations and is also potentially obvious. So an argument for making completeness a necessary condition of logicality is available to strict behaviourists who find obviousness appealing. What is not clear is what other advantages are to be got

[19] Quantificational truths are not obvious, I think not even potentially, to those who never learn to quantify [Qui79]. Speakers of languages in which reification is not introduced only have the structure, and logical truths, of sentential logic. Quine might be accused of fudging the proof theory/semantics distinction when he says that completeness is going from visibly true premises to conclusions by visibly true steps [Qui70, p. 83]. Proof-theoretic rules are supposed to be mechanical and independent of interpretation; truth, on the other hand, relies on interpretation and some agreement between representation and reality.

from clinging to this cumbersome behaviouristic machinery. No matter how it seemed to Quine, there are now few scientific reasons for adopting behaviourism, which is no longer the venerated doctrine it once was [Mil03, p. 142]. Even apart from behaviourism itself, obviousness in the sense of near-universal unhesitating assent seems rather too vague to be of use. Doesn't hesitation admit of degree [Par08]? And how much of a critical mass is needed?

Behaviourism is also the root of the trouble when we consider the tension between the radical Quine, for whom empirical data might lead to the revision of logical laws [Qui52, Introduction], [Qui51c] and the logic-friendly Quine, who takes logic to be immune from revision [Qui70, pp. 81-89; p. 96]. If we are merely behaviourally conditioned to accept the laws of logic, logic must be potentially subject to revision [AS07], and cannot have a normative role. The historical Quine's behaviourism leaves him vulnerable to the threat of logic change. But the minimally mutilatory response is to give up behaviourism rather than classical first-order logic.

1.6 Unanswered Questions

All things considered, there are many good sides to Quine's quantificational criterion of ontological commitment. Pronouns, designed to stand for objects generally, are a reasonable choice of committing expression. Regimenting ontological discourse in a logical language has the advantages of clarity, simplicity, and a well-defined consequence relation to incorporate implicit as well as explicit imputations of existence. There is a clear and cohesive account of negative existentials and of interdependence and reductionism. Quine's philosophy of logic makes a good case that logic is the most general theory which is about reality just as much as about language, because it treats all objects equally and aims to describe the most general laws of truth and being.

What remains open is whether Quine's canonical language of regimentation, bivalent first-order logic without constants, really is the one true logic or not. Quine's arguments in favour of that conclusion rely heavily on his own holist system of thought, as well as on his metaphysical distaste for propositions and universals. Another major influence behind the scenes is behaviourism, which plays a large role in his rejection of higher-order logic and in his contention that the boundaries of objects are an inscrutable theoretical imposition which is not verifiable in objective third-personal terms. Quine's contention that the identity predicate must be defined away as indiscernibility-within-a-theory is a byproduct of his conviction that all logical generalities are metalinguistic, rather than an independently attractive philosophical treatment of identity.

When read closely Quine's views on logic and ontology are rather more deeply indebted to his epistemology and nominalism than would appear at first sight. To what extent can

Quine's criterion of commitment be maintained in the absence of his global holism? And how much of Quine's views of logic and ontology can be preserved by someone who explicitly repudiates behaviourism? Is there an independently plausible argument for impartiality, the view that logical grammar treats of objects in isolation from their natures and is therefore useful in ontology, and for flat ontologies, without the holism?

In the next chapter, I will argue that despite the fact that Quine's own treatment of logic lacks global appeal, plenty of reasons remain for asking and answering ontological questions in a formalised language, and especially in some form of classical logic. In subsequent chapters we will see that there is good reason to believe that alternative criteria of commitment may be formulated, with alternative classical languages of regimentation, as a better match for alternative epistemologies which have more in common with foundationalism or foundherentism than with global holism.

Chapter 2

Advantages of Regimentation

This chapter is not a defence of Quine against his critics, but rather a defence of the very idea of a canonical notation. Some of my arguments will have a Quinean tenor and others will not. My aim is only to defend regimentation, i.e. translating theories into a formalised language with the aim of answering ontological questions. Which specific formalised language is the ideal canonical language is a further question which must be held in abeyance until chapter 3 and following, although we will conclude that such a language should be some form of classical logic, not a free logic or in any way Meinongian. It is rare to see a contemporary metaphysician ascribe ontological commitments to formalised theories. Most think commitments belong to agents speaking in their mother tongues. They tend to deprecate Quine's claims that ordinary language is too vague or unclear for ontology and lacks simplicity. My objection is that quite apart from these concerns formal languages, unlike natural languages, have well-established consequence relations. In a formal language it is therefore straightforward which existence claims are entailed by a theory. Natural languages, by contrast, are very resistant to showing commitment on the surface, and are therefore not ideal vehicles for settling ontological questions. This is the substance of section 1.

The next two sections discuss some advantages to meta-ontology of the objectual interpretation of the quantifiers that are not explicitly invoked by Quine. Any interpretation of quantification, if it is going to be of use for ontological purposes, must be a univocal interpretation: quantifiers must mean the same whatever they are used to talk about. Quantifiers must be interpreted as devices of generality that allow for claims about all the members of a totality. Lastly, they must apply immediately to everything in their scope, without relying on an implicit or explicit ordering or categorisation of the elements. The objectual interpretation discharges these tasks better than any other.

Since ontological questions pertain to theories as a whole, quantifiers used for ontological

purposes must have the force of full generality. The objection (Meinongian or otherwise) is sometimes made that there are wider and narrower ontological notions, for example that *being* is a more expansive notion than *existence*. The usual Quinean strategy is to claim incomprehension unless the most comprehensive of these notions is translated as '$\exists$' and the narrower ones as predicates, reducing questions about different kinds of being to questions about different kinds of nature. I agree with this strategy in principle, but find the claim that there are ontological notions narrower than being to be not incomprehensible, but false. Meinongian languages or free logics are defective for ontological purposes not because they are unclear, but because they do not treat all ontological questions as fully general. To conceive of a purportedly ontological expression as not applying to all beings is at odds with the aims of ontology. If (e.g.) existence questions are not questions about being in the most expansive sense, they are not ontological questions at all.

The remainder of the chapter will cover two versions of deflationism, the view that some or all existence questions have no interesting answers. Deflationism faces serious difficulties in accounting for reduction and interdependence. According to Carnap's version of deflationism, questions of the form 'are there Fs?' either come down to 'are there substituends for the variables associated with Fs?' or to something ill-formed. My objection is that if each ontological category has its own variables, cross-categorial statements of identity are undefined. Connections between metaphysical categories, reductive or otherwise, cannot then be expressed. But what if evidence should come to light that indicates that members of categories formerly thought to be disjoint should now be thought of as identical? Carnap's deflationism stands in the way of such plausible theoretical developments.

Hirsch's deflationism alleges that some existence claims are revealed to be trivial by ordinary language, such as those relating to mereological wholes, time-slices, fists and laps. Earlier work by Hirsch suggests that he thinks English does not allow for the kinds of criteria of identity that these entities demand. If some questions are trivially answered by ordinary language, interdependence should only be able to run from the substantial to the trivial; weighty questions about the existence of persons, numbers, properties, or God may trivially account for wholes and temporal parts, but not vice versa. I call this into doubt by providing examples from the history of philosophy where categories Hirsch would call substantial are explained in terms of those he would call trivial: the ancient Indian debate whether persons have temporal parts, and the classical theist argument for divine simplicity.

2.1 Formal vs. Natural Language

Many philosophers think ontologies properly belong to people speaking ordinary language, rejecting Quine's suggestion that commitments must be ascribed to theories couched in

the notation of formal logic[1] [Jac80, Fin09, Tho09, Hir02, Hir09, Tho07, Cha09]. Some even discuss themes from Quine as though Quinean commitments are ascribed to natural language utterances; say, the arguments [Pap59, Jac99, Arm99] against Quine's rejection of universals [Qui53a] which rely on natural-language nominalisations of predicates, which have no obvious analogue in first-order logic.

There is some *prima facie* plausibility to the idea that formal methods are overused in contemporary metaphysics. Fruitful ontological and metaphysical debates predate the advent of fully formalised languages by thousands of years. Plato and Aristotle agreed that there were properties, but differed over what they were, using Greek. Hindus and Hinayana Buddhists in ancient India all spoke Sanskrit when one school maintained, and the other denied, that the self persists through time [Ano62], [Ano89b]. Some very old texts betray an interest in meta-ontological questions, too. Plato, in the *Sophist*, reflects on whether things that are said not to exist must have some form of being in order to be a subject of such an ascription. His *Parmenides* queries the doctrine of Forms, wondering whether it has unpalatable existential consequences. Aristotle reflects on the different senses of 'being' in his *Metaphysics* and *Categories*. Scotus responds to Aquinas, whom he reads as saying that 'to be' is predicated in different senses of God and creatures, and objects that *being* is a univocal notion.

Talking about the ontological commitments of an English sentence would have been anathema to the historical Quine. But should we follow Quine in this regard? Or could it be argued that he exaggerates the lack of clarity of ordinary language, and the usefulness of formal syntax?

[1] One hypothesis for why the central role of regimentation is often overlooked is that many philosophers get their sense of Quinean commitment primarily from "On What There Is", which does not mention canonical notation, and was written before his interest in translation. Also, "On What There Is" still speaks of ontological statements following trivially from some conceptual scheme, which is an idea that fades from view in later papers, I surmise because the idea that anything follows trivially from anything is suspect after his renunciation of the analytic/synthetic distinction [Qui51c]. (Quine had discussed his scepticism of the analytic-synthetic distinction with Carnap when he visited him in Prague in the early 1930s [Qui04b, p. 55], but it may have taken him some time to recognise this consequence.) "On What There Is" contains passages like 'This, I think, is characteristic of metaphysics, or at least of that part of metaphysics called ontology: one who regards a statement on this subject as true at all must regard it as trivially true. One's ontology is basic to the conceptual scheme' [Qui48, p. 29] although a partial answer to Carnap can already be gleaned from his remarks that ontological disputes are meaningful if both parties' conceptual schemes overlap sufficiently to discuss semantics, and that ontological questions are subject to theory choice just like any other.

2.1.1 Consequence

The main argument for regimentation, I think, is not that formalised theories are clearer[2] than natural language theories—they are in the sense of making apparent what their posits and primitives are, but not in the sense of being immediately perspicuous to human language users. It is that formalised theories have well-defined consequence relations. I stressed in chapter 1 that any attempt to extract ontological commitments from an isolated sentence is mired in uncertainty. Formal languages may have one or more syntactic categories which the interpretation explicitly assigns to objects: the objectual expressions. Natural languages, by contrast, do not have a category of expressions that are inalienably objectual. There is no context-independent way to tell from the structural features of a natural-language expression whether it, or some part of it, is a committing expression. If such a sentence appears to contain a proper name, or ascribe a predicate, its structure does not reveal whether it is a genuine name or an indispensable predicate. Even natural-language existence claims, like 'there is a statistical trend', are often used to do something other than assert that there is an entity. While formal languages may contain implicit definitions to explain away such apparent quantification, there is no agreed-upon recipe for getting from the structure of a natural-language sentence to an identification of its objectual expressions. I also remarked that an as yet unregimented theory should be committed to its implicit posits—those not there on the surface of its natural-language formulation—just as much as to the things it explicitly asserts there are. Regimentation creates a level playing field for implicit and explicit commitments: they are all posits, all introduced by a sentence beginning with '$\exists$' which occurs in the set of sentences closed under consequence which constitutes the formalised theory. Formal languages, unlike natural languages, have clearly circumscribed consequence relations [Tar56b, Bla01, Sha07], which determine what existence claims they entail.

Proponents of regimentation need not hold that most, or even many, metaphysical disputes are best carried out in a clinically formalised language. Regimentation is mainly useful for ontology. Although disambiguation in other areas of metaphysics is another application of formalisation, the concern of ontology is to list the kinds of beings there are. Within the particular predicates that characterise the kinds, formalism is not of paramount importance. What matters is that it should be unambiguously clear what follows from a theory. Quine, in fact, is frequently content to leave the particular predicates in untranslated English even as he is championing regimentation: '$(\exists x)$ (Tom believes that x denounced Catiline)' [Qui60b, p. 166], '$(\exists x)(x$ walks)' [Qui70, p. 23].

[2]This argument is offered by some contemporary Quineans, e.g. [Hyl00, p. 239].

2.1.2 Generality of Ontology and Interdependence

Even non-holists can see the appeal of evaluating ontological questions not in isolation, but in the context of a theory. Reductionism about some purported kinds of entities is one motivation. Another is that ontological questions have the force of full generality. Suppose a philosopher, say, van Inwagen's Norma [vI09], alleges that she is a nominalist, and does not believe in abstract objects. We would be unlikely to react sympathetically to Norma if she went on to freely make use of some apparent abstracta, e.g. invoking sets or properties or numbers in her explanation of mathematics or natural science, and protest that *those* abstract objects were not within the remit of her existence claim.[3]

A philosopher's answers to existence questions will depend in part on her answers to other ontological or general metaphysical questions. If Norma denies the existence of abstracta, but relies on numbers or vectors for her philosophy of physics, our (charitable) response will be to ask her why she considers these entities to be nominalistically acceptable. Can she offer an account on which they are plausibly described as concrete? Any interesting metaphysical theory will have interdependence between the categories of things it admits: certain categories are explained in terms of others, for example 'Mental states are brain states', 'The natural numbers are the von Neumann ordinals'. We saw in chapter 1 that it is imperative for meta-ontological theories to explain interdependence, and also that regimentation is especially helpful for explaining interdependence between metaphysical categories. The regimented version of 'Fs are explained in terms of Gs' is 'statements about Fs are reducible, by direct or contextual definition, to statements about Gs'.

2.1.3 Logic and Generality

One of my assumptions which is at work in the background, and will be touched upon in this chapter and in later ones, is a realist view of logic as being about the most general features of reality. This view is mine, not something I attribute to Quine. It has some affinities with some of Quine's views, less so with others. Logic, on my view, is the most general of all theories of the world, but is nevertheless about the world, not just about language or reasoning.

One aspect of my position is continuity between logic and the special sciences. The difference between logic and other theories is one of degree, not kind. Logic is not, by contrast to the empirical sciences, merely about the form of thought or language, or about 'good

[3]Some philosophers, mostly of an anti-realist persuasion, will feel uneasy at the mention of full generality. Perhaps they deny that we have a clear enough grasp of absolutely general quantification [Dum91, p. 317]. Or perhaps they are wary of the idea of one undivided domain of all beings [Ben65, p. 64]. We will return to this in the next section, but for now, I hope they will agree that existence claims have, at least, as much generality as we can muster, and that abjuring absolute generality does nothing to help Norma.

reasoning', but also about reality. Logic does not have a completely different subject matter from other theories. The truths of logic are about the world just like other truths, although they are more general. Quine would probably have agreed with this statement. His rejection of the analytic/synthetic distinction leads him to deny that there is a sharp division between truths about reality and truths whose truth depends only on language. But Quine's route is not the only route to that particular conclusion. Frege, though in some moods he sounds like an inferentialist, in other moods affirms something similar. He claims that logic is concerned with the most general laws of truth [Fre79b, p. 128]. Truth is not a matter of language or reasoning alone—it needs some cooperation from reality. Virtually all theories of truth (with the possible exception of the coherence theory of truth) agree that a true representation is true because the way it represents things as being is in fact the way things are. Logic is about truth, and logical laws concerning truth apply to all of the special sciences.

Logic itself is a true theory. The assumption that logic must say absolutely nothing about reality, or must be true even if reality were not there at all, turns logical truth into a completely different species of thing from ordinary truth. Logical truth, on such a view, is true no matter what, but the truths of logic, unlike other truths, do not correctly represent anything. The opposing view is logical realism, according to which logic is a theory like any other, but more general than all others. For realists, logic is not different in kind from, but continuous with, all other theories. All theories properly so called are about the world, and logic is no exception. Logic is about the most general features of the world, and logical truths are the most general truths. But like all truths, they are true because of an agreement between representation and reality. We will explore this question in more detail in chapter 5.

A specifically Quinean argument for continuity would be based on his rejection of the difference between the analytic and the synthetic, between truth in virtue of reality and truth in virtue of language. Consequently, logic is not a purely linguistic discipline, to be contrasted with all other sciences, whose content is empirical. The laws of truth are not just about sentences, but also about the things talked about in those sentences. Logic concerns the most general laws of both truth and being. The task of the one true logic, the unique most general theory, is only to speak of things insofar as they are things, and of the generalities of truth. There is a rigid division of labour between logic and the special sciences, which is indicated by the boundary between the logical vocabulary and the predicates. The logical part of the theory confines itself to the most general features of reality: objecthood, existence, self-identity, non-contradictoriness, entailment. By contrast, the special sciences deal with the information-bearing part of the theory: the predicates, which convey what in particular is true of the beings. The predicates ascribe natures to things; logic talks of things *qua* things.

I will rely on the 'division of labour' argument at some points in chapters 2, 3 and 5. I take

it to be one way in which continuity, a flat ontology, and logical realism can be justified. But the strict division of labour between logical theory and the special sciences is a stronger thesis than logical realism in and of itself, and it is also stronger than the continuity thesis or the thesis that we should have a commitment-based approach to meta-ontology. It is possible to accept any or all of those three and reject the division of labour argument, and some commitmentphiles will. The division of labour relies on a strong form of logical impartiality. We saw in chapter 1 that it is plausible to call logic impartial: it treats all objects the same way, regardless of their natures. It does not discriminate with respect to the characteristics of things. According to the strong impartiality thesis connected with the division of labour argument, any thing that satisfies any predicate whatsoever is in the domain, and beyond that, it is explicitly not the business of logic to group objects. Classifying and ordering objects according to their natures falls to the special sciences, which expound links between the various predicates of the ideology. It forms no part of the business of logic, which merely collects together all the beings so they are available for being talked about all at once. It is possible that this motivates Quine's desire for a flat ontology, according to which there is a single undifferentiated domain of all the objects. Logic's tendency to treat all things impartially is what makes it an ideal tool for making decisions about ontology. The contents of a theory, the meanings of the particular predicates that feature in the theory ('x is an electron', 'x has top spin') do not affect the laws of logic at all, for they can always be replaced with other predicates without affecting the logical laws.

I want to tentatively endorse the 'division of labour' argument, but an alternative interesting argument for logical realism, possibly compatible with mitigated impartiality, might be squeezed out of Frege's contention that logic concerns the laws of truth, which are law-like in two crucially distinct ways: descriptive and prescriptive [Fre79b, p. 128], [Fre79a, p. 4]. It is now considered almost a platitude to say that logic is about 'the laws of good reasoning' [Sha01, Pri00]. But what does it mean to call logical rules laws of reasoning? Are they just descriptive laws, like laws of nature, simply recording generalities? Or are they laws in the sense that they have normative force? According to Frege, they are both. He thinks of these laws as natural laws; analogous, in different ways, to both laws of nature and ethical laws. Relative to the bearers of truth—Fregean thoughts—they are descriptive laws. Relative to rational beings, they are prescriptive: they set standards our reasoning must meet. This indicates that although it is in a way correct to say that logical laws are laws of reasoning, it is insufficient to say that logic is *about* good reasoning. Its subject matter is not reasoning, but reality, or possibly Fregean thoughts. Fregean thoughts are mirrors of reality, reflecting the structure of the world in their own structure: 'The analysis of the proposition corresponds to an analysis of the thought, and this in turn corresponds to something in the realm of meanings' [Fre80c, p. 142]. Those who do not believe in abstract propositional entities could take some liberties with Frege's point and modify it to the following: logical laws are descriptive from the point of view of reality, prescriptive

from the point of view of reasoning. Logic describes the most general regularities that govern absolutely everything. Our beliefs and patterns of reasoning are correct only if they reflect these most general features of reality.

2.1.4 The Objectual Interpretation of the Quantifiers

If quantifiers can be of help in our attempts to answer ontological questions, we must impose some restrictions on the interpretation of those quantifiers. The constraints I am proposing to adopt here, and against which I will measure Quine's objectual interpretation, are intended as spelling out in more detail the contents of some logical-realist intuitions about quantification and logic. According to logical realism, quantifiers are for talking about everything. Quantification is concerned with the most general features of being, and that is why quantifiers are useful in ontology. The proposed realist constraints, I hope, will bring us as close as we can to ensuring that existence questions posed in a formal language have determinate answers. Another useful feature of these constraints is that they will help us identify where those opposed to the version of realism outlined here are likely to demur, and what their reasons may be.

Univocacy

Firstly, quantifiers must not shift their meaning relative to context or category. If there were no univocal interpretation of the quantifiers, this would jeopardise the project of settling the cardinality of a theory's ontology. The correct cardinality can only be found if we avoid double-counting the same object under two different descriptions. But if quantifiers are assigned different meanings relative to different categories, the question whether objects from different categories are identical cannot be raised. We might try to index quantifiers, or variables, according to category,[4] e.g. '$\forall_{number}x(x/x = 1)$'; or '$\forall_{proposition}x(x\vee\neg x)$', or '$\forall n(n/n = 1)$', or '$\forall p(p \vee \neg p)$', but the motivation for any such project is dubious, except as a convenient but dispensable shorthand. An argument would be needed why we could not simply express the above in univocal quantification theory as '$\forall x(Nx \rightarrow (x/x = 1))$' or '$\forall x(Px \rightarrow (x \vee \neg x))$'. And generalising from true premises or drawing particular conclusions from true general premises would be problematic wherever the ontological category restrictions on any of the quantifiers were unclear or unknown. The question whether there are both numbers and propositions, in that case, could not be answered in a word, even though it seems that 'Yes' (for the believer in both) or 'No' (for the sceptic about one or the other category) are perfectly coherent replies. The question whether

[4]By this I mean indexing according to category with the implication that the objects that make up the domain of each type of quantifier are radically different from each other, and cannot be subsumed under the same domain. I am not talking about many-sorted logics.

(some) numbers are identical with propositions would also be ungrammatical, rather than true or false.

A similar proposal is made by van Inwagen's 'existence is univocal' [vI09, pp. 482-492], but his differs from mine in that he also attributes to some logicians the position that both speakers of natural languages and logicians equivocate on the meaning of 'exists'—that some existence claims are made in one 'logical tone of voice' and others in another. According to van Inwagen, the culprits are Ryle (who cheerfully commits himself to it) and proponents of substitutional quantification. Although I think he is right to insist on univocal quantifiers, I see no evidence for his contention that only the objectual quantifier meets this constraint. There may be other unequivocal ways of interpreting quantification besides 'there exists some thing' and 'everything'. He is right to object to the ordinary-language philosopher that there is insufficient data to show that natural-language 'exists' is equivocal. Still, that does not show that all non-objectual interpretations of quantifiers—formal or informal—are equivocal. A univocal neo-Meinongian such as Parsons [Par80], for instance, will allege that although 'there is' really is a quantifier, 'exists' is a predicate. So his quantifier always univocally means 'there is', and he just disagrees with van Inwagen over the meaning of 'exists'. van Inwagen's contention that the truth-conditions of substitutional quantifiers are inherently equivocal does not seem to hold water, either. His claim is that proponents of substitutional quantification make essential use of different 'logical tone[s] of voice' [vI09, p. 488], and that they give no explanation of its truth conditions other than that the substitutional particular quantifier is true whenever the objectual existential quantifier is, but that they nevertheless express different propositions [vI81, p. 282]. van Inwagen does not cite or identify a target as such, only quoting minor points in passing made by Ajdukiewicz and Orenstein [vI81, p. 284]. Anyone who makes these claims would certainly seem to be equivocating. But I see no reason why proponents of substitutional quantification need make them; certainly the canonical papers on the topic [DB68, Mar72, Mar78, Kri76] make no mention of tones of voice or any such confusing truth conditions. Barcan Marcus, who invented substitutional quantification, actually argues for univocacy: 'a direct, *unequivocal* colloquial reading of ['$\exists$'] ... [such as] the nontemporal "sometimes" or "in some cases" or "in at least one case"' [Mar61, pp. 16 – 17, my italics]. We have not yet succeeded in ruling out variant readings of '$\exists$' other than 'exists' such as the Meinongian 'there is', or the substitutionalist 'in some cases'.

Generality

Secondly, quantification for ontological purposes should always be read as a device of generality. It allows us to talk about everything, all things in the domain, either severally or collectively. Being a device of generality does not by itself imply that absolute generality is mandatory. The idea that the role of quantifiers is to facilitate talking about everything and yet deny the possibility of speaking about *absolutely* everything, though apparently

contradictory when framed in those exact terms, can be made coherent with the help of limitations of size. One way of limiting size, on an objectual reading, is to impose a domain restriction. Objectual variables range over a domain of discourse—typically, a set. Valuations are defined in terms of the members of this domain. So, for an objectual quantifier belonging to a particular language, the members of its domain count as 'all of them' for the purposes of this language. Constraints of model-theoretic elegance demand that the domain be non-empty [Qui54]. Otherwise, it can be any size as long as it is set-sized. Perhaps some collections of things are more than set-sized, though; if the entire set-theoretic hierarchy exists, the collection of all its members certainly is not set-sized, on pain of Russell's Paradox. For a language to talk about totalities that are too big to form a set, the standard model-theory is too restrictive [RU09]. Adhering strictly to a Tarskian model-theoretic approach to semantics, while believing that some collections are more than set-sized, is thus one possible route towards the denial of absolute generality, though I will assume that the collections we are interested in are set-sized.[5]

Intuitionist or constructivist leanings can also be a reason to deny absolute generality. If every totality we can quantify over is such as to give us the idea of yet more things that intuitively clearly fall under the concept, but were not included in the scope of the quantification, leading to the formation of a new domain of quantification by adding new elements to old, the concept 'domain of quantification' is correctly described as indefinitely extensible [Dum91, p. 316]. The constructivist opponent of absolute generality will state her position along the following lines: 'Whatever the domain of quantification, there exists another domain, the cardinality of which is strictly greater than the first' [RU09]. The difference between the model-theoretic objection and the constructivist one pertains to realism vs. anti-realism about the underlying ontology. The Dummettian holds to a version of objectual quantification that is afflicted with a hazy outer boundary. She will agree that variables range over a domain of discourse, and quantifiers are used to assert of the objects within it, severally or collectively, that the open formula following it applies to them. She just believes that not every domain of discourse is such that all objects within it are themselves sufficiently determinate to ensure that nothing is left out; the concept they fall under has 'an increasing sequence of extensions' [Dum91, p. 317], trailing off into the distance. This extensional vagueness of certain types of entity—usually mathematical—is an anti-realist challenge to my realist strategy, which I will not attempt to answer here.

[5]This is a weighty issue for those who believe that mathematics is true, since its posits include all the sets. Quine disavows commitment to any mathematical posits that are not indispensable to physics, remarking that higher set theory is merely recreational [Qui86b, p. 400]. Philosophers who do want to commit to the existence of all sets may appeal to modality to argue that not all totalities actually form a set, but any totality is in principle such that it could form a set [Uzq10], or perhaps attempt to specify the domain as a plurality rather than a set, using Boolos' [Boo84] plural logic.

Immediacy

Quantifiers, then, are devices for talking about everything, leaving aside the potential problems with helping ourselves to absolutely everything. A third constraint is that for ontological purposes quantifiers are devices for talking about everything *all at once*, a characteristic of theirs I shall call 'immediacy'. A quantified statement does not need to wait to take effect until after the domain or the individuals within it have submitted to some ordering or arrangement. Quantification is not order-sensitive; it is neither process nor procedure. It has no beginning or end.

Univocacy demands that when we say everything is self-identical, it does not matter what kinds of things we are talking about, nothing is excluded from consideration; similarly, immediacy gives some substance to the intuition that nothing is left out of the range of the quantifiers because it is somehow harder to reach than the other objects, or has to wait until a certain stage, or may remain out of reach. Quantification applies equally to all values of variables, whatever they may be. Quantified statements are true or false immediately. There are no things that are left out because the statement has not yet got to them, no things for which it is not yet determinately settled whether they fall under it. If there are borderline cases, the application conditions of the predicates is where the vagueness lies, not the quantifiers. Who denies immediacy? Certain constructivists, for one; I aim to head off at the pass interpretations of quantification such as Dummett's [Dum91, ch. 16–18], on which quantification is openly defined as a process, tapering off at the edges of the hazy extensions of certain domains. Although generality on its own does not rule out indefinitely extensible domains, the combination of generality and immediacy does.

Some more realist-seeming interpretations of quantification are at odds with the immediacy requirement, too, notably those where the quantifier reduces to the atomic, such as the Tractarian quantifier [Wit74] or the quantifier of Leśniewski's *Ontology* [Lej54]. Reduction to the atomic is an attempt to show that quantifiers are not strictly necessary to our logical syntax by explaining them away in terms of concatenations of atomic formulae. Existential quantifications like '$\exists xFx$' are a mere *façon de parler*, their true logical form being a long disjunction of atoms starting with 'F': '$Fa \vee Fb \vee Fc \vee Fd$ ...' for all objects in the ontology. Reduction to the atomic sits uncomfortably with the aims of ontology, since it relies on the assumption that everything in the domain has a name. A language with only three names has no trouble quantifying over a domain of four objects on the standard interpretation, but fails to achieve this goal on the reductive interpretation. Any model where the cardinality of the domain exceeds the cardinality of the set of names will invalidate reduction to the atomic. This severely limits the interest reductive interpretation of the quantifiers might hold for meta-ontologists, even though they are grammatically parsimonious. A quick sampling of ontological questions that are of interest to contemporary metaphysicians shows that many of them have ontologies of very large cardinalities, and wish to settle questions of cardinality through metaphysical means. Just look at the ani-

mated discussions of such questions as: What would happen if the parthood relation were non-wellfounded? [Lew91], '[W]hen we quantize relativistic field theories, do we ... get violations of determinism and of conservation principles?' [Arn06], Can a single theory comprise principles of both unrestricted composition and unrestricted set-membership? [Uzq09]: it is clear that to be confined to a language that can only talk about finitely many things would be very irksome to these philosophers. But if we are barred from using quantified phrases that go beyond conjunctions and disjunctions of atomic predications, this is exactly what will happen. In non-infinitary languages, conjunctions and disjunctions must be finite in length. Even if longer conjunctions and disjunctions were somehow available, names themselves must always form a list. A language in which quantification reduces to the atomic is thus not suitable for discourse about domains whose cardinality is strictly greater than the cardinality of the set of its names—it is unsuitable for any nonenumerable domains.

Here we find a better argument against substitutional quantification as used for ontological purposes than the one offered by van Inwagen: it is not that substitutional quantification is equivocal, but that it reduces to the atomic. A substitutional reading of the quantifier in '$\exists xFx$', as 'F is sometimes true' or 'in some cases, F', is spelled out in terms of substitution instances containing syntactically singular terms [Mar61]. It is crucial for this interpretation that variables do not stand for things, but are stand-ins for singular terms, which may in turn be referential. So the substitutional quantifier is inescapably non-immediate. Substitutional quantifiers must be equivalent to conjunctive or disjunctive lists of substitution instances. And since substitution instances are minimally a predicate plus a term, that is a form of reduction to the atomic, albeit one that allows for potentially infinite denumerable lists.

Objectual Quantification and the Constraints

Objectual quantification is in harmony with these constraints. Quine's insistence that '[e]xistence is what existential quantification expresses' [Qui69a, p. 97] suggests that the objectual existential quantifier is primitive, univocal, and irreducible. We might explain to someone who professes not to understand what 'exists' means how domains and variables work in order to demystify the interpretation and remove any suggestion of equivocality. 'We may indeed take [existential quantification] as explicating ... "exists" ... This is just what existential quantification is for, of course. It is a logically regimented rendering of the "there is" idiom' [Qui69a, p. 94]. But there is simply nothing more to be said if the interlocutor persists in her bafflement. '[E]xplication of general existence is a forlorn cause' [Qui69a, p. 97]. Attributions of existence statements to someone endorsing a particular theory, by contrast, can be explicated: 'Existence statements in this philosophical vein do admit of evidence, in the sense that we can have reasons, and essentially scientific reasons,

for including numbers or classes or the like in the range of values of our variables' [Qui69a, p. 97].

Quine also stresses that it is vital that nothing is left out if we are to talk about everything. A sufficiently high level of generality, such that quantifiers apply to all kinds of entities, is a central precondition for formulating our best theory of the world. Science, according to Quine, can, and should, be used to talk about everything, in the same way, and all at once. The project of corralling all the beings together into a huge domain cannot proceed without univocacy, generality and immediacy. A theory cannot be committed to all values of its variables if it is uncertain whether its existential quantifications will ever take full effect. The theory already says they do: the theory itself is just an unordered set of sentences, the domain one big undifferentiated set. How could we hope to assess and test a theory some of whose sentences lack determinate truth values either because something about their internal complexity is holding them up, or because even the most logically rigorous expressions we can muster are vague around the edges? The objectual quantifier is irreducible, and has no need for atomic substitution instances: 'through our variables of quantification we are quite capable of committing ourselves to entities which cannot be named individually at all in the resources of our language; witness the real numbers' [Qui51a, p. 67]. All in all, objectual quantification appears to be very congenial to the aims of ontology.

2.2 Objectual Quantification, Translation, and the Most General Category

But what are we to make of objections that objectual quantification is not general enough, and that the traditional view of meta-ontology fails to give a satisfactory account of intra-ontological distinctions? Various members of a motley collection of philosophers, for a wide variety of reasons, have put forward this kind of response to the classical approach to meta-ontology. This classical conception of ontology and meta-ontology they attack includes the view that *being*, *existence*, and *being a thing* or *being an object* are all the same. It embodies a liberal notion of *thing* or *object* which does not put any constraints on the natures of things, such as requiring that they be concrete. When a philosopher comes to the conclusion that all objects are concrete, this must be a result of empirical discovery, not *a priori* stipulation. The corresponding expressions 'there is', 'exists', and 'is a thing/object/entity' can be applied to whatever can be said to have a characteristic or stand in a relation. After all, if something can be truly said of it, it must first of all be there—otherwise, what is there to be the subject of this ascription? This does not rule out that there are coherent statements of non-being: what is said by them is that some condition is not satisfied by anything, or some description does not single out a being, or some name does not refer. I will refer to the view described here as 'classical

meta-ontology'. I intend to defend it and I think it goes well with any commitment-based approach. It is shared by Quine, as well as by most temporal parts of Russell—e.g. his theory of descriptions [Rus05] exemplifies it—and possibly Scotus. We can sum up the key aspect of the classical meta-ontology as the idea that being is the most general category: anything which satisfies any condition whatsoever must be in it.

Proponents of intra-ontological distinctions decry the classical view as the default assumption most philosophers unthinkingly fall into, overlooking some significant distinctions between different kinds of ontological vocabulary. It is coherent, they allege, and true, and indicative of flaws in most philosophers' conceptual scheme, to say things like

1. There are things that do not exist. [Syl80], [Par80], [McG01]
2. Some objects do not exist. [Pri05]
3. '[It is] no part of reality that there is a chair over there, even though it is in fact true that there is a chair over there.' [Fin09, p. 175]
4. 'A body does not exist; it is, rather, extant.' [Hei88, p. 28]

The prejudices inherent in the classical view, they contend, have blinded great philosophers to monumental distinctions. Often they draw their examples of intra-ontological distinctions from natural language; sometimes they propose a regimented language with quantifiers that are distinct from and more wide-ranging than the objectual quantifier. Heidegger, who sees Hegel as the source of classical meta-ontology, accuses him of confusing questions about what things there are with questions about what it is to be a thing at all: what Jacquette [Jac02] calls 'applied vs. pure ontology' and Heidegger calls 'ontic vs. ontological questions' [Hei62]. Sylvan [Syl80] accuses Quineans of thinking all quantifiers are 'existentially loaded', thus mistaking existence questions for quantificational questions—what quantified phrases follow from a theory, many of which, in his view, do not bear on existence at all. Fine also toys with the idea of "'thin", ontologically neutral' vs. "'thick", ontologically loaded' [Fin09, p. 163] senses of the quantifier as found in natural language, before rejecting it in favour of his reality operator.

I am not concerned to discuss the details of any of these philosophers' views, or to enter into debates about who is properly called a Meinongian or neo-Meinongian. All I want to establish is that the classical view that there is only one most comprehensive category of being—and correspondingly no significant differences between different ontological expressions—is defensible. I believe that it is in fact false to assert that there are several non-equivalent ontological expressions, or multiple wider and narrower ontological categories. There is only one ontological category, and that is the maximally comprehensive, all-encompassing category of being. This is because the aims of ontology are fully general; ontological questions have the force of full generality. Questions that only apply to some categories of things but not others are not ontological.

2.2.1 Translation and Intelligibility

The usual Quinean response to intra-ontological categories is that they are unintelligible. Sentences like 'there are things that do not exist' just cannot be understood except as contradictory. Similarly, 'there is' just means 'exists', 'entity' just means 'thing', 'to be there' just means 'to be part of reality', etcetera. Usually this is accompanied by a proposal about translation from anti-Quinean into Quinean discourse. The Quinean aims to show one of two things (or both). Firstly, that because she does not think that the different kinds of ontological expression connote membership in different categories, she can drop all but the most wide-ranging of them, usually 'being' and its derivatives. By reformulating all her statements in this way, she demonstrates the equivalence of all ontological vocabulary. 'The only way I know of coping with this obfuscation of issues is to *give* Wyman [the fictitious Meinongian] the word "exists". I'll try not to use it again; I still have "is".' [Qui80a, p. 3]; 'When you people say "Dragons do not exist" that just means "Everything is not a dragon".' [vI09, p. 479]. Secondly, the correct way to translate anti-Quineans' natural language statements into a regimented language is to map their most comprehensive ontological expression to '$\exists$', and their narrower ones to some special predicate. The result is a first-order regimented theory, which, if true, has all the beings in its domain, and assigns to the lesser ontological categories subsets of the domain. This is a translation according to which so-called ontological differences, or distinct ways of being, are translated as differences in *nature*, and are thus revealed not to be ontological, but ideological. A forerunner of this style of argument is to be found in [Rus05]. In the precise sense of translating rivals into Quine's preferred idiom of classical first-order logic, it was pioneered by Lewis [Lew90], and its main contemporary proponent is van Inwagen [vI98], [vI08], [vI09].

I think all proponents of commitment, Quinean or not, should endorse the translational strategy proposed by these explicitly Quinean commimentphiles, but for reasons other than unintelligibility. There are several components to the classical view. The following four are important to the debate about intra-ontological distinctions:

Univocacy of 'being'. The word 'being' and its cognates ('is', 'there is', 'a being') always mean the same thing, and do not shift their meaning according to context or category.
Equivalence All vocabulary that is genuinely ontological, whether it is 'being', 'existence', 'thing', 'entity', 'real', etcetera, is equivalent in meaning.
Unity of being. There is one single most comprehensive category: being (existence, thinghood). Corollary: All ontological vocabulary connotes *being in this category*, and no more.
Non-Being There are true, coherent statements of non-being. A true statement of non-being of the form ⌜There is no x such that φx⌝ is true because 'φ' does not apply to anything.

The first two are theses about language, the third is metaphysical, and the fourth is about truth-conditions. Unintelligibility arguments focus on the first two, attempting to show we must default to them, because we cannot truly grasp the content of their negations. But I would suggest that the truth of the first, second, and fourth theses is best explained by the truth of the third, and the most satisfactory argument for the classical view is one that argues explicitly for Unity, and shows how the others follow.

A simple unintelligibility argument which is not propped up by additional assumptions may establish some particular equivalences between ontological expressions, and perhaps the univocacy of those particular expressions. We may be convinced by the fact that we can make no sense, whatever the context or information supplied, of there being things that fail to exist, that the meaning of 'there is' is not context- or information-dependent, and is in fact the same as that of 'exists'. But it does not establish the unique intelligibility of a position that entails Univocacy and Equivalence, because the argument would have to be repeated for each pair of ontological expressions we want to show equivalent. Nor does it by itself suffice to prove Unity or Non-Being.

What kind of argument would suffice to prove Unity? It is difficult to say; usually something like Unity is just tacitly assumed, and to some extent the best we can do is just to elucidate this central assumption. But it does find some support in the arguments for preferring a flat ontology and the kind of logical realism that sees logic as the most general theory of all, whose task it is to treat all objects impartially, independently of their natures. Purely objectual expressions help bring about strong logical impartiality. The presence of a variable signals only that its value is a thing. Nothing is revealed about what sort of thing it is, and there aren't distinct notions of objecthood that are relevant to logic, but only the most general one. The most general description of an object is simply '$\exists x(x = x)$', and this is all the flat ontology requires of a being. No further strictures can be imposed by logic, because as far as logic is concerned, everything there is just functions as an element of the domain; it features only *qua* object. All information about its other features is provided by the predicates, the contents of which belong to the special sciences. Logic is the theory that has all objects in its remit. It is continuous with other theories, but more general. It speaks of the same objects, but is unconcerned with their specific natures.

Another point in its favour is the generality of ontology. Ontological questions must always be given the widest possible reading, because ontology is concerned with what there is: with what is in the most general category. Think of Norma the nominalist, who claims that there are no abstract objects. She had better be able to explain everything she needs to explain without ever mentioning abstracta. If she ends up having to make indispensable use of abstracta at some point, her only choice is to give up nominalism. It is unacceptable to claim that some abstract beings were not included in her original statement of her ontology, since they do not count as objects, or as really there. Such a statement is just confused: an ontology must be fully general, an inventory of all the beings. It cannot simply leave

some out of account. *Being* is the category that anything has to be in in order for anything to be true of it at all. If an object is going to be immaterial, for instance, or stand in a causal relation, or have anything at all predicated of it, it must first of all *be*. All facts about the characteristics of the beings are not ontological facts: they are not about what beings there are, but about *how* they are: they belong to the ideology. The ideological vocabulary is where distinctions about the things are made; the ontological vocabulary, by contrast, conveys only that something *is*. All truly ontological vocabulary is applicable to anything whatsoever, because of the lack of constraints on the most general category. Anything with any characteristics at all is in there—hence Univocacy. So if an expression is truly ontological, it cannot make any further distinctions: all it connotes is being (which we also frequently call 'existence', or 'being a thing'). Whatever makes further distinctions is ideological; if some expression differentiates some things in the most general category from others, it is not truly ontological, so all ontological expressions must be equivalent in meaning. This picture implies that it cannot be the case that non-being is some special property had by some entities. There is nothing outside the most general category of being. So statements of non-being cannot attribute a property. There is nothing there for them to ascribe it to. Not to have being simply is not to be there at all. Statements of non-being must be true in a different way from simple predicative sentences. Since whatever has some attribute truly predicated of it must have being, statements of non-being say that there is no thing, nothing in the most general category, that fulfils the condition they specify. The truth conditions of such statements are straightforward: if none of the things in the most general category has the attribute in question, the statement of non-being is true.

In what remains of section 2.2, we will see some reasons to believe that arguments against Univocacy and Equivalence fail to prove the negation of Unity. Since Unity is an existence claim, there are two ways it could be false:

1. There is more than one most comprehensive category: being is not unitary, but pluriform.

2. There is no such thing as the most comprehensive category.

The latter would be an anti-realist objection, an argument that it is impossible to make sense of a theory-independent notion of an object. Since *objecthood* is theory-dependent, according to this view, we can infer that there is no category of all objects. I think this is the most philosophically interesting line of attack, but explicit arguments for it are rare. Putnam appears to argue that there is no unbiased way of specifying how many objects a given domain contains in [Put87, pp. 17-19]. I have two reasons for setting this type of challenge aside: firstly, I am working within a realist framework for present purposes, and secondly, I don't think most proponents of intra-ontological distinctions intend to attack Unity in this way. What they mean is the former: that being is not unitary, but pluriform.

The statement that being is pluriform could be made true by two distinct kinds of situation. One is that there are ever-widening concentric circles of ever more expansive categories of being beyond the one we are accustomed to. The 'widening concentric circles' view is held by the votaries of wider and narrower kinds of ontological vocabulary. On this picture, there is overlap between the different domains, some encompassing more objects than others. For example, if some entities only have being, and some have a special kind of being known as existence, then the domain of existents is a sub-domain of the larger domain of beings. The unintelligibility arguments are directed against this kind of pluriformity, which will be the subject of the remainder of this section. The 'widening concentric circles' view is not a ramfied collection of domains, where items of level 0 never occur together with items of higher levels [Rus67b], as in such domains there is no overlap.[6]

The second way in which being could be pluriform is that there are multiple parallel highly general categories which are incommensurate. Arguments for that claim are vulnerable to the threat of collapsing into ideology. Suppose there are two allegedly equally good candidates for the most general category, $being_1$ and $being_2$. If there are two categories vying for the title of 'most general', the first thing to investigate is why we cannot take their union as the most general category instead. The union must be either equally general (if they happen to overlap completely) or more comprehensive (if not). If there is no such thing as their union, why is that? One option is that it collapses into the anti-realist argument we discussed above that there really is no sense to be made of *objecthood* in a theory-independent way. The only other option is that something about the beings_1 and beings_2 keeps them apart from each other, preventing them from forming a set together. Excluding limitations of size, what is forcing them asunder must be something about their natures: something that makes a difference, two characteristics that repel each other. $Being_1$ and $being_2$ would not be logical categories in this case, as they discriminate according to nature. Multiple incommensurate categories of being are incompatible with impartiality. We will briefly return to pluriform being in section 2.3 when we consider deflationism.

[6]The acceptance of typed variables conflicts with the division of labour argument, according to which logic speaks only of beings *qua* beings, leaving all sorting and ordering to the ideology. Since the intended interpretation of higher-order variables is that they have sets or properties as their values, they must be either capable of being eliminated or reduced by paraphrase, or else taken as impurely objectual committing expressions. The latter is incompatible with the strong impartiality I prefer, but does not entail that there are different levels of being or existence. The point of type theory is to prevent paradox-involving statements from being formulated by limiting the grammar. It does not have to be taken as saying that the values of variables are themselves incommensurable or cannot exist side-by-side. Proponents of type theory could count as commitmentphiles if they had a suitable philosophy of logic containing some doctrine of mitigated impartiality.

2.2.2 Unintelligibility in Natural Language

Unintelligibility arguments are not quite sufficient if they are conducted entirely in natural language. van Inwagen defends some natural-language unintelligibility arguments [vI98, pp. 235-237], even though he ultimately also wants to invoke formal languages [vI08]. Natural-language unintelligibility arguments are conducted by appealing to the reader's intuitions that e.g. 'there are things that do not exist' is either contradictory or unintelligible, because we have no better account to offer than that 'exists' just means 'there is'. And similarly for all other ontological expressions: 'entity' just means 'thing', 'something' just means 'exists', 'there is' just means 'is real'. The natural-language debate over unintelligibility will most likely remain inconclusive. It is true, as is evinced by van Inwagen's dissection of arguments that rely entirely on natural-language ontological distinctions, that the evidence that ordinary English speakers clearly mean different things by 'exists' vs. 'there is', or 'thing' vs. 'entity' is scant, as is the evidence that 'exists' is equivocal [vI98, vI09]. The inability of philosophers wishing to draw intra-ontological distinctions to agree on vocabulary is also telling. While Sylvan [Syl80], Parsons [Par80] and McGinn[7] [McG01] are all happy to say that there are things that do not exist, Sylvan takes 'there is' and 'exists' to be two different quantifiers, while Parsons and McGinn believe that existence is a first-order property that some things lack. Priest, although some flavour of neo-Meinongian, cannot hear a distinction between 'there is' and 'exists', but does think that both are distinct from 'something' [Pri05]. Whether 'thing', 'entity' or 'object' is the more general term is anyone's guess; it looks like intra-ontological distinctions are at least not very naturally read off the structure of natural language.

More generally, the reason that natural-language unintelligibility arguments are unlikely to fully resolve meta-ontological disputes is that natural language has insufficient resources to express interdependence between metaphysical (ideological) categories, like elimination, reduction, and paraphrase. Regimented languages take care of this quite seamlessly, but in natural language we use ontological-sounding expressions to deny commitments: e.g. 'There is such a thing as gender, but it is not really real', or 'Nation states exist in some sense, but they are not ultimate constituents of reality'. The ontological appearance of such expressions can be explained away by expounding entailments between the sentence in question and others.

The main concern about natural-language unintelligibility arguments is that they are supremely unlikely to convince anyone who believes they do hear a difference between distinct ontological expressions. Why should such a philosopher not be within her rights to dismiss the classical meta-ontologist as not trying hard enough? Natural-language unintelligibility is very vulnerable to the 'Yes, Virginia' response: 'Why, yes, there is indeed

[7]The first two are uncontroversially neo-Meinongians. McGinn is a neo-Meinongian only in an extended van Inwagian [vI08] sense, as he does not accept a Meinongian object comprehension principle stating that for any condition whatsoever, some object satisfies it.

something you have failed to understand'. The conclusion is an unsatisfying stalemate where neither side is convinced that the other is saying anything at all.

2.2.3 Translation into a Formalised Language

Proponents of unintelligibility often try to break through the impasse by proposing translation into a formalised language. Each side is treated as though they speak their own ontological language, and the expressions of each are to be mapped onto those of some shared formal language acceptable to either party. Both van Inwagen and Lewis [Lew90] think that the uncontroversially shared formal language must be classical first-order logic. van Inwagen's argument is that 'there is' and 'exists' very naturally translate into first-order quantification, as variables can simply be read as the formal analogues of the third-person pronoun, '$\exists$' and '$\forall$' as 'some' and 'all', and predicate letters as predicates. Quantification is just a tidied-up version of something we already understand quite well [vI98, p. 238], [vI09, p. 499]. We understand at least this much, and at most this much; there is no residual need, he asseverates, for further ontological notation. Ontological expressions not translatable as quantifiers are unintelligible. An unrestricted 'all', or 'absolutely everything', meaning any thing whatsoever, is intelligible and can be used in true statements. For such statements to be true, the word must of course apply to whatever is a thing; and given that the existential quantifier '$\exists$' is definable as '$\neg\forall\neg$', for an F to be or exist is just for it to be false that not everything is not-F.

Lewis's argument is spelled out in terms of charity. He contends that Sylvan [Syl80], who distinguishes 'neutral' quantifiers—$\exists x Fx$ — from 'existentially loaded' quantifiers—$\exists x(x$ exists $\wedge\ Fx)$—is wrong to say most philosophers assume that all quantification is existentially loaded. Sylvan translates our '$\exists$' as his '$\exists x(x$ exists $\wedge\ Fx)$', with his particular quantifier meaning something less restrictive: quantification without existence assumptions. Lewis objects. Charity dictates, he says, that we translate others into a shared language whenever we can. It is more charitable to translate Sylvan's neutral quantifier as '$\exists$'—after all, Quineans like Lewis understand that—and his existence predicate as a new primitive predicate. Lewis admits that he finds the non-quantificational existential primitive unintelligible as well, but finds at least understanding neutral quantification to be a step forward.

Although more rigorous, this style of argument still seems to succumb to the Yes, Virginia reply. The opponent can insist that the shared first-order language is insufficient to express all that she considers worth saying, even though it is a comfortable fit for the theories of van Inwagen and Lewis. She understands all they want to say, but she also claims to understand assertions that defy first-order formalisation and require a language richer in expressive power. She may say that this is unsurprising, because she has a richer conceptual scheme, which can only be expressed in languages with a more fine-grained logical form

than first-order languages can offer [Pri10]. The old language must grow to accommodate the new, improved formulae of the new bigger, better conceptual scheme. Can it be shown that any such expansion of a language with more expressions interpreted as ontological is *ex hypothesi* unintelligible?

First of all, it must be noted that the 'richer conceptual scheme' objection is apparently premised on the assumption that the ontological expressions added to the formalised language will be logical expressions, leading to a richer *logical* form. The proponent of a richer conceptual scheme also apparently accepts that first-order quantifiers count as ontological vocabulary; she is proposing a *richer* conceptual scheme. First-order languages can of course always be expanded with further predicates, but if the opponent were happy with that, she would not have objected to the paucity of the first-order shared language, but only to the content of van Inwagen and Lewis's interpretation of its predicates.

The classical ontologist cannot argue that any expansion of the language with new logical idioms will render the language incoherent. There is a miscellany of languages that extend standard first-order logic for which there are well-established soundness proofs, some of which have been proposed as characteristic models of ontology. This class of languages includes free logics [Lam01], (notably Leśniewski's *Ontology* [Lej58], [Hen69]), modal first- and second-order logics [Bar47, Wil13], second-order [Sha00] and plural [Boo85] logics. Nor could it possibly be a purely syntactic or proof-theoretic matter. Supplementing a language with expressions that look syntactically (operators that can make a wff out of a wff by variable binding [KMS95]) or proof-theoretically (having quantificational introduction and elimination rules) like quantifiers cannot render it incoherent. A defence of the classical view must focus on interpretation.

2.2.4 Ontology and the Interpretation of Quantification

The classical ontologist's best chance is an argument pertaining to the interpretation of quantification in formal languages. One constraint on formal languages in general is that they must be free from equivocation and ambiguity. A constraint on ontological claims in general is that they must have the force of full generality. When Norma the nominalist denies that she has abstract objects in her ontology, she had better not be invoking abstract objects in any sense anywhere in her theory. If she does rely on abstract objects in any context, she is no longer a nominalist. She cannot argue that she did not include those particular objects in her non-existence claim.

The interpretation of quantifiers marks them out as devices of generality. I identified generality as one of the constraints on quantifiers as ontological expressions above. The standard model-theoretic reading of the quantifiers reflects this fact. Taken by itself, it is consistent with the totality mentioned being subject to some limitations of size, for

example by using a restricted domain which forms the universe of discourse of the language in question, and thus counts as 'all of them' for the purposes of this language. But uses of restricted quantification cannot be helpful to ontology, because ontological claims ought to be *fully* general, not just general enough for some limited language. The aim of any ontology is for its members to correspond exactly to the constituents of the world. Limitations are inappropriate.

Quine proposed, and Lewis and van Inwagen appear to be following suit, that first-order logic is exactly the language which is ideally suited to the formalisation of theories with the purpose of determining their ontology. I suggested as a possible motivation that quantifier-variable notation neatly decomposes into a lexical category whose sole purpose is to convey the message that there is a thing present, in the widest possible sense of 'thing'—namely, the variables—a lexical category interpreted as telling us what is true of those things—the predicates—and a lexical category which indicates whether the things are singled out severally or collectively ('out of all of them, some/all')—the quantifiers. The great advantage of quantifier-variable notation is that its syntax splits off the words we use for ontological purposes from those destined to express the ideology. It separates *being* from *nature*. The only truly ontological idiom is comprised of the variables. Variables are also *logical* vocabulary. They treat all objects the same, independently of their natures. Thus *being*, the most general category, is identified with the most general domain of quantification; this establishes the unity of being. Anything whatsoever that is a thing must be in it, since the truth-conditions of predicative sentences require that something in the domain satisfies the predicate ascribed to it. Hence anything that truly satisfies some condition has being—is in the domain—and if a condition φ is not satisfied, there are no such things as φs. Here we have the Non-Being thesis. Univocacy and Equivalence also follow, since there only is one kind of genuinely ontological idiom, the variable, and it is univocal because it is logical. Ontological idioms must always be given the widest possible reading, because ontological questions are questions of the most general kind. Therefore, ontology should not discriminate according to what kinds the beings belong to. Their natures or characteristics are described by the ideology. The business of ontology is just to note that *there is* something, whose nature is supplied by the ideology.

It is difficult to see how this picture leaves room for distinctions expressed by different ontological idioms. We are in a position to dismiss the non-classical iconoclast who posits different ontological categories, some of which are more comprehensive than others (referred to above as 'widening concentric circles'). According to them one kind of ontological expression—frequently some variant of 'being'—has the widest reading, used to denote the most comprehensive category. Others—usually 'existence', and sometimes 'object' or 'thing'—have narrower readings. An unsophisticated version of it would be Norma the nominalist's: 'existence' only applies to concrete beings.[8] The classical ontologist now

[8] I think I agree with Lewis [Lew90] that to attribute this view to neo-Meinongians would be uncharitable.

seems within her rights to say that she understands this position well enough, but does not take it to be a meta-ontological dispute at all. Norma uses 'exists' to mean nothing more than 'is a *concrete* being'. But this is not an ontological use of 'exists' at all, since the application conditions of Norma's 'exists' require that the being in question satisfies the condition of falling under some particular kind: being concrete. Ascribing particular kinds, though, is a task for the ideology. So 'exists' is not an ontological idiom at all for Norma, since it does not have the force of generality. It behaves merely like a predicate with the same extension as 'is concrete', which does nothing to dissuade us from the idea that there is a most comprehensive, absolutely general category, a domain of all and only the beings. It leaves the Unity of Being intact. 'Exists' in this sense is not an ontological expression after all, but one that should be relegated to the ideology. This was never what the classical ontologist meant by 'exists', though; she intended it to have the force of full generality.

But even a more sophisticated reading of more and less comprehensive ontological vocabulary seems to fall prey to collapsing into ideology. Sylvan, for example, appears to accuse the classical view of conflating the narrower category of existence and the wider category of being by failing to recognise that there are two different quantificational idioms, each appropriate to one category only. Lewis denies that he means the narrower notion of quantification by his own quantifier, as we have seen. For Quineans like Lewis, if a category is to be ontological, it must be as general as possible, and of course corresponding vocabulary should be brought in line and be given the widest possible reading. Even if it is not entirely clear what a 'loaded' quantifier is, it is apparent from Sylvan's formalism that it is more restricted than the other quantifier. And by the classical definition of ontology, ontological vocabulary should always be as general as possible. Hence the loaded quantifier does not suit her aims at all.

The Quinean solution, translating others into a language with one maximally general kind of quantification, is preferable for all commitmentphiles. Our language of regimentation, whatever other features it has, should be classical in this regard, not a Meinongian language or free logic of any sort. The Quinean tenet that *being* is the most general category, which everything must be in just to be a subject of predication, is independently defensible and does not rely on any artefacts of Quine's systematic philosophy. Since it also has advantages for the philosophy of logic, facilitating impartiality, commitmentphiles of all sorts would do well to adopt it.

But the view is out there in some sense; it's popular with undergraduates, and Geach also attributes to Rush Rhees the view that 'existence' only applies to physical things [Gea71].

2.3 Deflationism

Deflationism is the view that some or all existence questions have no interesting answers. According to deflationists different kinds of existence questions are associated with different kinds of quantifiers, variables, or other ontological vocabulary. These different kinds of ontological expressions are incommensurate. Metaphysical kinds come with their own variables: number variables, propositional variables, mereological-sum variables, etcetera. So questions about existence cannot be fruitfully addressed independently of their linguistic context—but without the linguistic background, they have no determinate meaning. Some deflationists, like Carnap, think that this applies to all existence questions; some, like Hirsch, adhere to a weaker deflationism that only relegates some existence questions to the realms of the uninteresting. In my view, all kinds of deflationism face serious difficulties in accounting for reduction and interdependence. Deflationist languages lack the resources to express identifications between the values of the different kinds of variables that belong with each metaphysical category. Ontological reduction by paraphrase, or other kinds of interdependence between metaphysical categories, cannot be expressed; but it seems unwise to let grammar dictate what kinds of interdependence theories might contain.

2.3.1 Carnap's Deflationism

Carnap, who is a positivist, wants to dismiss existence questions as pseudo-questions [Car50, pp. 37-39]. On that basis, he qualifies as a global deflationist [Cha09]. Carnap intends his thesis to apply to all languages: if something is a pseudo-question, then it, its negation, and all its translations are nonsense. He focuses especially on the formalised languages whose utility to science he promotes throughout his work [Car28, Car37, Car56]. Carnap's position on ontology has recently come in for a resurgence, with [Car50] being cited approvingly by [Cha09, Ekl09, Pri09, Hir09].

Carnap regards what he terms the introduction of new kinds of entities as governed by what he calls a linguistic framework. Such a framework comprises at least

1. a 'general term' [Car50, p. 30] for these entities, such as 'number',
2. 'introduction of variables of the new type', such as 'n', 'm', where the 'new entities are values of these variables' [Car50, p. 30], plus quantifiers to bind them,
3. names to function as substituends for these variables, such as '5', '111',
4. further predicates, relation signs and function signs ascribed to the entities, such as 'n is prime', 'n is the successor of m', 'n plus m'.

He asserts that 1. and 2. are essential for the acceptance of the new entities [Car50, p. 30]. He also appears to say that the framework must include not only kind-specific

variables, but also kind-specific quantifiers: 'quantifiers for universal sentences ("for every n ...") and existential sentences ("there is an n such that ...")' [Car50, p. 24]. This indicates that the quantifiers are read as 'some number'/'every number' and so on, instead of 'something'/'everything'.

An existence question regarding a particular kind of entity can, according to Carnap, be read in two very different ways. 'Are there numbers?' might be a so-called internal question, in which case the answer is trivial; it is also possible to take it as a so-called external question, which is a pseudo-question. The internal/external distinction is difficult to understand, but Carnap himself seems to identify internal questions with questions whose answers follow analytically given some coherent linguistic framework.[9] He explains that Quine's rejection of the internal/external distinction is a direct consequence of his blurring of the boundary between the analytic and the synthetic, 'between questions of meaning and questions of fact, between the acceptance of a language structure and the acceptance of an assertion formulated in the language' [Car50, footnote 5]. My interpretation is that when he says the internal question 'does not say more than that the new system is not empty; but this is immediately seen from the rule which states that words like "five" are substitutable for the new variables' [Car50, p. 25] and that the answer to the internal question 'follows from ... "five is a number"' [Car50, p. 25], he means that internal existence questions (e.g. 'are there numbers?') are equivalent to asking whether there are substituends for a particular kind of variable (number variables). At times he appears to claim that external questions are nonsense because they draw upon the kind of recherché metaphysical properties we can make little sense of, like 'ideal reality' [Car50, p. 25]. Other passages suggest that external questions are not answerable because they are not well-formed according to the framework: all things said of a particular kind of entity that are not explicitly contained within its linguistic framework are senseless.

2.3.2 Objection to Carnap: Implicit Commitments and Reduction

Carnap does not countenance the possibility that a scientific language may hide its use of a particular category of entities. He appears to assume that an existence question which is not either given by or analytically inferred from a linguistic framework must be ill-formed. What this leaves out is any kind of implicit commitments uncovered by interdependence between metaphysical categories, as well as the kind of interdependence implicated in ontological reduction by paraphrase. Russell, whom Carnap cites as one of his main opponents, often expounded reductive links between different metaphysical kinds in an attempt to get rid of some purported entities. Propositions are a prominent example; Russell attempted various strategies to reduce them to something else, construing

[9] See [Pri09] for an argument that Carnap is wrong to think deflationism requires the analytic/synthetic distinction.

propositional locutions as incomplete symbols. Carnap explicitly forswears such reduction by paraphrase:

> 'The fact that no references to mental conditions occur in existential statements (like ["There is a p such that p is not necessary and not-p is not necessary"] and ["There is a p such that p is a proposition"], etc.) shows that propositions are not mental entities. Further, a statement of the existence of linguistic entities (e.g. expressions, classes of expressions, etc.) must contain a reference to a language. The fact that no such reference occurs in the existential statements here, shows that propositions are not linguistic entities' [Car50, p. 26].

Carnap's claim that the absence of linguistic-sounding language in the proposition framework shows that they *are not* linguistic seems hard to square with his later claim that 'the apparent negation of a pseudo-statement must also be a pseudo-statement' [Car50, p. 30]. If the proposition framework contains no linguistic predicates, is it not a pseudo-statement that propositions are linguistic?

In 1.2, I put forward as a constraint on meta-ontological theories that they should account for both implicit commitments and interdependence between metaphysical categories. Carnap's view cannot account for either. If there are different ranges of variables for the entities in each metaphysical category—'n' for numbers, 'p' for propositions and so on—cross-category identity statements are ill-formed. Not only does the framework provide insufficient data to answer the question whether '$n = p$' is true, the question cannot even be formulated in a syntactic sense, because the two frameworks are incommmensurate. The idea that the presence in our grammar of disparate frameworks with their own syntactic behaviour means that cross-framework identity statements are ill-formed could be taken as an implicit argument against the Unity of Being. It might be thought to show that being is pluriform because the categories of entities they posit are incommensurate, given that the corresponding grammar allows us no way of expounding theoretical links between the kinds in question. My objection is that the grammar of our present language is not a good guide for deciding whether categories of things in the world are incommensurate. It is always possible for language to expand and grow in coherent ways to incorporate new discoveries that lead to cross-categorial identifications which would have appeared to earlier generations like obvious category errors. The idea that psychosis might be treated by medicating the body might have appeared so senseless as to be ungrammatical to even the most well-informed mediaeval scholar or healer, but our language has evolved along with our theories. On Carnap's account, the question whether (some) numbers are identical with propositions would be ungrammatical, rather than true or false. That is difficult to accept because it looks like a case of syntax placing limits on what things might be like, what their natures could be. This, I think, is not the business of syntax. Syntax should not force interpretation in this way; it should leave room for theories to develop in unexpected ways and have explanatory links that earlier kinds of theories could not have foreseen.

Some conceivable theoretical developments, whether we accept them or not, would at least make it appear quite sensible to say that some numbers are propositions; because they are both reducible to sets, for instance, or because they are Gödel numbers which encode statements.

2.3.3 Objection to Carnap: Pragmatism and Translation

Another reason to suppose that there is less to Carnapian deflationism than meets the eye is to do with semantic ascent. Carnap admits that in addition to what he calls internal and external existence questions, those settled just in terms of the analytic consequences of a framework—are there substituends for F-variables?—and therefore trivially answerable, and those that are just ill-formed and therefore unanswerable, there are also pragmatic questions: is this framework useful? Carnap thinks that pragmatic questions *are* answerable, but they are not yes/no questions [Car50, p. 30]. Answering them is a multi-faceted affair that admits of degree. I surmise, although he does not say so explicitly, that he thinks that consequently we cannot identify existence questions with these pragmatic questions, because existence questions are yes/no questions. But this distinction can only be upheld if answerable existence questions are analytic and trivial. I, on the other hand, think, as I explained in 1.3.5, that we should take a pragmatic approach to translation into canonical notation: a rarefied kind of translation whereby we move from old theories to new ones optimised for answering ontological questions and identifying ideological primitives. Regimentation does not demand meaning equivalence, or even material equivalence in all cases. When we notice that some posits of our current best theory may be dispensed with, we now hold them to be false. We must work within our best available theory to gradually develop a newer, better one without the offending posits, supplanting the old, false statements with new, true ones. This pragmatic attitude is hard to square with the idea that existence claims are ever trivial, or that they are tangential to the strictures of theory choice. Asking and answering questions about the existence of Fs is not divorced from the pragmatic concern whether Fs are useful. Carnap is wrong to separate questions of language choice (pragmatic questions) from questions about the existence of its referents (external questions). Existence questions, since they may be implicit or explicit, paraphrased away or discovered by expounding explanatory links within the theory, are not so far removed from questions of usefulness as they may seem at first sight.

2.3.4 Quine's answer to Carnap

When Quine responds to Carnap, he makes the case that Carnap's position can be transformed into a Quinean one in two easy steps. The first step is to diffuse the boundary between external and internal questions. He draws a distinction between 'questions of the

form "Are there so-and-so's?" where the so-and-so's purport to exhaust the range of a particular style of bound variables, and questions of the form "Are there so-and-so's?" where the so-and-so's do not purport to exhaust the range of a particular style of bound variables' calling them *category questions* and *subclass questions* respectively [Qui51a, pp. 68-69]. Internal questions he identifies with the subclass questions and the category questions whose answers are analytic (or contradictory), external questions with all other category questions. Quine maintains that there is no need for this distinction. The compartmentalisation of variables which assigns a distinct style of variable to each kind of entity is always dispensable. 'Is there an n such that n is a number?' is a category question if n can only range over numbers; but let it range over both numbers and sets, and the same question becomes a subclass question. Quine believes that nothing could stand in the way of dropping compartmentalised variables and using just a single style of variable. Even type theory allows this, via the convention of typical ambiguity. Just x, y, etcetera will do—no need for n or p—and all existence questions become subclass questions. The result is a single domain, a flat ontology, of which the question 'does it contain Fs?' is both useful and meaningful. This first step, he says, Carnap could adopt without doing violence to his own account of ontology. The second step is the one Carnap resists: dissolving the distinction between analytic and synthetic. The idea that some existence questions are trivially answered given the rules of a language is safeguarded by analyticity.

2.3.5 Hirsch's Deflationism

Inspired by Carnapian deflationism but different in character, Hirsch's version of deflationism is both local—only some ontological questions are trivial—and mild—even the trivial questions have answers, but nothing deep is at stake. They can be resolved by reflecting on semantic facts. He finds an ally in Chalmers, who terms the position 'lightweight dismissivism' [Cha09]. Hirsch's deflationism, unlike Carnap's, is based on the behaviour of ontological and metaphysical vocabulary in ordinary language, not formalised or scientific language. He believes that some existence questions carry great metaphysical weight—he mentions theism [Hir09], and Hawthorne claims that Hirsch accepts the nominalism-Platonism debate as substantial too [Haw09]. But certain types of existence questions amount to no more than different but intertranslatable ways of speaking. This category, the trivial questions, is typically taken to include questions about the existence of parts and wholes [Hir02], time slices [Hir09], and such objects as fists and laps. Questions about the existence of such objects are settled by appeal to facts about linguistic use and common sense, because the debate is over what linguistic convention to adopt, rather than about reality. The endurantist or mereologist may have a more concise or intuitive language than the perdurantist or the nihilist, but each speaks the truth in her own language. Everyone agrees on how the world is, but some choose to use terminology in different ways.

Any interesting metaphysical theory will have interdependence between the categories of

things it admits: certain categories are explained in terms of others. The phenomenon of explaining away apparent reference to objectionable entities by paraphrase is also widespread, even amongst those who are not explicitly pro-commitment. Holism need not be a motivating factor; a foundationalist theory equally relies on its ontological posits to answer other metaphysical and scientific questions. Foundationalism may perhaps be a motivation for the idea that some ontological questions are weightier than others. If there are deep ontological questions, that ground all the others, perhaps there are ones that seem comparatively less important, or carry less explanatory weight. Even if this is admitted as an alternative meta-ontological strategy, though, what still seems extremely puzzling is how it is settled that these ontological questions are more trivial *tout court*, as opposed to less central to someone's epistemology.

2.3.6 Metaphysical Interdependence: Two Problems for Hirsch

The notion that some ontological questions are trivial is most clearly expressed by Hirsch [Hir82], [Hir02], [Hir09]. That is not to say that Hirsch presents decisive criteria for reckoning a question to one camp or the other. What emerges is what the paradigm cases of trivial existence questions are. At times he hints at what the more substantial questions may be. They appear to coincide with the more traditionally central questions of ontology. Certainly 'Is there a God?' is amongst them [Hir09], and also 'are there numbers?' [Haw09]; perhaps this extends to other venerable posits like persons, properties, facts, etcetera. Questions like 'Are there temporal parts?' and 'Are there mereological fusions?' [Hir02] are not considered weighty. Neither are questions about objects such as laps (the flat surface formed by the thighs of a person who happens to be sitting), "'incar[s]" ... any segment of a car situated inside a garage' and "'outcar[s]" ... any segment of a car situated outside a garage' [Hir82], and fists (clenched hands). It is a mistake, according to Hirsch, to think that the substantial structure of metaphysical explanation is much affected by whether we choose to describe a certain event as one in which a fist comes into being, as opposed to one in which the person clenches her hand.

> Look at your hand while you are clenching it, and ask yourself whether some object called a fist has come into existence ... There can't be anything deep or theoretical here. The facts are, so to speak, right in front of our eyes. Our task can only be to remind ourselves of relevant ways in which we describe these facts in our language ... [Hir02].

One forthright response available to his opponent is to appeal to Ockham's razor, and insist that posits have to be justified in terms of their explanatory value. Incidentally, the concern with whether the innocent use of words like 'fists' should be taken to incur commitment to an entity is not some artefact of newfangled pedantry. Here is Buddhagosa, a first-century CE Buddhist commentator, providing a semantics of 'fist' remarkably similar to

van Inwagen's treatment of 'table' [vI90]:

> ... and just as the word "fist" is but a mode of expression for the fingers, the thumb, etc., in a certain relation ... [Bud89]

The commitmentphile, like Buddhagosa, does not object to talk of fists in ordinary parlance. Neither does she object to everyday English talk of watching the sunrise, because that does not entail a commitment to a geocentric astronomy. When it comes to asking existence questions, though, we must dispense with such loose and metaphorical talk, and choose whether to accept it as committing, to treat it as eliminable or to paraphrase. When she queries whether there really are fists, she wants to know whether the predicate 'x is a fist' must be included among those of our best theory, and assigned an extension. This is only justified if some of the needs of overall explanation are best met by admitting fists as posits. The issue of explanatory tradeoffs, and interdependence between ontological categories, is re-introduced.

Of course the believer in trivial ontological questions will usually accept interdependence. They may simply believe that there are some foundational metaphysical kinds, acceptance or rejection of which substantially affects one's overall theory. A nominalist's theory may turn out to be impoverished with respect to expressive or explanatory power compared to the Platonist, as proposed in [Haw09]. A theist's posit of God may affect her views on causation, if she views God as a first cause, or it may lead her to re-examine her definition of 'person', if she views God as falling into that category. Perhaps there are some categories that are more likely, at least in theories we are likely to consider adopting, to effect such seismic shifts in overall explanatory role.[10] The idea that some questions are less weighty than others may be given some plausibility in these terms.

Even if we grant this much to Hirsch it merely goes to show that some questions are more trivial than others within the context of a particular theory, relative to a given epistemology. His earlier work on identity [Hir82] suggests that he thinks English does not allow for the kinds of criteria of identity that entities such as outcars and incars demand. But that does not entail that some questions—'Are there wholes, as well as parts?', 'Are there four-dimensional objects?', 'Are there fists?'—are simply such as to carry less ontological weight, independently of any language or theory. The distinction between serious and trivial ontological questions is problematised by interdependence. To show these questions inherently trivial, it would have to be clear in any language or theory that the answers

[10] The commitmentphile would still protest at this point that, although of course she accepts that some posits are nearer the periphery of the theory than others, all posits are equally posited, and the test is whether or not they can be paraphrased away, or must be invoked in the theory. The difference between central and peripheral posits is not one of degree of positedness, but concerns the question which we would be more likely to give up when recalcitrant data are found. I think this is correct, as it happens, but am concerned to show here that even on a sympathetic reading of Hirsch's methodology, it is difficult to maintain that there are ontological questions which are trivial independently of epistemology.

to the substantial questions never crucially depend on the answers to the allegedly trivial ones. This is false for questions such as the existence of parts or time slices, judging from the history of philosophy. Take a question Hirsch considers substantial: 'Is there a God?' An integral part of the doctrine of classical theism—the theism of Maimonides, Aquinas, Avicenna—is divine simplicity. It is essential to God, according to classical theists, that God has no parts [Ans98, ch. 12, ch. 18], [Aqu64, Ia, 13, 11]. Some express this by saying that God is *identical with* God's parts [Ben69]. A metaphysical category of central importance is thus linked to a so-called trivial one. The criterion of identity for God—or for Maimonideans who balk at predicating any positive attributes of God [Mai63, I, ch. 51-60], the criterion of distinctness from God for everything else—makes indispensable use of parthood, for whatever has proper parts cannot be God.

Another example is the debate about personal identity and the existence of persons in ancient India (assuming that 'Are there persons?' is a substantial metaphysical question). A rough-and-ready summary: Buddhist philosophers, adhering to a strictly empiricist methodology, noted that our self-perception is changeable and fragmented. We perceive no stable self persisting through time and growth, but a succession of mental episodes: a colour-perception here, an emotion there, an inference after that. Since there is no perceptual evidence for an extra thing, a persisting person, over and above this series or bundle, the Hinayana Buddhists concluded that if there were persons, they must be wholes composed of parts. But no perceptual evidence of wholes was forthcoming either. No extra thing is perceived to come into being when wheels, an axle, shafts, and a body are put together to form what we call a chariot. Ultimate truth makes no mention of chariots. The term 'chariot' really denotes all these in plurality, as each of those words really denotes some smaller parts in plurality, all the way down to the atoms. Since there are no wholes, there can be no persons. The following, a very early (ca. 350 BCE) statement of the doctrine that some seemingly singular terms are really plurals in disguise, is attributed to the priestess Vajira, who is said to have been an associate of the historical Buddha:

> 'Even as the word of "chariot" means
> That members join to frame a whole;
> So when the groups appear to view,
> We use the phrase, "a living being".' [Ano89a]

Her Hindu opponents, disinclined to accept the empiricist method, would retort that persons did not have parts at all. Of course the persisting subject cannot itself be perceived: it is the locus of perception, and can no more see itself than a light can shine on itself. They argued that something in need of explanation is being left out of the Buddhist picture: if there is just a succession of disparate perceptions, whose perceptions are they? True, the self cannot be identified with any of its ideas, perceptions, or emotions, since they are not what remains the same over time. What remains the same is the perceiver, who is

a unitary thing [Ano62].[11] Whatever one makes of these arguments, it is evident that in the past some competent philosophers found parthood, temporal or timeless, indispensable in explaining the (commonly thought to be) substantial metaphysical categories of personhood and God. A modern analogue of the debate might appeal to either time-slices or mereology in giving criteria of identity for persons. It seems difficult to maintain a division of ontological questions into those that are pre-theoretically trivial and those that are universally substantial. If it is only English that sorts questions into the trivial and the substantial, then English is perhaps sufficiently parochial that we have good reason to adopt the philosophers' language Ontologese instead.

2.4 What Should Our Language of Regimentation Be?

In sum, Quine's idea that ontological questions should be answered in a logical language of regimentation has much to recommend it. Commitmentphiles of all stripes can agree that their well-defined consequence relations make them a good medium for explaining interdependence and levelling implicit and explicit commitments. Deflationism is no match for it in this regard, as it is hard put to explain any kind of interdependence, and Carnap explicitly disavows implicit commitments. The objectual interpretation of the quantifiers also has advantages to meta-ontology other than those explicitly cited by Quine. Objectual quantification presents *being* as a logical notion, and a univocal one, as there is only one domain. Since ontological questions pertain to theories as a whole, quantifiers used for ontological purposes must have the force of full generality. So it is safe to assume that commitmentphiles ought to subscribe to regimentation in some form of classical logic, with an objectual interpretation of the quantifiers. But how much universal appeal can be claimed for Quine's preferred logical language, his one true logic, bivalent first-order logic without individual constants?

[11] Here I paraphrase the canonical statement from the Bhagavad-Gita. This is not to be taken to mean that the Bhagavad-Gita is explicitly addressing Buddhist arguments; there is no mention of Buddhism in the text, leading scholars to conjecture that it is pre-Buddhist [Mas62]. Given the doctrinal import of the text, though, commentators defending the Hindu conception of the self were likely to draw on its presentation of the issues in their argument against the Buddhist picture.

Chapter 3

The Problem of Individuals: Quine's Eliminative Treatment of Names and Identity

Intuitively, directly referential expressions, such as proper names or the word 'I', seem to be committing expressions just as much as variables. After all, any expression whose task it is to stand for a thing directly must be counted as one which commits to the thing it denotes. Directly referential expressions are easily modelled in a formal language by the use of constants, and their role, like that of variables, is to be assigned elements from the domain—existents. Yet Quine is adamant that constants have no place in the one true logic. As a result, his language of regimentation has trouble accommodating attempts at commitment via direct reference or use of the first person. In Descartes' *cogito*, for example, the first-personal form is essential to the argument that 'I exist' must be true whenever uttered, since its negation is self-defeating. Quine claims logic has no need for direct reference. But a logical grammar which rules out our describing the mere possibility of direct reference or the first person seems needlessly restrictive. Being able to regiment and disquote others' outlandish ontologies, whatever the values of their committing expressions, was part of the irenic point of Quine's theory of ontological commitment.

The purpose of this chapter is to make a case for a language of regimentation with a bifurcated category of committing expressions comprising both variables and constants. Such a language is useful because it is epistemology-neutral. It allows us to translate and identify the objectual expressions of theories which commit only to objects-*qua*-*F*, best suited to Quine's global holism, as well as those who use directly referential expressions to indicate a case where, they believe, the mind reaches out to an object directly. The latter would include cases like the *cogito*, where the thinker concludes that s/he personally exists,

Russellian acquaintance characterised by the use of 'this', 'that', and 'I', and Millian names introduced ostensively.

In the first three sections I will demonstrate why Quine's eliminative strategy, intended to show names are always dispensable because they can be converted into predicates, is problematic: 'x pegasises' cannot have all the expressive strength of 'x = Pegasus'. One uncomfortable consequence of 'pegasising' is that it implies that '$a = b$' must be translated as 'the A-er satisfies all the same predicates as the B-er'—the latter is consistent with further evidence coming to light to show that they are two, the former entails that nothing can make a and b distinct. Although Quine claims this is for reasons of grammatical economy, a more plausible explanation is that Quine's epistemology compels him to take this line. Quine can only commit to objects-*qua*-F, not to objects *qua* individuals. Given global holism, contact with objects is never direct, but always mediated by a complete theory. Any posit we countenance is only there because it seems to be the best explanation of intersecting observations. Identification requires all theoretical resources available, so it makes sense for Quine to think of identity as mere indiscernibility according to a theory. In section 4, we will see that this treatment of identity is unappealing, as it is always logically possible that indiscernibles are distinct. And even Quine admits that in the home language we think of identity as meaning simply sameness of thing, not a concatenation of descriptions. A criterion of commitment on which only commitments-*qua*-descriptive-F are permitted now seems less attractive.

Section 5 is concerned to show that alternative criteria of commitment to go with alternative epistemologies are just as coherent as Quine's. Acquaintance has the mind reaching out directly to objects, without having to describe their natures, using purely objectual names to capture such cognitive acts in language. If acquaintance is the object-foundationalist equivalent to Quine's description-only object-holism, foundherentism about objects is a middle way. This would be a hybrid criterion of ontological commitment where both directly referential and pronominal expressions are committing. It is still possible for these names to be purely objectual, directly referential in the sense that their meanings are just their bearers, encoding no descriptive information. But the hybrid criterion's descriptive component allows for purely objectual names to be assigned with the help of descriptive vocabulary, too.

3.1 Directly Referential Committing Expressions

3.1.1 Committing to an Individual

On Quine's quantificational criterion of ontological commitment, commitments are captured by existentially quantified statements: say, '$\exists x Fx$'. The commitment incurred by

such an assertion is a commitment to whatever satisfies the open formula following the quantifier: an object-*qua*-*F*. The only committing expressions are the variables, and commitment must always proceed via the satisfaction of some predicative phrase, some kind to which the object belongs. Kinds may be very specific, even such that only one being belongs to them, but the beings themselves never make an appearance except insofar as the open sentence governed by an existential quantifier is true of them. As values of variables, they are only there *qua* 'ideal nodes at the foci of intersecting observation sentences' [Qui92, p. 24]. As a consequence, no commitment is ever incurred to an individual *qua* individual, but only those describable in terms of objects-*qua*-*F*. A theory can be committed to the existence of the inventor of computer programming, but not to the existence of Ada Byron Lovelace.

The intuitive idea behind ontological commitment is that a theory imputes existence to the things it talks about: those it asserts there are, those it mentions, and those talked about in the sentences entailed by it. When a philosopher or scientist puts forward a theory, existence claims made in the theory commit her to there being such entities as she claims there are, even implicitly, thanks to regimentation. But mentioning things by name is another legitimate natural-language way of talking about objects, even though it is not a type of existence claim. When we use a genuine name or other directly referential expression, there must be a corresponding referent. (I take 'directly referential expression' to mean directly referential proper names as well as other objectual expressions whose semantic role is to single out an object in a non-descriptive way. This may include words used to refer to the self or current mental states, such as 'I', and 'me', or perhaps 'this' and 'that' [Rus12].) Sentences involving directly referential expressions do not have the surface form of existence claims. On the other hand, singular direct reference might be thought to at least entail an existence claim. Doesn't it seem incoherent to conjoin a genuine attempt at reference with a non-existence claim, like 'This is Maryam, but she does not exist', or 'I think, but I do not exist'? Such sentences are naturally read as attempting to commit to the existence of an individual, not in virtue of their satisfying some description, but through singular reference using a directly referential expression.

3.1.2 Modelling Directly Referential Expressions in the Language of Regimentation

There is an obvious formal analogue for directly referential proper names available in the form of individual constants, a standard part of the machinery of traditional first-order logic. They are devoid of structural complexity and are assigned values from amongst the elements of the domain by the interpretation. They are unlike variables in that they do not denote *generally*, ranging over all objects prepared to stand for any one of them; once assigned, they stand for a single object exclusively. So constants, and their natural-language

equivalents, directly referential expressions, are objectual expressions: their semantic role is always to denote an entity. If they are used correctly, they will stand for an entity. If not, the sentence they occur in will be false, or possibly incoherent. This indicates that it may be worth exploring their potential as committing expressions. Perhaps the language of regimentation should be expanded to include individual constants, with the caveat that admitting that directly referential expressions can be committing is in no way equivalent to thinking that all apparent proper names or words for the self in natural language should be translated as committing expressions. We need not render every apparent name as a constant in the language of regimentation any more than we have to translate every 'it' or 'there is' as 'x' or '$\exists$'. Apparent names might be paraphrased away or eliminated altogether just as much as apparent pronouns or quantifiers.

A further question is whether directly referential committing expressions are also, like Quine's first-order variables, *purely* objectual expressions, those whose function is only to stand for objects, without communicating anything about their natures. We will return to this question in sections 3.3.4 and 3.5. An example of a purely objectual directly referential committing expressions would be a Millian name, whose meaning is just its bearer. A case could be made that the formal properties of constants make this interpretation seem natural. The fact that constants are interpreted as being assigned values from the domain by the interpretation could be seen as reflecting the property of directly referential names to single out their bearers directly, without relying on any other part of the language.

Quine's criterion of commitment, though, does not allow for commitment via the use of a genuine proper name. He insists on first-order bivalent logic *without individual constants* as the one true logic and canonical notation, and demands that names be translated into the language of regimentation as predicates. Quinean commitment implies that the formal analogue of the existence claim is the only way an object can be talked about. A theory is committed to all the entities-*qua*-F that count as the values of the existentially quantified sentences of its translation into the language of regimentation. After the process of radically translating into the language of regimentation has been completed, the only vehicles of reference are the variables. They are the only objectual expressions, and therefore the only committing expressions. But why is Quine so opposed to directly referential committing expressions?

3.2 Quine's Dispensability Thesis

I will refer to Quine's view that a name 'a' can always be converted into a predicate 'Ax' where 'Ax' is satisfied only by the object formerly named a, as the Dispensability Thesis. The Dispensability Thesis is descriptivist in a sense: it provides a recipe for converting names into definite descriptions. But it should not be confused with what is usually called

'descriptivism' in the philosophy of language, comparable to what Kripke calls the 'Frege-Russell' theory of proper names [Kri80]. That kind of descriptivism is a theory about the meaning of natural-language proper names, *viz.* that their meanings are definite descriptions. Quine's descriptivism, on the other hand, is an eliminative strategy employed to dispense with an entire grammatical category which he thinks of as complicating matters with respect to the ontology. He has devised a template for excising that category completely from the language of regimentation. When translating a natural-language theory into a regimented theory, any directly referential expressions occurring within it are translated out as predicates. It is not a priority to preserve the usage or intuitions of the speakers of the natural language in question like it would be for natural-language descriptivism. Quine's first argument for the Dispensability Thesis turns on his philosophy of logic.

3.2.1 The Argument from Quine's Philosophy of Logic

In the 1930s, Quine had thought of names as committing expressions: 'To ask whether there is such an entity as roundness is thus not to question the meaningfulness of "roundness"; it amounts rather to asking whether this word is a name or a syncategorematic expression' [Qui66a, p. 197].[1] He distinguished, then, between apparent names and names 'in the semantic sense', i.e., names with bearers. 'Many words form essential parts of intelligible statements—truths and falsehoods—without being names of anything ... the word "Pegasus" is not a name in the semantic sense, i.e., ... it has no designatum' [Qui39, p. 703].[2] He first states that names are inessential in [Qui40, par. 27], and explicitly abjures their use in ontology in the late forties, saying variables, not names, are the paradigmatic categoremata: 'The use of alleged names is no criterion, for we can repudiate their namehood at the drop of a hat unless the assumption of a corresponding entity can be spotted in the things we affirm in terms of bound variables' [Qui48, p. 32].

From the forties onwards, Quine proposes to regiment in a language devoid of proper names. The reasons he adduces for this decision appear to belong to the philosophy of logic. He states that logic has no use for proper names or constants: '[c]hief among the omitted frills is the *name*' [Qui70, p. 25, emphasis in the original]. Firstly, he argues, omitting names simplifies the syntax. A single language containing both constants and variables cannot have a single category of singular terms, because constants and variables have different syntactic properties. A variable can be appended to a quantifier symbol ('$\forall$' or '$\exists$') in order to bind all of its subsequent occurrences in a subformula; a name cannot [Qui70, p. 26]. This is true enough, but not decisive. Even Quineans can trade

[1] This paper, dated 1939, remained unpublished until [Qui66c]. The *Erkenntnis* volume it was due to appear in never materialised because of the outbreak of WWII.

[2] Although this paper contains the phrase 'to be is to be the value of a variable' [Qui39, p. 708], in it Quine still speaks of genuine names of things being substituends for variables.

simplicity of syntax for greater expressive power. A quantified language has a more complex grammar than a language with only sentence letters and truth-functional connectives, but the apparatus of reification confers such great explanatory benefits that simplicity of grammar is a comparatively small sacrifice. If a bifurcated category of singular terms bestows other theoretical virtues upon a language, that would be good reason to opt for a more complex syntax.

But, Quine avers, names are a dispensable grammatical category. They can be converted into predicates without loss of information. 'Fa' is equivalent to '$\exists x(a = x \wedge Fx)$'. As a consequence, the latter can always be substituted for the former wherever it occurs. So 'a' is dispensable except in the context '$a =$', which can be written more concisely as 'A'. Using that convention, 'Fa' is equivalent to '$\exists x(Ax \wedge Fx)$'. The typical use of a proper name is to uniquely specify an object. But, by hypothesis, the new predicate 'A' does exactly that. After all, it is just short for '$a =$'. This amounts to a general strategy for dispensing with names efficiently and in all contexts [Qui70, pp. 25-26]. There is an air of sleight of hand about this argument, which is only intensified when we recall that Quine's identity predicate is in fact a shorthand for indiscernibility-within-the-theory. Indiscernibility does not in general entail identity, and certainly indiscernibility according to the predicates of some particular theory, which may have scant expressive power, does not. So Quine's defined identity-facsimile does not express what we ordinarily think of as identity. But the argument for the dispensability of names in the one true logic is the formal equivalent of his well-known 'pegasising' argument.

When Quine first makes the case that names are not the locus of commitment, he again argues that they can be banished from the grammar altogether without loss of information. Names are dispensable because they can always be converted into uniquely identifying predicates. Such predicates may then occur in uniquely identifying definite descriptions. Since Quine takes a Russellian line on definite descriptions, they are not singular terms, but incomplete symbols analysable in terms of quantified phrases [Rus05]. So an apparent unit like 'a' or 'Pegasus' becomes 'the A-er' or 'the pegasiser'. On the Russellian analysis it turns out to have the deep logical structure '$\exists x(Ax \wedge \forall y\ (Ay \rightarrow x = y))$' or 'there is one and only one thing that pegasises' [Qui48, p. 27].

3.2.2 The Argument From Empty Names

One of Quine's concerns is to avoid imputing an existence claim to uses of so-called empty names, often deployed to make non-existence claims, like 'Pegasus' and 'Aphrodite'. If they were genuine names occurring in true sentences, an existence claim would be entailed by Existential Generalisation: from 'Fa', infer '$\exists xFx$'. For them to entail an existence claim would invalidate any non-existence claims we may wish to make using them. Quine suggests that we must convert 'Pegasus' into the description 'there is one and only one

thing that pegasises'. Because nothing pegasises, 'Pegasus does not exist' comes out true. [Qui48, pp. 26-27].

But the mere fact that replacing names with descriptions provides a convenient treatment of at least some empty names, like 'Pegasus', does not imply that all names should be given this treatment. Perhaps this is the correct translation into canonical form of fictional names,[3] or of empty names generally, but it does not follow that it is the right treament of referential names. For all we know the correct course of action may be some kind of disjunctivism about names: known empty names go into the language of regimentation as predicates, referential ones as constants.

Quine wants to conclude that in spite of their widely divergent grammatical structure, names and existence claims in fact share the deep logical structure '$\exists x Fx$'; a conclusion which suits his overall aims better and upholds his tidy minimalist logical grammar. He dispenses with names by replacing them with uniquely identifying predicates, and makes variables the vehicle of reference instead. Any sentence with a referential proper name in it can be converted into a true existence claim. The role of singling out an individual is, in its true logical form, discharged by variables—they decide whether or not a name refers. Only variables are by their very nature committing. Only they are what we have called objectual expressions: 'I think it is true that there is no commitment to entities through use of alleged *names* of them; other things being equal, we can always deny the allegation that the words in question are names' [Qui51a, p. 67]. Quine's identification of proper names with quantified phrases is related to his inability to account for commitment to individuals *qua* individuals, instead of objects-*qua*-*F*. The threat of empty names by itself does not justify his move—so what is his justification?

3.3 Against the Dispensability of Direct Reference

It is rather unclear how to classify Quine's strategy for dispensing with the semantic category of directly referential expressions. There is some affinity with eliminativism—refusing to translate a predicate into the language of regimentation—and with reductivism—explaining one predicate or cluster of predicates in terms of another predicate or cluster—but it isn't exactly analogous to either. Its aim is to get rid of a semantic category, while both elimination and reduction pertain to predicates only. It consists in translating out any occurrence of proper names like 'a' as predicates like 'Ax' where 'Ax' is satisfied only by the object formerly named a. Refusal to translate the expression into the language of regimentation is one (eliminative) aspect of it. Another aspect is more akin to reduction by paraphrase:

[3]Though this is denied by Lewis, who is an avowed Quinean about commitment. He thinks fictional names refer to possibilia [Lew83].

explaining one semantic category in terms of another by contextual definition, instead of explaining one or more predicates in terms of others by direct or contextual definition.

The Dispensability Thesis has some features in common with the simplification of logical grammar which consists in moving from a language with five truth-functional connectives to a language with one (the Scheffer stroke, for instance, or the N-operator), or from two quantifiers to one. The disanalogy is that choosing a Scheffer-stroke system over a five-connective system does not dispense with truth-functions as such. The two systems are exactly equal in expressive power, and provably so. This is less clear, and certainly not provable, for languages where the Dispensability Thesis holds vs. those where it does not. Whether the 'pegasising' strategy provides a faithful translation of theories with the grammatical structure of first-order logic with constants depends on whether there really is no loss of expressive power. If there is some loss of expressive power, or loss of information conveyed with the help of directly referential expressions, that would be reason to count constants as committing expressions.

3.3.1 Is 'The Pegasiser' a Bona Fide Paraphrase?

Conversely, if it could be shown that there is no loss of information that results from the 'pegasising' strategy, and that languages without constants have all the expressive power of languages with constants, that would give us reason to think that the Dispensability Thesis is true and 'pegasising' a *bona fide* analogue of paraphrase. Quine writes as though the description 'the pegasiser' by its very nature uniquely picks out Pegasus and never applies to anything else. If that is true, it seems reasonable to assume that the description does have the strength required to single out nothing but Pegasus, and is equivalent in expressive power to 'being a member of the kind whose sole member is Pegasus'. But a closer look at Quine's writings puts paid to that idea. He states explicitly that any description that happens to pick out Pegasus uniquely will do just as well as 'the pegasiser', which is really only a last resort:

> In order thus to subsume a one-word name or alleged name such as "Pegasus" under Russell's theory of descriptions, we must, of course, be able first to translate the word into a description. But this is no real restriction. *If the notion of Pegasus had been so obscure or so basic a one that no pat translation into a descriptive phrase had offered itself along familiar lines, we could still have availed ourselves of the following artificial and trivial-seeming device*: we could have appealed to the *ex hypothesi* unanalyzable, irreducible attribute of *being Pegasus*, adopting, for its expression, the verb "is–Pegasus" or "pegasizes". [Qui48, p. 27, emphasis in the first half of the final sentence mine.]

The quotation indicates that there are two potential ways to accomplish the task of paraphrasing out proper names as predicates. The first is the brute force method: simply

declaring that, e.g. the predicate 'x pegasises' is equivalent to 'x is identical with Pegasus'. The other option is to cut out any form of the actual name 'Pegasus' and offer a 'pat translation into a descriptive phrase ... along familiar lines', i.e. a descriptive phrase F, couched in terms of the predicates of the theory, that is satisfied only by Pegasus if it is satisfied by anything, like 'the winged horse captured by Bellerophon'.

3.3.2 Dilemma: Name-Recycling Predicates vs. Regress

First, we shall look at the brute force method: the 'x = Pegasus' option. When Quine speaks of appealing to 'the *ex hypothesi* unanalyzable, irreducible attribute of *being Pegasus*, adopting, for its expression, the verb "is–Pegasus" or "pegasizes"', it is difficult to read this any other way than as a predicate whose covert logical structure is simply '$x = a$'. It is not wholly explicit in [Qui48], but is confirmed in [Qui70]: the logical form of 'Ax' is '$x = a$' [Qui70, p. 25].

For the 'pegasising' strategy to count as a *bona fide* paraphrase of names in terms of predicates, it must be clear that everything said with the help of names can be said with predicates without loss of information. That is difficult to maintain here. Because Quinean commitment is always to objects-*qua*-F and mediated by a description, a theory cannot be committed to a, but at most to the existence of something such that it is F, where 'F' is some condition only a satisfies. Such is the status of 'pegasises' (or so it seems) because it simply turns the name 'Pegasus' into a predicate by brute force. But now the suspicion arises that Quine is not actually entitled to this theoretical move. Recall that his treatment of identity in the same work [Qui70, p. 63] presented identity not as a logical predicate meaning 'is the same thing as' but as facsimile identity, or sameness with respect to all the predicates of the theory. So '$x = y$' was equivalent to 'x satisfies all and only the same open formulae as y'. And 'x pegasises' means 'x satisfies all and only the same open formulae as Pegasus'.

What is 'x is identical with Pegasus' or 'x satisfies all and only the same open formulae as Pegasus' to connote unless something has already been named 'Pegasus'? Such predicates, by virtue of containing a proper name as a constituent, crucially rely on the name's having been assigned a referent before the predicate is formed. These predicates cannot get off the ground unless an assignment of names to bearers has already taken place. As Barcan Marcus puts it: 'Such devices do not *eliminate* the name; they recycle it' [Mar93b, p. 211].

Replacing names with non-name-recycling descriptions is hardly more promising. Even for descriptive glosses of actual existents like 'the most illustrious student of Socrates' for Plato, a regress potentially threatens. Another description is needed to identify the referent of 'Socrates', perhaps 'the philosophising son of Phaenarete'; and then another predicate

must be supplied for the referent of 'Phaenarete', etcetera. It is unclear how this process can terminate without ineliminable uses of either genuine proper names with no descriptive meaning, or first-personal, indexical or demonstrative words such as 'I', 'this', or 'that', all of which are directly referential in the sense I am interested in.

3.3.3 Descriptivism by Any Other Name: Loss of Expressive Power

Maybe name-recycling predicates are salvageable if names can be assigned directly to objects in the home language, to be translated away only for the purposes of regimentation? Not if the home language was built up according to Quine's picture of theory formation that we considered in 1.3.2. For him, all languages are built up in stages, starting with non-logical, descriptive observations, subsequently linked by truth-functions, and finally split into a logical objectual part (the variable) and a descriptive non-logical part (the predicate). Objects only put in an appearance when they are hypostatised on significant intersections of observations, in which case they are assigned a variable; there are no name-like expressions that are assigned to objects in any other way. Directly referential expressions could only be introduced if there were some alternative way of getting in touch with an object, one that did not proceed via observations or predicates. So the home language can only have directly referential resources if its structure differs quite radically from this template, with names sometimes being assigned directly to objects, without reliance on observation sentences. If Quine wants to insist that all intelligible languages share that exact structure, he must dispense with directly referential proper names in the home language, and endorse (ordinary) descriptivism about natural-language names too. Ordinary proper names would need a description in order to mediate their assignment to a bearer. But name-recycling predicates, by their very structure—'$x = a$'—need the name 'a' to have been assigned to a referent before they themselves can be formulated. They are not suitable for use as a uniquely identifying predicate by the descriptivist, who believes such an assignment itself needs a mediating description first before it can single out the referent.

3.3.4 Identity Statements and the Case for Purely Objectual Constants

In section 1.5 we saw that Quine dispenses with the identity predicate, replacing it with the 'serviceable facsimile' of a defined predicate '$x = y$' which is short for indiscernibility within the language, meaning that x satisfies all the same predicates as y [Qui70, p. 63]. Quine translates sentences with proper names in them into the regimented language as existentially quantified phrases, using Russell's theory of descriptions. One of Russell's insights in [Rus05] was the relative strength of equivalence relations that can be expressed using names and variables on the one hand, and descriptive phrases on the other. Names and variables can legitimately be concatenated with the identity predicate, and it can be

true or false *tout court* that '$a = b$'—in other words, that a and b are the same thing. Descriptive phrases, on the other hand, having the deep logical structure of quantified phrases, cannot themselves flank the identity sign. Although in natural language, we think it makes sense to write things like 'The last pharaoh = the eldest daughter of Ptolemy XII Auletes', their true logical form is '$\exists x((Px \wedge \forall y(Py \rightarrow x = y)) \wedge \exists z((Dz \wedge \forall w(Dw \rightarrow z = w)) \wedge x = z))$', with only variables flanking the identity sign. Identity only holds between an object and itself, and can only be expressed using expressions that refer to the object directly: 'x', or 'w', or (for Millians, not Russell) 'Cleopatra'. The strongest equivalence relation that can be expressed with the help of ideological phrases is that of *describing* the same thing [Mar61, p. 12]. This is because descriptive phrases single out a thing indirectly, via a description of its characteristics, and two descriptions sometimes coincidentally hold of one unique thing. For Russell's point to go through, we need not just objectual constants, but *purely* objectual constants: those that do no more than single out a thing, without encoding any information. Were they to retain some descriptive meaning, their singling out their values would be conditional upon those values' satisfying those descriptions. The strongest equivalence that could be expressed using such expressions, in that case, would again be just that of describing the same thing. But purely objectual directly referential expressions encode no information, and manage to stand for an object without any help from the ideology. According to Russell's Thesis it is no coincidence, but a matter of logic, that such words, once assigned to one and the same object, always denote that same object. They can be used to commit to an individual *qua* individual, and to state outright whether individuals are identical or distinct.

We have seen that for epistemological reasons Quine's criterion does not allow commitment to individuals as such, but only to objects-*qua*-*F*. He recommends translating 'a' as 'the A-er', or 'the x such that $x = a$'. We also noted that Quine renders '$x = y$' as 'x satisfies exactly the same open formulae as y'. Now Quine is compelled to translate '$a = b$' as 'the A-er satisfies exactly the same open formulae as the B-er'. Although it is of course the case that everything satisfies all the same open formulae as itself, this is, per Russell's insight, a weaker equivalence than '$a = b$'. For '$a = b$' means that a and b are the same thing, where 'the A-er satisfies exactly the same open formulae as the B-er' does not mean, nor even entail, that the A-er and the B-er are the same thing. It means no more than that 'the A-er' and 'the B-er' happen to describe the same thing, even in cases where the A-er and the B-er are, in fact, numerically identical. But the fact that two descriptions describe the same thing could be a coincidence — which makes this case completely unlike that of self-identity. The identity of identicals is a logical fact.

Two distinct things can be indiscernible with respect to the predicates of some language. As Ramsey said, it is always at least logically possible that indiscernibles are distinct [Ram31, p. 31]. No matter how numerous and precise the predicates are, they will never guarantee that whenever x and y satisfy exactly the same predicates and combinations of predicates, it is a logical fact that they are the same thing. For that to happen, conjoining

the regimented version of the sentence 'x and y are indiscernible' with '$x \neq y$' would have to be formally contradictory. But the only way this can be done is by fiat, where the identity predicate is defined away and replaced with Quine's serviceable facsimile, or where there are no directly referential expressions available. For the standard identity predicate, in a language with purely referential expressions (constants or variables), a contradiction can never be derived from the supposition that indiscernibles are distinct. It is true, as Quine says, that such distinctness cannot be expressed within the language in question. But that just amounts to an argument against his choice of canonical language, and in favour of one with constants.

This point was brought home forcefully by Ruth Barcan Marcus in her debate with Quine. It is mostly known for its modal dimension—necessary or contingent identity—but it can also be put in terms of whether these facts are empirically or logically based. According to Quine, the fact that identity holds between the Morning Star and the Evening Star, which are both identical with the planet Venus, is known to us because 'the discovery is empirical' [Qui53d, p. 197], and not through doing logic. Barcan Marcus counters that '[e]mpirical discoveries do not identity make' [Mar93b, p. 226]; the relation of identity holds between an object and itself as a matter of logic, whether or not we find out about it. Where there is a self-identical object, there is a single object. No circumstance, discoverable, or otherwise will ever make it two—sameness of thing is a logical fact. 'But', Barcan Marcus asks, 'does a mere concatenation of properties make an object?' [Mar90, p. 197]. The fact that two descriptions describe the same thing is *not* a logical fact, but an ideological fact.

Barcan Marcus calls '$a = b$' type statements 'valid' [Mar61, p. 10], and even tautological—though in the 1960s 'tautology' was often used as a synonym for 'logical truth' [Mar93b, p. 4]. Her argument is that if '$a = b$' is true, it is equivalent to '$a = a$'. The exact details of the argument are slightly murky. My interpretation is that she assumes exactly what Russell was said to assume above: that constants are purely objectual and encode no information, so only they or variables can flank the identity sign. I tentatively conclude that she infers that the empirical discovery is not the discovery that a is the same object as itself, but the metalinguistic information that both 'a' and 'b' are names of that object. An '$a = b$' statement serves to convey two kinds of equivalence. First of all, it shares with identity statements of the form '$a = a$' the feature that it communicates that the thing singled out by 'a' is self-identical. The '$a = b$' statement also conveys the additional information that this self-identical thing bears two distinct names, 'a' and 'b'. The metalinguistic statement, that 'a' and 'b' are names of the same thing, is entailed by the informative identity statement. But it is not the entire content of the statement, since *having the same name* is just a metalinguistic equivalence relation, not the object-language equivalence relation of identity.

It is beginning to appear as though Quine's decision to eliminate the grammatical category of proper names is not a non-partisan strategy. It represents proper names as being

reducible to mere descriptive vocabulary because of Quine's story about theory formation whereby vocabulary is either a logical operator or variable, or descriptive. This results in a problematic treatment of identity whereby some of the strength that in the home language we have come to expect from identity, namely that indiscernibles can be distinct, but identicals cannot, has been elided. Even though Quine admits that identity in the home language means sameness of thing [Qui60b, p. 118]; [Qui70, p. 63], he is unable to express sameness of thing in the regimented language, retaining only facsimile identity: sameness with respect to all predicates.

3.4 Identity

Quine's preference for facsimile identity is partly informed by his substitutional account of logical consequence and logical truth: predicates are not logical vocabulary because normally we can substitute any predicate for any other without changing the truth value of the logical truths. Identity on the usual interpretation—the relation everything has to itself and to no other thing, the relation which partitions the domain into singleton equivalence classes—would throw a spanner in the works, but it can be fitted neatly into the substitutional account if it is thought of as an abbreviation for exhaustive lists of combinations of predicates, that is, as indiscernibility from within the theory. But there is an epistemological dimension to his dislike for the standard interpretation of identity, too. Quine's requirement that every entity be subject to a criterion of identity applies to naming too. To assign a name to an object we use a description of it to single it out. Otherwise, we could never be in a position to identify the object we just named with some object encountered in a different theoretical context. Suppose we name a river by ostension [Qui50]. The bearer of that name will be subject to the criterion of identity for rivers, not those for collections of water particles or spatiotemporal zones. So the ostended object must first be described as a river. '[Ostention] leaves no ambiguity as to the object of reference if the word 'river' itself is already intelligible' [Qui80b, p. 67]. Later, when we seek to answer the question whether some observed flowing body of water deserves the same appellation as the subject of our ostension, it must be made apparent under what circumstances two observed entities count as *the same river*, i.e. are subject to the criterion of identity for rivers, or what Quine calls 'river kinship': 'the introduction of rivers as single entities, namely, processes or time-consuming objects, consists substantially in reading identity in place of river kinship. ... The imputation of identity is essential, here, to fixing the reference of the ostension.' [Qui80b, p. 66].

3.4.1 Identity and Extensionality

Quine does not deny that counting things that are indiscernible-according-to-the-theory as identical is a departure from the usual, and very natural, reading of the identity predicate as 'being the same thing'. Although in the early Quine, there are some remarks that appear to construe identity as a relation between names, e.g. '[o]ne of the fundamental principles governing identity is that of *substitutivity*—or, as it might well be called, that of indiscernibility of identicals' [Qui43a, p. 113], in *Word and Object* he insists that identity in the home language means no more and no less than sameness of thing [Qui60b, pp. 114–118]. He does not pretend that the meaning of the identity predicate (as opposed to its defined facsimile) does not go beyond indiscernibility. He simply thinks that reasons of theory choice dictate that indiscernibility according to our best theory, or 'identification of indiscernibles' [Qui50, p. 71], is the best we can do. Quine's system is self-consciously extensional.

3.4.2 Quine on Extensionality

A confirmed extensionalist [Qui94, Qui04a], Quine alleges that his extensionalism consists in admitting only referentially transparent contexts [Qui53d, p. 142]. He defines 'referentially transparent contexts' as those contexts in which co-referential expressions can always be substituted *salva veritate*. If that criterion is not fulfilled, the contexts belong to the obfuscatory theory of meaning, replete with horrors like analyticity, meaning, and necessity, rather than the scientifically respectable theory of reference [Qui53c]. He coins the term 'referentially opaque' for contexts that are not transparent.

The term 'referential transparency' is originally from *Principia Mathematica*. Russell and Whitehead call an occurrence referentially transparent iff nothing is said of it, but by means of it something is said of something else [WR64, Appendix C]. The *Principia* definition of transparency is concerned with occurrences, not contexts, and does not mention substitution. 'Nothing is said of it', where 'it' means the occurrence of the expression, implies that the occurrence is in the object language and is not used in any kind of metalinguistic way. It is used solely to denote something, or predicate something of something else, or form part of a denoting or predicative phrase, or part of the logical vocabulary. It is not used as a sign for itself, as in the autonymous conventions used in some metalanguages. Nor does its use in that occurrence in any way depend on either the form of the expression itself or the form of the sentence in which it occurs. This would suggest that opaque occurrences are in some sense concerned with the form of the expression and not necessarily with its denotation or connotation.

There is an ambiguity here: Whitehead and Russell use 'transparent' of *occurrences* of terms, whereas Quine usually speaks of transparent or opaque *contexts*. One kind of

opaque context is the quotation context. This flows naturally from the Russell-Whitehead definition: when an expression occurs in a quotation something is said about *it*: e.g. we can say "'Alva" is a girls' name', or "'Alva" has four letters'. In this case, we could reasonably call the occurrence of "'Alva"' opaque, since by means of it something is said about the expression 'Alva'. The reason to shift the use of the label to contexts depends on occurrences Quine calls 'not purely designative' [Qui43a, p. 114] (or (im)purely referential in [Qui53d]) occurrences, like that of the name 'Giorgione' in

(G) Giorgione is so-called because of his size.

Quine wants to invoke substitution again in this case. Giorgione may also be referred to by his last name, 'Barbarelli'. Everything that can truly be said using 'Giorgione' must be true if we substitute 'Barbarelli' for 'Giorgione'. But Barbarelli is not so-called because of his size, so (G) becomes false upon substitution of some co-referential terms. The occurrence of 'Giorgione' in (G) singles out an individual, so it is referential. What is said of that individual, though, depends for its truth not only on the individual but also on the form of the name. In this context, the occurrence fulfills two roles: something is said of it, and by means of it something is said of something else too.

Fine [Fin05] contests Quine's right to call the occurrence of 'Giorgione' in (G) impurely referential. He puts forward the objection that in the exchange:

A: 'Giorgione is a sculptor.'
B: 'Yes, and he is so-called because of his size.'

the occurrence of 'Giorgione' in *A*'s statement is purely referential. The analogue of (G) is *B*'s utterance. But that particular sentence cannot become false upon substitution of co-referential terms, because it does not contain the word 'Giorgione'. Perhaps this is correct as a criticism of Quine. Certainly Fine is right that there is no impurely referential occurrence within the opaque context, if the opaque context is *B*'s utterance, and it seems hard to argue that the opaque context is *A*'s. But I think the problem can be dissolved if what is thought of as opaque is fully determinate contexts, something achieved by the earlier stages of regimentation. Languages that are not fully regimented but adopt some of the features of formal languages can disambiguate *B*'s utterance so it can be shown equivalent to one that contains an occurrence of 'Giorgione'. One option would be to use Quinean eternal sentences. *B*'s sentence could be translated as 'Giorgione is a sculptor, and Giorgione is called "Giorgione" because of his size', which has a metalinguistic component. The predicate 'x is so-called because of x's size' can be expanded to 'x is called n because of x's size' where 'x' is replaced with an expression and 'n' is replaced with a quotation name for that expression. This formulation is, I think, theory of reference-appropriate, but is clearly not in the object language, and cannot be formulated as a transparent object-

language sentence. It can be semi-regimented, but it can be fully regimented only in a language which contains semantic vocabulary for the object language.

Quotation contexts meet Quine's definition of opacity, perhaps with the additional stipulation that it should be restricted to eternal sentences. It also seems to accord with Whitehead and Russell's definition of transparency, assuming they are happy to define opaque occurrences as those which are not transparent, and with the caveat that it applies to fully determinate (perhaps semi-formalised) sentences. Transparency vs. opacity in Russell and Whitehead's sense is harder to square with such better-known Quinean paradigms of opacity as modal contexts and propositional attitude ascriptions. If Tom knows Marcus Tullius Cicero only as 'Cicero', and is unaware that he is also called 'Tully', substituting 'Tully' for 'Cicero' in 'Tom believes that Cicero denounced Catiline' yields a falsehood [Qui60b, p. 166]. If the that-clause is interpreted propositionally, it can be taken as referring to a proposition. That is difficult to square with either interpretation of transparency, substitutional or grammatical. Propositions, after all, are abstract objects; they are not, like sentences, objects composed of expressions. But the option of calling this a context in which something is said about an expression is open to Quine, who believes propositions to be dispensable. The real logical form of 'Tom believes that Cicero denounced Catiline' is 'Tom believes the sentence "Cicero denounced Catiline"' [Qui70, p. 14]. Similarly, Quine believes, at least until the late '60s, that modal sentences should be translated in terms of analyticity [Qui43a, p. 120]. He claims that '$\Box p$' can only be given some semblance of sense by translating it in terms of analyticity. Because 'is analytic', unlike '$\Box$', is a predicate, the translation cannot simply proceed along the lines of '"$\Box p$" is true iff p is analytic' since 'p is analytic' is ill-formed: it has a sentence letter in a position where a singular term should go. Instead, '$\Box p$' should be rendered as an instance of the schema 'x is analytic' where 'x' is replaced with a quotation-name of the sentence substituted for 'p' in '$\Box p$'. He believes that the sentence letter in '$\Box p$' can be shown in this way to be merely equivalent to a claim about sentences—though a dubiously coherent claim, relying on analyticity. So it meets the Whitehead-Russell definition on relying on the form of the expression.

3.4.3 Barcan Marcus on Extensionality

Another option is to take Barcan Marcus' definition of extensionality. She aims to precisify extensionality by characterising it in terms of the strength of equivalence relations. Firstly, there is no sharp bifurcation between extensionality and intensionality. She defines extensional systems as those which equate the identity predicate with a weaker equivalence relation [Mar60], [Mar61]. Her conception of extensionality entails that extensionality comes in degrees. The weaker the equivalence relation a system uses in place of identity, the more strongly extensional it is.

There are two kinds of extensionalising principles: implicit and explicit. Explicit exten-

sionality principles are stated in the object language or in the metalanguage. The general form of an explicit extensionalising principle is

(EEP) x eq $y \rightarrow xIy$

where 'eq' stands for some equivalence relation weaker than identity, 'I' stands for identity, '$\rightarrow$' is a conditional that is part of the language or a metalinguistic conditional, and 'x' and 'y' go proxy for names of things [Mar61, p. 7]. (To avoid prejudicing the debate, read 'directly referential singular terms' for 'names'.) An implicit extensionalising principle holds for a language without being explicitly stated in it. Instead, it forms part of its governing logic or grammar, which entails that the language cannot express fully-fledged identity, but only some weaker equivalence, like indiscernibility. Implicit extensionalising principles can be brought to light, for instance, by the substitution theorems of a language [Mar61, p. 15].

Suppose a theory is conceived of in Quine's way, as a set of sentences closed under consequence. Barcan Marcus' characterisation of extensionality can then be used to explain opacity. Opaque contexts have a metalinguistic element, broadly conceived to include quotation contexts, impure reference and attitudinatives. Intensional contexts sometimes call for metalinguistic, rather than object-language, equivalence relations. Of course, for ontological purposes, the only relevant equivalences are those between objects, in the object language. Asking for sameness with respect to all metalinguistic predicates as well as object language predicates is legitimate for some epistemological purposes. Quine's hapless Tom, ignorant of Cicero's *nomen gentile*, reasons correctly when he fails to infer from Cicero's having denounced Catiline to Tully's having done so. It would be irrational for him to resist this inference, though, if he were aware of Cicero's full name. So for knowledge ascription contexts it can be appropriate to demand metalinguistic sameness in addition to numerical identity. But the object language suffices for ontological pursuits. The sentence 'Cicero exists' is true or false whether we call him Cicero or Tully.

Barcan Marcus' approach appears to capture well what Quine is doing in [Qui50]. His insistence on identifiability ('reading identity in place of river kinship') looks like an explicit extensionalising principle, where criteria of identity for rivers in general and facts about the spatiotemporal arrangement of the original object of ostension jointly determine under what conditions the object observed at t_{n+m} can be called the same as the object named at t_n: 'the introduction of rivers as single entities, namely, processes or time-consuming objects, consists substantially in reading identity in place of river kinship ... The imputation of identity is essential, here, to fixing the reference of the ostension' [Qui50, p. 66]. But because of his conception of positing as putting a variable on the intersection of overlapping observations, Quine not only maintains that extensionality holds for his own theories, but that all theories should conform to it.

3.5 Objects, Committing Expressions and Epistemology

3.5.1 Global Holism and Indirect Access to Objects

Quine's criterion implies that all objects are subject to indiscernibility according to the predicates of the theory. Beyond the use of predicates, there is no theoretical apparatus available to distinguish them from each other. Hypostatising a posit on the intersection of observations in the first place is a significant theoretical imposition for Quine, let alone a single self-identical thing persisting through time or being identified in different contexts. Positing is an explanatory tactic to make our evidence more fine-grained, to give our theories more expressive power and more explanatory potential. Any particular posit may be dispensable; to decide whether the existence of something is really a consequence of the theory, the entire wealth of theoretical resources it provides must be invoked. Criteria of identity gleaned from a complete theory are a key component of such decisions:

> Our venerable theory of the persistence and recurrence of bodies is characteristic of the use of reification in integrating our system of the world. If I were to try to decide whether the penny now in my pocket is the one that was there last week, or just another one like it, I would have to explore quite varied aspects of my overall scheme of things, so as to reconstruct the simplest, most plausible account of my interim movements, costumes, and expenditures. [Qui92, p. 24]

Any pair of things that cannot be distinguished by the predicates of some theory count as the same posit according to that theory. Adherents of the theory are compelled to view it as the same object *tout court*. Whatever name one bears, the other must bear too. Whatever can be truly said using one of the names must remain true if we substitute the other name. That is the reason only sentences in which substitutability *salva veritate* always holds can be admitted into a theory. But Quine's extensionalised facsimile of the identity relation also yields the result that names never rise above the level of descriptions: since they are relative to a criterion of identity, they must encode exactly as much information as the descriptive criterion of identity provides. The application of the name is subject to its bearer's satisfying the description prescribed by the criterion of identity. There are no non-descriptive resources available to distinguish them in any other way. There are no proper names or first-personal devices, only observations and the foci of their intersections. Quine's attempt to dispense with proper names in the regimented language amounts to shoehorning names into the ideology. Dispensing with names in favour of predicates has the consequence of dispensing with the usual reading of the identity predicate: sameness of thing. Quine substitutes a weaker equivalence relation: sameness with respect to all the predicates of the theory.

These reflections provide evidence for supposing that his preference for a logic without constants is anchored in his holist epistemology. Global holism implies that thought reaches

out to objects, not directly, but always via the medium of a complete theory. Knowledge of objects is not achieved by touching upon the objects themselves, but by considering their place within the theory. Any posit we admit is only there because it has been put forward, tentatively, as the best explanation for a persistent overlap in observations. Any one posit is always dispensable. Perhaps, upon consideration, we decide that some other focus of overlapping observations is the one which deserves an explanatory entity, or the posit in question is paraphrased away. But to dispense with a posit, we always consider the theory as a whole: the entity must not be needed by any part of it. Similarly, identifying one object with another requires a wealth of theoretical resources to be brought to bear. To be able to assert that two posits are the same, we must first investigate what kinds of things they are, what it takes for those kinds of things to persist, to be observed again, etcetera.

There is a prima facie problem with Quine's tendency to assimilate proper names to the ideology, as the ideology is the inherently descriptive part of the theory, derived from the observation sentences. Since they are, for him, derived from devices used to record observations, they are inherently descriptive. But that only follows if we assume his holist epistemology. It is not mandated by the very form of logical syntax. There are coherent theories of names on which they are *non*-descriptive, as in Mill's [Mil84], Barcan Marcus' [Mar61] or Kripke's [Kri80] work, for example. It is at least theoretically possible to single out a thing without describing it, using an expression that denotes it without the intervention of some (attempted) description of its nature or some predicate it satisfies. So why should logical grammar stand in the way of this being expressed?

3.5.2 Alternative Epistemologies and The Possibility of Direct Access to Objects

On the opposite end of the epistemological spectrum from global holism is foundationalism. A special kind of foundationalism is the doctrine that our minds can reach out to objects and grasp them directly, without need for an intervening theory. Knowledge of objects, on this view, need not be inferred from anything; the objects themselves are encounterable without intermediary. Direct, unmediated epistemic access to objects is sometimes called 'acquaintance' after Russell [Rus10], who held that acquaintance with an object entails no propositional knowledge of it. Knowing an object by acquaintance is achieved through an act of direct contact with an individual, where the mind reaches out to an object directly, without intermediary. Russell concluded that it carries no propositional information in its wake, because this kind of contact with an object is not achieved with the aid of knowledge of any of its characteristics, unlike knowledge by description. The linguistic expressions which codify direct access to objects are directly referential expressions. Their semantic role is to single out an object, without conveying anything about what is true

of that object. They are purely objectual expressions. The semantic role represents an act of direct contact with an individual: the mind reaches out to it immediately, without the need for any descriptive vocabulary to single out the object. It follows that directly referential expressions have no lexical meanings. They have referents, but they do not have any descriptive meaning, conveying no information about their referents' natures. There is nothing to the meaning of a directly referential expression except the bearer it denotes. This concerns only the issue of how to incorporate directly referential expressions into the language of regimentation, and is not a thesis about natural-language proper names.[4] The ontological point of direct reference is to allow us to commit to an individual without relying on the ideology.

The view that is diametrically opposed to Quine's would be a strict object-foundationalism, according to which the only kind of contact we have with objects is direct, never indirect. Such a position would come with a language of regimentation in which *only* constants, purely objectual directly referential expressions, are committing, each recording in language a cognitive act of direct contact with an individual. Those constants are the formal equivalent of Mill's directly referential names, which convey no information [Mil84]. Additionally, in an object-foundationalist epistemology names not only reveal nothing about, but are also assigned completely independently of, their bearers' natures. A complementary theory of naming would be the causal theory adumbrated in Kripke's work [Kri80] and further worked out by Putnam, [Put82, ch.1], Evans [Eva73] and Donnellan [Don74] among others. An advocate of object-foundationalism could hold on to much of the realist philosophy of logic that I have been charting throughout these chapters. In particular, they could defend the impartiality of logic by maintaining, against Quine, that constants help separate the ontology from the ideology just as much as variables do (also see section 4.3.2 below). Constants resemble variables in denoting the object only insofar as it is a being in the domain, without discriminating on the basis of anything that can be said about it in the ideology. Since no ideological resources are encoded in the meanings of constants, they are neutral with respect to the predicates of the theory. So the foundationalist language of regimentation upholds logical impartiality.

Perhaps an acquaintance-only epistemology is rather limiting (though some do defend it, see for example 3.5.4 below), and Russell's doctrine of knowledge without information may seem unattractive. Nevertheless, it is at least logically coherent, so a logical grammar that refuses to represent it at all will not do. Also, there is at least one limited but philosophically interesting class of entities where something like the doctrine of acquaintance without

[4]In natural language, the boundary between direct reference and definite descriptions is a little more fluid and harder to read off the surface structure of sentences. Some expressions that function semantically like names have the surface form of definite descriptions: 'The Evening Star' names a planet, 'The Iron Lady', a woman of flesh and blood, 'The Holy Roman Empire', something neither holy, nor Roman, nor an empire. Some expressions that look like proper names are used attributively or predicatively: 'Margaret is no Bismarck', 'There are two Jennifers in the group'.

information applies: mental entities, selves and mental states, whose defining characteristic is often said to be just the fact that we do know them first-personally, by privileged access. So it still seems advisable to have some way of representing direct access to objects in language.

There are intermediate attitudes towards objects available, too. If there are object-holists and object-foundationalists, there is also the equivalent of Haack's foundherentism [Haa00]. A hybrid criterion of commitment would have it that both constants and variables are committing, because both acquaintance and description are legitimate ways for thought to reach out to an object. Those who admit only acquaintance or only description must think that every object is accessed in the same way. The hybrid ontologist, though, has a choice: she may think that some objects are accessed directly—mental states, perhaps—some only by description—maybe mathematical objects such as numbers. Alternatively, she might maintain that all objects are accessed using descriptive methods in combination with direct access. The option of believing in all three kinds of access is also open to her: some kinds of objects are accessed only directly, like mental states, some only indirectly, like numbers, some by a combination of methods. A potential example of combined access is our access to middle-sized physical objects, which arguably involves both a descriptive criterion for limning the boundaries of an ordinary physical object in space-time, furnished by the predicates, plus ostensive methods for indicating the object, in order to give it a name.

Does the combined mode of access reduce names to the ideology again, as in Quine's argument that names for rivers are subject to criteria of identity? It need not. Such inherently descriptive names would not be purely objectual expressions. Impurely objectual committing expressions are in principle coherent, I think, but for present purposes I will leave them out of account. Because they contain information, they discriminate according to ideological category. As a result they compromise the separation between ontological and ideological vocabulary. To deny this separation calls into question the stronger version of the impartiality of logic. The hybrid ontologist can maintain a system with two kinds of purely objectual expressions, constants and variables, even though she allows some co-operation between the two for the combined mode of access. This is because a direct *reference* requirement does not entail having to hold a direct theory of *naming*. The former says only that the meaning of the name is completely non-descriptive. For the latter, the name must also be *assigned* without ideological intermediary. This restricts the methods of assigning names to referents to ostension, causal naming and the like. But hybrid ontologists can coherently believe that names might be assigned using a description, say, when a parent-to-be asserts 'my first baby will be called Chris'. Descriptive assignment does not entail that the name retains the *meaning* of that description if names, once assigned, refer to their bearer independently of their satisfying the original description. Let us call this property of names 'Dartmouth-invariance' after Mill [Mil84, p. 20]. Once little Chris is born, his or her name will not change even if it turns out babies were switched at the

hospital, and Chris is not the biological child of the parent who uttered the description at all. Since 'Chris' is Dartmouth-invariant, the name has no descriptive meaning, and can potentially be rendered into the language of regimentation as a purely objectual expression. Commitment to Chris, after all, we have found, need not depend on any describable feature of Chris, and can persist even though all the propositional knowledge we think we have of Chris might be falsified.

3.5.3 Translating Directly Committing Expressions Into Canonical Notation

Quine proposed his criterion of ontological commitment in an irenic spirit. He claimed to demystify ontological disputes by ascending to the metalanguage to describe rival ontologies in terms of what values their committing expressions (the variables) take. Disputants can confront the existence questions over which they differ by talking about words, which they both believe in. But in insisting on translation into an idiom that reflects his own epistemology, he risks having non-holist parties to the debate being forced to talk past each other still. Going metalinguistic means the warring factions can avoid stating which objects they each refer to, and then trying to assess which among those objects really exist. That strategy would have the disadvantage of apparently making reference to non-existent objects, and leaves the disputants talking past each other in the object language [Qui48, p. 21]. In ascending to the metalanguage, what is done away with in particular is the assumption that any purported use of a name *trivially* entails a commitment to a bearer.[5] It may not commit at all, because it can be coherently denied that the name-like phrase is a name if it fails to denote [Qui51a, p. 67]. But the fact that some name-like expressions fail to be names does not warrant the inference that nothing is ever a name, or that names can always be paraphrased away. The problem is not with directly referential expressions, but with the assumption that there are trivial existential consequences. Allowing directly referential committing expressions does not entail that it is trivial that names have referents, because it is coherent to translate an apparently name-like expression into the language of regimentation as a description, or eliminate it, refusing to translate it at all, if it does not fulfil the specific function of committing to an object directly. Quine's canonical language does not admit of direct access being modelled at all; it effectively builds epistemological holism into the very syntax of logic. That constraint is too strong.

Consider the Cartesian *cogito*. Recall that included under the rubric of directly referential expressions are not only those which bear close resemblance to natural language names, but any expression whose semantic role is to denote directly. If direct access to an object is possible, one such object may be the self, denoted by words such as 'I'. Acquaintance with

[5] Quine still asserts that ontology is trivial to the conceptual scheme in [Qui48, p. 29], but drops this vestige of Carnapianism in his response to Carnap [Qui51a].

the self is possible, if there is a self, or (more modestly) introspective contact with a present mental state. Quine has great trouble accounting for such things. Although his language of regimentation begins with observations, none of these observations are introspective, and the observer is never clearly in the picture; his language is entirely third-personal. Descartes' epistemic position in the second Meditation is diametrically opposed to Quine's, since Descartes endeavours to doubt all observations and treats third-personal statements with suspicion. Despite that, he appears not only to aim, but to succeed, in committing to something.

> 'But I had the persuasion that there was absolutely nothing in the world, that there was no sky and no earth, neither minds nor bodies; was I not, therefore, at the same time, persuaded that I did not exist? Far from it; I assuredly existed, since I was persuaded. But there is I know not what being, who is possessed at once of the highest power and the deepest cunning, who is constantly employing all his ingenuity in deceiving me. Doubtless, then, I exist, since I am deceived; and, let him deceive me as he may, he can never bring it about that I am nothing, so long as I shall be conscious that I am something. So that it must, *in fine*, be maintained, all things being maturely and carefully considered, that this proposition (pronunciatum) *I am, I exist*, is necessarily true each time it is expressed by me, or conceived in my mind. [Des01, Med. 2 sec. 3].

The *cogito* is only effective in the first person. Descartes invites the reader to follow his method of doubt to the very end, where the thinker him- or herself concludes, in the first person, that '*I am, I exist*, is necessarily true each time it is expressed by me'. 'I assuredly existed, since I was persuaded' and 'I exist, since I am deceived' might suggest that the *cogito* is an inference. But it is perhaps more instructive to read Descartes' '*I am, I exist*, is necessarily true each time it is expressed by me, or conceived in my mind' as saying that all assertions, mental or verbal, of 'I exist' are ('necessarily') guaranteed to be true when they are uttered, because the negations of such assertions ('I do not exist') are self-stultifying and must obviously be false.[6] That the referent of the first-person pronoun must exist cannot be coherently denied. The first person is essential to his argument, because the negations of third-personal renderings like 'Descartes is' or 'René exists' are in no way self-stultifying. The first-personal logical form, and the introspective aspect, are integral to the point of the argument, and attempting to translate it into Quine's third-personal language of regimentation would mangle the logical form of the original beyond

[6] E.g. see [Hin62, Hin00]. I read Hintikka's 'le locuteur ne réussira qu'à démontrer le contraire de ce qu'il asserte' as 'the speaker only manages to show the contradictory of what he asserts', rather than 'the contrary'. I would opt for this translation, i.e. as though it said 'contradictoire' instead of 'contraire', in part because 'contraire' is a much more commonly used French word than 'contradictoire' and is often used to mean 'contradictory', but mostly because the argument that p must (necessarily) be true because its contrary, q, must be false does not go through. Contraries cannot both be true, but they can both be false. The argument only works for contradictories, which must have opposite truth values.

recognition. Descartes' hard-to-resist argument that since the negation of 'I exist' is self-stultifying, there must be *something*, cannot be given a remotely valid form in Quine's preferred logical idiom.

My point is not that we should accept the *cogito* as it stands, but only that it is both logically coherent and committing. It remains committing even when the objection is raised that Descartes is not entitled to '*cogito*', but only to '*cogitatur*'; even though there may be no self, any occurrence of a mental content like 'no mental states are presently occurring' is equally self-stultifying, and leads ineluctably to the conclusion that there is something. The statement that there are some things that McX has epistemic access to but that do not exist is a good candidate for being logically incoherent [Qui48, p. 22], but the statement that I can tell that I exist because I am thinking is not. Another example of introspective commitment is to be found in Berkeley [Ber68], who contends that although he is directly acquainted with his ideas, he has no knowledge of Locke's abstract triangle which is supposed to be 'neither oblique, nor rectangle, neither equilateral, equicrural, nor scalenon, but all and none of these at once' [Loc75, p. 596]. Even if Descartes' or Berkeley's arguments are flawed, they are not illogical. If there is no way in principle of capturing and modelling a cognitive act of direct access in the language of regimentation, holists and direct access theorists still risk talking past each other. Even those whose personal epistemology rules out the possibility of direct contact should admit that other philosophers use it. Opponents of direct contact will consider these philosophers' theories false, but not meaningless or intrinsically incoherent. Yet Quine's language of regimentation can only ever model contact with objects via a third-personal description, because variables, connoting merely that an object is present, not which object it is, are the only committing expressions. An obvious extension of the canonical notation of first-order logic is to admit individual constants as well as variables as potential committing expressions. Which of these a philosopher then helps herself to is a matter of her epistemology, not logical syntax.

3.5.4 Alternative Criteria of Commitment

Barcan Marcus

Ruth Barcan Marcus' epistemology is radically opposed to Quine's: foundationalist and grounded in the assumption that the main kind of access we have to objects is direct access. She views her acquaintance-based epistemology as a natural match for her nominalism [Mar78]. Her philosophy of logic reflects this. She avers that every language needs some nameable entities, some 'constant objects of reference' [Mar61, p. 304].

Her epistemology of encounterable individuals, capable of being grasped directly by us and assigned a name, seems to come with a markedly thicker notion of objecthood than that which comes with the holist picture of posits. The objects of acquaintance are there for us

to bump into and speak of independently of any prior theory. Posits which are tentatively marked out on the map of intersecting observations betray a thinner sense of objecthood. The objects are only there at the mercy of the theory, dependent on its intersections being just there, potentially dispensed with altogether. Barcan Marcus' independently encounterable objects comprise the fundament of her theory; it is hard to see how they could be dispensed with.

There is a clear connection between identity and singular reference in her system. If an expression functions as a genuine name for a thing, anything it names must be identical with that thing. Unlike Quine, she holds that identity is primitive. Recall that Barcan Marcus orders systems by the relative strength of equivalence relations that can be expressed within them. The strongest equivalence relation is numerical identity, sameness of thing; all other, weaker ones express sameness in some respect, a sameness of kind (in a broad sense of 'kind'). For a coherent statement of identity, we need the expressions that flank the identity sign to designate the object directly. Descriptive phrases do not qualify, because they pick out the object by means of some of its qualities, and only serve to express qualitative, not quantitative, identity.

Barcan Marcus accordingly claims that there is a need for directly referential names, devoid of lexical meaning, known as tags. Tags are purely objectual, not relative to a criterion of identity. If a name embodied a criterion of identity, as Quine would have it, such names could not rise above the level of descriptions with respect to the Russell's Thesis on the strength of equivalence relations we identified earlier: that only tags and variables can be concatenated with the identity sign. So proper names are useful to express the difference between numerical and quantitative sameness because they are purely objectual. 'Proper names have a logically irreducible use. They permit us to entertain a separation in language of the object under discussion from its properties' [Mar93a, p. 107].

Tags are not only directly referential and purely objectual, but are also capable of being assigned independently of any descriptive vocabulary. 'But to assign a thing a proper name is different from giving a unique description. For suppose we took an inventory of all the entities countenanced as things by a some particular culture through its own language ... suppose we randomised as many whole numbers as we needed for a one-to-one correspondence, and thereby tagged each thing. This identifying tag ... a proper name, has no meaning. It simply tags' [Mar61, pp. 309-310]. Although in her later work, Barcan Marcus endorses the causal theory of naming [Mar78, p. 120]; [Mar93a, pp. 107-108]; [Mar85, pp. 203-204], this earlier view, which says that the giving of names to objects is direct and unmediated, and that such an assignment is like a functional mapping, is at least as interesting. It is broader than the causal theory. Causal assignment is just one form of assignment, one option out of many. Tags also enshrine in language our minds' capacity to reach out to an object without the use of ideology. 'Proper names ... may be used to capture and institutionalize and act of ostension' [Mar78, p. 120].

We noted at the beginning of this chapter that intuitively speaking, the ontologically committing expressions in the theory appear to include both reference by means of proper names—mentioning things by name—and existence claims—quantifying-over. Quine thinks that despite appearances, there is no difference in logical form between them. According to him the former can be paraphrased away, reduced to the latter: their regimented form is just '$\exists xFx$'. Barcan Marcus expresses puzzlement at Quine's decision to let variables 'bear the burden of reference' [Mar78, p. 121]. 'There are alternative analyses for locating references in an interpreted language. Names and their relation to nameable objects constitute one such alternative. The burden of reference is shifted back univocally to the name relation' [Mar78, p. 121]. For her, directly referential tags are the only ontologically committing expressions. Her criterion can be summed up as 'to be is to be the referent of a tag'. But what about existence claims? Aren't they committing, too? Barcan Marcus holds that quantifiers, despite appearances, are actually devoid of commitment. She combines her tag theory of reference with an account of quantification on which variables are relieved of the burden of reference. She brings about her own reduction of one purported type of committing expressions to another, the reverse of Quine's: quantifiers are reduced to names. Her interpretation of the quantifiers is substitutional: their truth is explained in terms of their substitution instances. Variables are not by themselves committing, because they do not have values. Variables are placeholders for substituends. Their instances reveal the presence of an object only where the expressions to be substituted for the variables are tags. She believes substitutional quantification to be more compatible with nominalism and a better rendition of many of our ordinary-language statements: 'There are, even in ordinary use, quantifier phrases that seem to be ontologically more neutral, as in: "It is sometimes the case that species and kinds are, in the course of evolution, extinguished". It does not seem to me that the presence there of a quantifier *forces* an ontology of kinds or species. If the case is to be made for reference of kind terms, it would have to be made, as for proper names, independently. Translation into a substitutional language does not force the ontology. Such usage remains, literally and until the case for reference can be made, a *façon de parler*.' [Mar78, p. 122].

A Barcanian language of regimentation, to go with the criterion of commitment 'to be is to be the referent of a tag' might proceed along the lines sketched in [DB68]. Its lexicon would at minimum contain a finite or denumerable set of constants, a finite or denumerable set of predicates, a denumerable set of variables, the usual truth-functional operators (for instance, '$\neg$' and '$\wedge$'), the quantifiers ('$\forall$', '$\exists$'), and an identity predicate. There would also be a category of singular terms that are not constants, never employed as tags. Barcan Marcus allows for lexical items like modal operators, second-order variables, or set-theoretic vocabulary, none of which are ontologically committing [Mar72]. The standard syntax applies, but it must stipulate that only constants or variables can flank the identity sign—the non-tag singular terms can be concatenated with other predicates, but not identity. Its interpretation maps the constants to the individuals of a domain, where every constant is

a tag: each is assigned to an element and each element has a name. The function may be one-one [Mar93b, pp. 11–12], but need not be. Atomic sentences consisting of predicates plus tags are true when the bearers of the tags satisfy the predicate, false otherwise. All atomic sentences of the form '$a = a$' are true. Those of the form '$a = b$' are true iff the bearer of 'a' is the same individual as the bearer of 'b', false otherwise. All other atomic sentences, including those with non-tag singular terms, are assigned truth values by the interpretation. All connectives as well as the substitutional quantifiers can be assigned true or false in terms of truth alone: '$\neg p$' is true iff 'p' is false, '$p \wedge q$' is true iff 'p' is true and 'q' is true, and '$\forall xFx$' is true iff 'Ft' is true for all terms 't'; '$\exists xFx$' is true iff 'Ft' is true for at least one term 't' [DB68]. All substitution instances which contain non-tag singular terms as substituends (for Barcan Marcus, this would include fictional terms, higher-order terms, and terms for mere possibilia, for example) will have been assigned truth values by the interpretation quite independently of any ontological considerations, and have no bearing on the ontology. What, then, is the theory's ontology? All and only the things it makes direct reference to, i.e. all the referents of its tags. The quantifiers are ontologically inert.

Barcan Marcus' arguments for the committing nature of directly referential expressions and the strength of equivalence relations are strong, and to a large extent shared by many philosophers, judging by the favourable reception of Kripke's development of some of her ideas [Kri80]. Her reduction of quantification to reference plus truth-functionality is ingenious, but less compelling. Substitutional quantification, as we saw in 2.1.4, reduces to the atomic: quantified phrases are just lists of substitution instances. But lists, and proper names as modelled in standard first-order syntax, must be enumerable. The list of commitments of a Barcanian language is composed of the referents of its tags. So a substitutional language can never arrive at a 'domain of discourse' (in scare-quotes; really the set of referents of tag-substituends) with a nonenumerable cardinality. Barcan Marcus' staunch nominalism leaves her unmoved by this objection [Mar93b, p. 27], [Mar78, p. 124]. Haack makes the additional argument in support of Barcan Marcus that the Lowenheim-Skolem theorem shows that substitutionalist models are no worse off than objectualist models [Haa74]. But philosophers who would resist having their ontology forcibly capped in this way are pushed towards the objectual interpretation of the quantifiers.

Russell

Russell's position on existence and contact with objects counts as a precursor of a hybrid view of ontological commitment, with both directly referential and pronominal committing expressions. He endorses the idea that it is possible to commit both by acquaintance and by description [Rus10, Rus12]. We already considered the theory of descriptions as a forerunner of Quine's attempts to explain away ontological-sounding nonsense attributed to Meinong. Russell's directly referential expressions are all indexicals or demonstratives. He

describes 'this' and 'that' as 'logically proper names'; when he believed in the self, prior to [Rus19] he also counted the word 'I' as a directly referential committing expression [Rus12]. These expressions enshrine in language the commitment that comes with acquaintance. Proper names in the modern sense are not directly referential expressions for him. They are to be analysed away as disguised definite descriptions.

There are some considerations that militate against ascribing the hybrid view in its entirety to the historical Russell. It is a little anachronistic to think of the early Russell as having an objectual quantifier, which relies on Tarskian notions of satisfaction dating from the 1930s [Tar56a]. Barcan Marcus contests the idea that Russell's quantifier was a precursor of Tarski's, claiming the *Principia* quantifier as substitutional in spirit because it is glossed as 'always true/sometimes true' [Mar93b, p. 9]. Sainsbury also argues that the higher-order quantifiers of *Principia Mathematica* are plausibly read as substitutional [Sai79, pp. 287-295]. So it is not obvious that Russell has a language of regimentation in precisely the sense that we are interested in for present purposes. Similarly, there is something anachronistic about ascribing a criterion of ontological commitment to Russell. His theory of descriptions can lay some claim to being a Quinean precursor, as it explains when the underlying logical form of a sentence does or does not demand a corresponding entity. Russell certainly uses it to dispel Meinongian confusions, just as Quine wants to do [Rus05, Qui48]. He also speaks of the task of philosophical analysis as breaking everything down to the level of the things that cannot be dispensed with, and must therefore be believed to be the real existents [Rus86]. His views, though, tend in a more foundationalist direction than Quine's; they do not include the supposition that all objects are potentially dispensable, only composite objects.

Russell makes strides towards a coherent, universal philosophical language which explains dispensability in terms of the notion of an incomplete symbol in [Rus05], and has metaphysical considerations in mind when proposing the hierarchical language of [Rus67b]. He believes it to be philosophically sound because it avoids his eponymous paradox for properties and sets, as well as the semantic paradoxes. Still, it is not clear on that basis that Russell has a language of regimentation in precisely the sense that we have been assuming here. Ramified type theory includes variables of higher order types, not just first-order variables. Higher-order typed variables are apparently pronominal, but are they committing? Quine contests this, thinking Russell mistakenly takes predicates to be the values of higher-order variables [Qui70, p. 66]. Whether or not Quine's interpretation is correct, there is another more philosophically salient concern. We saw in sections 1.4 and 1.5 that higher-order variables which have sets or properties as their values compromise the strong impartiality of logic. The standard interpretation of higher-order variables as having sets of properties as values demands that the values satisfy determinate predicates: 'x is a set' or 'x is a property'. So higher-order variables are not purely objectual expressions since they encode the information that their values are sets or properties. First-order variables in the sense that traditional Quinean commitment calls for are thought of as ranging

over objects completely independently of those objects' natures, preserving what I have called a 'division of labour' between ontological vocabulary, denoting objects, and ideological vocabulary, ascribing natures to those objects. So commitment to sets or properties would proceed via a first-order existentially quantified statement '$\exists x(x$ is a set)' '$\exists x(x$ is a property)', the logical form of which makes it clear that the value of the variable is an object, posited *qua* set or property as laid out by the ideology. But standardly interpreted higher-order variables, by contrast, themselves encode ideological information: the form of the *variables* suggests that their values must be of a particular ideological kind. Assuming they are logical vocabulary, this interpretation assigns to logic the task of sorting things according to their ideological characteristics, and therefore goes against impartiality. We will return to this issue in section 5.3 below. For the time being, though, ramified type theory cannot really be counted as a legitimate language of regimentation under the constraints I have laid out. Still, that is not to say that some philosophy of logic consistent with Russell's views could not be formulated by some other commitmentphile, using a mitigated version of impartiality.

3.6 Expanding the Language of Regimentation

Intuitively speaking, both existence claims and direct reference seem to have committing force. Both the pronouns in existence claims and directly referential expressions are objectual expressions, having the semantic role of singling out an individual. To sum up the findings of this chapter, we found that it would be convenient to expand the language of regimentation to include at least first-order resources with individual constants in order to accommodate the intuitively committing force of direct reference. They are especially useful for philosophers for whom objects need not be, as Quine's account of ontological commitment would have it, hypostatised on the intersections of observations, but encounterable directly. Ontological questions arise for philosophers of all epistemological persuasions, including foundationalists or foundherentists who believe in direct contact with objects, via such methods as acquaintance or introspection, as well as holists like Quine. But Quine's criterion of ontological commitment is deeply entrenched in his epistemology of global holism, and does not allow for direct access to objects to be modelled in the language of regimentation at all, since he provides no way to commit by direct reference using Millian names or words such as 'I', 'this', or 'that'.

We should seek to liberate ontological commitment from these built-in epistemic constraints, using an epistemologically neutral language of regimentation that does not rule out direct access by grammatical fiat. Quine's criterion has its good points: a univocal conception of *being* and a way to explicate interdependence between ontological categories are useful tools for philosophers whatever their epistemological convictions. All this part of the account needs is a theory translated into a formal language and closed under con-

sequence. Non-holists can avail themselves of first-order regimentation, adding individual constants to represent the parts of language that record instances of direct contact with individuals. Of course, to allow constants in the syntax does not mean to mandate their use; perhaps, as a matter of *a posteriori* discovery, the ontologist encounters no direct contact with anything. But a language of regimentation which has the option of translating someone as committing to objects directly is preferable to a Quinean one on which such attempts at direct commitment are simply ungrammatical. Alternative accounts of commitment, after all, have been formulated already—most clearly by Barcan Marcus, who takes a foundationalist line, but Russell can also be read as a forerunner of a foundherentist approach, where some objects are posited by means of descriptions, and others are subject to direct commitment. So it is possible to encounter two philosophers, Andrea and Betty, who differ over the existence of certain entities, one using direct commitment, the other only indirect commitment. In such a case, both philosophers are describing their own views coherently. Quine was concerned to show that it is perfectly possible to differ coherently over ontology, semantic ascent revealing who endorsed the existence of which entities by means of bound variables. But although Andrea and Betty's differences are coherent, too, Quine's language of regimentation consigns Andrea's claims of direct commitment to the realm of the ungrammatical, even though she uses intuitively committing directly referential expressions, and she does so for principled reasons to do with her own epistemology. The advantage of a quantified canonical language with constants is being able to translate both into a shared language, rendering the first disputant's theory as one that contains constants, and the other as using only quantifiers. In that way, it shows the difference between them to lie in the use of direct access to (certain kinds of) objects.

Chapter 4

Disentangling Objects from Posits

4.1 Potential Objections to Direct or Hybrid Commitment

Our reflections thus far suggest that the best choice for a language of regimentation is one that has at least two kinds of committing expressions: pronominal ones and directly referential ones. There are further questions about whether impurely objectual expressions like higher-order variables or higher-order constants, sortal-indexed names, or certain kinds of irreducibly modal vocabulary should be taken as committing, but I will set them aside for now since they have far-reaching effects on the philosophy of logic. We will restrict our discussion to purely objectual committing expressions.

In the first and second chapter we saw that Quinean commitment makes a good case for accepting objectual variables as committing expressions. Their semantic role is to range over objects—all objects, independently of their particular characteristics, which are left entirely to the ideology. The variables have no role other than to indicate objects, so they seem ideally suited to the role of determining the theory's ontology. Variables are the committing expressions in descriptions, quantified statements and implicit commitments: all of these amount in their regimented form to existentially quantified consequences of the regimented theory. The natural-language analogue of such a sentence is the existence claim: pronominal commitment is the kind of commitment engaged in when someone says something of the form 'There is an F'. The Quinean line we have staked out dictates that committing expressions must be logical expressions. Being, or objecthood, is a logical notion. It is introduced into a theory along with the process of introducing posits on the intersections of observations. Variables, the expressions used to mark the imposition of a posit on such an intersection, are the ontologically committing expressions. But the idea

that objecthood equals positing is deeply indebted to holist epistemology.

In the third chapter, we considered reasons for admitting another kind of commitment, namely commitment via direct contact with an object. Contrast the holist picture of how objects are introduced—on the intersections of significantly overlapping observations, as an explanation of how the observations in question came to overlap so persistently—with the foundationalist picture of introducing an object into a theory. The foundationalist countenances an object when she gets it in her sights and makes contact with it. She can then introduce a name for the individual her mind has reached out to directly. Intermediate epistemologies may admit both ways of making contact with objects, or allow names introduced by way of descriptions but not reducible to descriptions.

What could stand in the way of either an acquaintance-based criterion of commitment, with directly referential committing expressions, or a hybrid criterion of commitment, with two distinct kinds of committing expressions? In the next two sections I will outline and respond to two possible objections. One is based on traditional Quinean holism: the objection that science should restrict itself to objects-*qua*-F on the grounds that objects are of theoretical importance only in virtue of their third-personally observable characteristics. Besides ruling out any first-personal discoveries by fiat, this argument also has the disadvantage of entailing Quine's unattractive position that identity should be reduced to facsimile identity. The other is not to be found in Quine, but raises a worry about a Quinean-inspired insight from chapter 1, namely that logical grammar separates *being* from *nature*. The insight is intimately related to the flat ontology and strong logical impartiality. By separating being from nature, the syntax allows a division of labour between logical theory, which speaks of the most general features of reality including objecthood, and the special sciences, which tell us about the natures of things. So objecthood is a logical primitive on this picture. The Quinean-inspired argument has it that variables, the ontological expressions, are logical vocabulary, while all other vocabulary ascribes natures; so names must be ideology after all. But this is itself a holist false dichotomy. For Quine, because he assumes all theories start with observations, variables being eventually interposed on their intersections, it follows that all words are either logical or ideological. But if direct epistemic access to objects is possible, denotation without descriptive meaning is made possible as well. It is denotation without connotation, not logicality, that is a necessary condition of being a purely objectual committing expression. Objecthood can still be a logical primitive even if it is not the case that all objectual expressions are logical expressions.

4.2 Objecthood and the Role of Posits in Science

Traditional Quineans will perhaps want to defend the quantificational criterion for reasons pertaining to the philosophy of science. Although everyday discourse appears to assume

the existence of individuals, because speakers of ordinary English are interested in talking about them, Quineans would say that the language of science is better off restricting itself to descriptions. Individuals only matter to a scientific theory in virtue of the things that are truly said of them. Quinean holism mirrors science because the only relevance individuals have is determined by their roles in the overall system. Objects-*qua*-*F*, posits located on the intersections of observations, better characterise the role of objects in science than individuals *qua* individuals. Even if we needed, say, to refer to the object which is the centre of the universe, it is of no concern to the theory exactly which individual object it is, only that it is the centre of the universe.

4.2.1 Method and the Third Person

Quineans who adhere to strictly third-personal methodology run up against the problem of introspective knowledge and the use of introspective data in the sciences. A modest characterisation of introspection is that it is a process which yields first-personal beliefs about the subject's own current mental states, usually by immediate access. The science of psychology has a need for both self-reports which are introspective in that sense, and for grammatical differentiation between self and other. For example, first-personal judgements are reliably remembered even by patients with severe Alzheimer's [SBK03], brain scans reveal distinct medial prefrontal cortex activations for first-personal vs. third-personal character trait ascriptions [HKMK07], and attitude surveys use first-personal self-reports as their primary kind of evidence [SHS+99]. Of course, there are reasons to be sceptical of introspective data, and philosophical arguments against the infallibility or incorrigibility of introspective judgements [Arm63]. But the fact that there are legitimate limitations to the use of introspective methods or the data they yield does not entail that they should not be used at all [Mil03, p. 142], much less that they are not coherently describable. And yet Quine's preferred logical grammar provides no way at all of even describing direct access to anything, including one's own mental states. Behaviourists traditionally held that attributing mental states to the self is in no way different from attributing mental states to anyone else, because both are based on nothing but overtly observable behaviour [Ski84]. Quine's logical language of regimentation makes behaviouristic methods compulsory. There is no way to express the difference between self-attribution and other-attribution, because no linguistic markers of 'self' or 'other' are present in its syntax. There are philosophical reasons, as well as those based on the science of psychology, to find this unsatisfactory. For instance, the first person is instrumental to the 'replicative method' [Hea86, p. 135] of Heal's simulation theory, in stark contrast with the third-personal method of what she terms the 'theory theory'.

Quine's aim to start with observations and posit objects only on significant intersections of them is another force, in addition to behaviourism, that drives him towards a completely third-personal language. Grammatical categories to distinguish between the self and the

external world suggest that the self is an object. To reify without the intermediary step of locating such significant intersections and refer to the objects directly imperils the principle that any posit is dispensable. But it is difficult to deny that one object at least would have to be present to get language off the ground: namely, the observer. Even if the observer is not a single enduring object, but a succession of observer-states, there must still be something there, or a bundle or succession of somethings, to have the experiences for which observation sentences are the linguistic labels. Is the observer a dispensable entity? Quine's language of regimentation, in which the observer is always hidden from view, does not give us any obvious ways of formulating that question either.

The structure of Quine's logical grammar impedes the use of any first-personal, introspective, or ostensive methods in the sciences under any circumstances, even where such methods promote the aims of science. But all scientific practice relies on the fact that there is *someone* making observations. Some disciplines, such as psychology, make indispensable use of introspective data, which cannot be shoehorned into third-personal form. So it seems unwise to rule out in principle any way of referring to individuals, whether referentially, ostensively or using the first person, since there are some small but significant ways in which being able to use such expressions is a virtue in a scientific theory.

4.2.2 Direct Access and Numerical Identity

Science, in certain scenarios, must be concerned with whether the things it is about are identical or distinct, not merely indiscernible. Numerical identity becomes especially relevant when we are interested in the cardinality of a theory or the cardinality of a particular kind within it. Since it is logically possible for indiscernibles to be distinct, it is far from obvious that indiscernibility will do to answer the question of how many objects of a certain kind there are in a theory's ontology. Suppose Sally the scientist is collecting statistics, and finds two data points that are indiscernible according to her best theory, but discernible ostensively. They have all the same structural properties and relations as far as the descriptive resources of the theory are concerned, but Sally can clearly perceive two objects, and distinguish between them by using a demonstrative or a first-personal statement, like 'x satisfies all the same predicates as y, but x is closer to me than y is', or by introducing constants or proper names: 'I call the F object closest to me "a", and the one that is qualitatively indiscernible but distinct from it "b"'. *Prima facie* it seems like a good idea for Sally to do so, because it is useful for her to know when two data points are two rather than one. Employing only descriptive, not directly referential, resources in this case would lead to under-counting of statistics. Getting the numbers of data points wrong leaves the testability of the theory compromised. Perhaps keeping a record of exactly which individuals' properties were part of the observations of a theory is also helpful for the purposes of refinement, confirmation or disconfirmation. If individuals are identified as test subjects,

researchers can return to those same individuals to check whether those same individuals may have had additional properties, originally left out of consideration, that caused anomalies, interfered with tests, or were otherwise relevant to the theory.

4.2.3 Posits and Identity

Quine's insistence on a wholly third-personal language can thus lead to getting the numbers wrong, incorrectly identifying descriptively indiscernible but distinct things. Quine acknowledges that on our ordinary conception of identity being indiscernible according to a theory, even the best available theory, does not suffice for numerical identity. Still, he advocates replacing ordinary identity with a defined facsimile in logical languages, reading '$x = y$' as short for some clause that expresses indiscernibility according to the predicates of that language. His argument is that even though in ordinary language it is coherent to say that two things can be distinct and yet descriptively indiscernible, all that matters for logical purposes is that we cannot tell them apart if we are working within the language [Qui70, p. 63]. But his argument only holds if no proper names can be assigned directly, and also fails to account for Sally who distinguishes her objects ostensively.

Indiscernibility-within-the-theory, Quine's 'serviceable facsimile', is not needed for logical rigour; 'being the same thing' is sufficiently rigorous, especially because the identity relation can be explained in model-theoretic terms as 'the relation which partitions the domain into singleton equivalence classes'. Quine's facsimile need not coincide with such a relation. In chapter 3 we considered Ramsey's critique of a similar defined analogue of identity in *Principia Mathematica* because it stipulates that it is contradictory that two indiscernible things are distinct [Ram31, p. 31]. Ramsey's criticism applies to Quine's fascimile too. Take Quine's own example of the identity facsimile for a language with a one-place predicate 'A', two two-place predicates 'B' and 'C', and a three-place predicate 'D'. In that language, '$x = y$' is defined as '$Ax \equiv Bx \wedge \forall z(Bzx \equiv Bzy \wedge Bxz \equiv Byz \wedge Czx \equiv Czy \wedge Cxz \equiv Cyz \wedge \forall z'(Dzz'x \equiv Dzz'y \wedge Dzxz' \equiv Dzyz' \wedge Dxzz' \equiv Dyzz'))$'. Given that definition, of course in that particular language '$Ax \equiv Bx \wedge \forall z(Bzx \equiv Bzy \wedge Bxz \equiv Byz \wedge Czx \equiv Czy \wedge Cxz \equiv Cyz \wedge \forall z'(Dzz'x \equiv Dzz'y \wedge Dzxz' \equiv Dzyz' \wedge Dxzz' \equiv Dyzz')) \wedge x \neq y$' is by stipulation contradictory. That does nothing to allay our worries that a model can easily be found where two distinct objects are indiscernible with respect to 'A', 'B', 'C' and 'D'. It just shows that the defined facsimile does not pick out the relation of identity. No matter how detailed the description, a description of the properties of x and y can never entail that $x = y$ for the ordinary, non-facsimile identity predicate.

Ramsey's point is especially salient because first philosophy is not an option for holists like Quine. He cannot declare that it is *a priori* that only third-personal or behaviouristic methods are scientifically acceptable; they should prevail only if they are empirically better than all others. In the case of theory change, we might have two things that are descrip-

tively indiscernible, facsimile-identical, according to one theory, but discernible by a new, improved theory. Obviously the two things were not actually identical before; they were always two, not one. In the home language it is very natural to say that, but what does the regimented language have to say about it? The pragmatist answer is that we must continue to work within our best theory. Now that we have access to a new, improved theory, we can say with hindsight that although we used to have good reason to identify the two, it became apparent that that part of the old theory was false. We can now speak truly with the help of our new best theory. In some cases, this is reasonable. But it does not apply to Sally the scientist. She had good reason *not* to identify the two visibly distinct data points, but no third-personal expressive resources to avoid it.

4.2.4 Carnap's Predicament: Identity and 'Objectivity'

A slightly different case of multiple individuals that are indistinguishable for the purposes of the theory is what Carnap calls 'homotopic points' in the *Aufbau*. Homotopes have all their characteristics according to the theory in common: they are structurally indiscernible.

> 'Let us look at a railroad map ... all stations are marked as points, but the map is not to contain any names nor any entries other than rail lines. The question now is: can we determine the names of the points on the map through an inspection of the actual railroad network? ... what happens if there are two intersections for which we cannot find any difference even after surveying the entire system? This simply means that there are two points with identical structural characteristics (homotopic points) as far as the relation to neighboring railroad stations is concerned. We would rather that this relation does not suffice to give a definite description of the objects of the given object domain. We would have to take recourse to ostensive definitions or to one or more other relations ... how can we produce a definite description if all of these relations do not suffice? ... If we are still left with two homotopic elements of the object domain, then we simply have two locations that are geographically indistinguishable. If we then move on to a new type of relation and take into account all historical relations between the locations, etc., we shall ultimately have used up all the concepts of the cultural as well as the physical sciences. If there should still be two locations for which we have found no difference even after exhausting all available scientific relations, then they are indistinguishable, not only for geography, but for science in general. They may be subjectively different: I could be in one of these locations, but not in the other. But this would not amount to an objective difference, since there would be in the other place a man just like myself, who says, as I do: I am here and not there.' [Car67, pp. 25-27]

Some directly referential vocabulary has to be used to distinguish one point from the other. If there is good evidence to believe that there are exactly two such locations, it is possible to assign names to both. One name can be assigned directly, and the other can be assigned by description and function as a directly referential expression. If Jane is at one indiscernible end of a symmetrical universe and Elizabeth is at the other, they each baptise their location by ostension, and the other descriptively: e.g. 'I call my own location "a", and the one which is indiscernible from a at which I am not, "b".'

It is uncomfortable to be pushed towards Carnap's position, that two locations which share all their structural properties, but differ in which observers are located at them, differ only 'subjectively', not 'objectively'. The difference between being two and being one is as objective a difference as any. But it is difficult for Quine not to end up in his own version of Carnap's predicament: that descriptive discernibility is objective, while ostensive discernibility is only subjective. For if two things are discernible, there must be some open formula that is satisfied by one but not the other, describable in purely 'objective', third-personally accessible terms belonging to the ideology. But if the observer can distinguish the two things only ostensively or first-personally, then there is no 'objective'—i.e. third-personal, ideological—reason to posit more than one thing. Embracing the 'subjective/objective' boundary here is not only intuitively uncomfortable, it also looks suspiciously like first philosophy. 'Subjective' seems to be a pejorative label given to ostensive discernibility just because it isn't ideological or structural. But why should that mean it is not an acceptable method, when it is the only way to distinguish one thing from another?

Quine could try to escape Carnap's predicament by appealing to his grades of discernibility [Qui76]. Homotopic points x and y are not absolutely (or relatively) discernible: there isn't some open sentence one does and the other does not satisfy. They are *weakly* discernible: there is some relational open sentence that the pair $< x, y >$ satisfies but the pair $< x, x >$ does not: for Carnap's example of railway nodes that might be something like 'x is 25 miles from y'. But even this is dubious without direct access to objects. How can Quine be entitled to help himself to the pair $< x, y >$, where x is distinct from y? It must be because x and y are distinct values of variables in the domain. How did they get there? They must have been posited at some point, in the usual way. Positing happens when an objectual expression is assigned to an object which is hypostatised on the intersection of observations. But the two indiscernibles fulfil all the same observable descriptions. So how could they amount to two posits? Why does one get to be x and the other y? To say that one is distinct from the other, one has to be assigned a different objectual expression, like a name or variable, from the other. But if this cannot happen descriptively, and ostensive methods are barred, it cannot happen at all. Quine's characterisation of weak discernibility comes down to the following: two objects are weakly discernible if there is some relation in which the first stands to the second, but not to itself. Of course, this assumes identity in the old-fashioned, 'subjective' sense: things already have to be identical or distinct *tout court* to be able to stand in some relation to something else but not to themselves. But

if ordinary, non-facsimile, identity is assumed for weak discernibility, it clearly cannot be used to escape Carnap's predicament. Perhaps admitting that identity is a logical relation, sameness of thing, rather than an amalgam of ideologically pure predicates, is the best way out.

To sum up, the argument that science demands of us that we restrict ourselves to objects-*qua*-*F*, since it is only concerned with objects insofar as they are posits playing a particular role in a system, is questionable. Quine's insistence on a purely third-personal language, leaving the first person out of the syntax altogether, seems linked to his own behaviourism more than to empirical evidence. There is no reason to suppose that banning all direct reference to objects, such as self-attribution of attitudes, introspection, or ostensive definition, is what is best for scientific methodology. A second disadvantage is that it entails Quine's unattractive view of identity as indiscernibility according to the predicates of our current theory. It it is difficult to see how Quine can escape Carnap's predicament of consigning the numerical difference between two homotopic points to the realm of the merely subjective.

4.3 Must Committing Expressions be Logical Expressions?

There is another argument for sticking with Quine's quantificational criterion of commitment without directly referential expressions. This argument is not made by Quine, but extrapolated from a useful property of his language of regimentation which we identified in section 1.5: its ability to separate *being* from *nature* in its grammar. The argument in favour of retaining only Quinean commitment is that adding directly referential committing expressions potentially jeopardises the insight that logical grammar separates *being* from *nature*. The claim is that committing expressions must be logical expressions, as *being*, or objecthood, is a logical primitive, and variables represent objecthood by their role of introducing a posit.

4.3.1 Objecthood, Variables and Strong Impartiality

Part of the point of regimentation—in addition to its clear consequence relation and its capacity to explain implicit commitments and reduction—is that the pronouns of logic present beings just as beings. Logic has the capacity to separate natures from objecthood because it does not discriminate according to nature. Logical vocabulary is an ideal medium for settling existence questions because it sets apart an object from its characteristics, considering it only *qua* object—what its nature is is left to the ideology. In 1.5, we called this aspect of logic *impartiality*. The kind of impartiality I am assuming is not the mitigated impartiality which higher-order commitment, for instance, would demand,

but strong impartiality. Logic does not order, arrange or exclude any objects based on their natures: it treats them all equally. There is no way of grouping objects in first-order logic except as members of the domain. The special sciences, theories which use logical theory as a backdrop, explicate the natures of things, and end up positing objects where those natures usefully intersect. Logic itself only plays the role of collecting all objects together to be spoken of by the sciences. There is a division of labour between the logical vocabulary, whose business it is only to talk of the most general features of reality, including objecthood, existence, truth and entailment, and the ideological vocabulary, which the special sciences use to categorise things according to their natures. Quantified logic is the most general theory of objects—all objects. If it were to miss out a single one, it could not be logic because it would no longer be the most general theory: the theory that was about all objects including that one excluded individual would be. So objects (and truth) form part of the subject matter of logic; natures, on the other hand, are provided by the special sciences. The impartiality of logic is a vaguely Quinean insight I want to preserve, and even strengthen. I think that it is independently defensible; the arguments for it will emerge in chapter 5. What I do not take it to imply is that all committing expressions must be logical expressions; let us turn to this idea, which will reveal itself to be an objectionable vestige of Quineanism.

4.3.2 Why Quine's Committing Expressions Are Logical Expressions

According to Quine's story of theory formation which we came across in 1.3.2, when reification is introduced into a fledgling theory, the observation sentences are spliced into an objectual part, the variable, and an ideological part, the predicate. The former denotes a being, the latter ascribes a nature to that being. The observation sentences made up the non-logical vocabulary of the holophrastic theory, and the predicates are what remains of them after the novel logical form has been imposed on them. For Quine, thing-language is a subset of logical language; all non-logical vocabulary ascribes natures. The interpretation of Quine put forward in chapter 1 proposed that Quinean logic can be described as having the notion of objecthood as one of its primitives, since the objectual expressions are logical expressions. The clean separation of logical from non-logical vocabulary that is guaranteed by Quine's language of regimentation ensures that no information bleeds into the objectual expressions. In natural languages, pronouns sometimes carry information: by using 'he', rather than 'she', we communicate that the subject is male. But logical variables are purely objectual. In chapter 2 we noted that because the presence of an object can be indicated in a logical language of regimentation without any information about natures, such a language lays to rest all speculation about different types of existence or being: all there is to being a thing is being in the domain. Anything of which something can be truly predicated has being because it is in the domain—and if a condition φ is not satisfied, there are no such things as φs. There is exactly one kind of genuinely ontological idiom,

the variable, and it is univocal because it is logical.

It is specifically quantification theory that is impartial, because impartiality is a feature of quantified logic—sentential logics do not speak of objects, so they cannot be said to treat them all equally, except vacuously. The variables in particular exemplify impartiality. They range over all objects in the domain without regard for their specific properties. So Quineans will want to draw the conclusion that objectual words, committing expressions, are committing specifically because they are logical. First-order predicate logic, on this view, has objecthood as one of its primitives because it is able to speak of objecthood exclusively, without mixing in anything ideological. Regimented theories are an advance over natural-language theories because of their grammatical separation between ontology and ideology that allows them to discuss being without interference from nature. But if variables are univocal and express nothing except that their values are objects, specifically *because* they are logical, then directly referential expressions cannot be committing, because they are not logical expressions. Since they are not logical, they belong with the ideology.

4.3.3 Committing Expressions: Presenting an Object in Isolation from Its Nature

The conclusion of the previous section relies on a false dichotomy inherited from Quine's holist view of language and epistemology. The only reason to suppose that all vocabulary except sentential operators is either logico-ontological or ideological is the peculiarly Quinean view of theory-formation which states that all language must begin with feature-placing observations, variables being eventually interposed where they overlap. But that assumption will be rejected by epistemologists who allow for the possibility of direct contact with objects. Quine's variables model commitment to a thing encountered in some theoretical role or other, where the commitment is to whatever satisfies the description that fits that theoretical role. This is indirect commitment, mediated by a description, and, for Quine, it is strongly holist: thought cannot reach out to an object except via the medium of a complete theory. Constants, on the other hand, can model direct commitment: a commitment incurred by linguistically registering some unmediated contact with an entity. Although in science, we are much more likely to need mediated commitment, we saw in the previous section that direct commitment may sometimes be useful for scientific purposes, e.g. where the question of privileged access is concerned. And of course there are the famous philosophical cases of purported direct commitment. Descartes, by thinking 'I exist', commits to his own existence.

Although impartiality is a key feature of logic, it is not clear that logic's not discriminating according to nature entails that only logical expressions can be ontologically committing. The role of the variables comprises both 1. standing for objects *generally*, not for some

object in particular, and 2. being assigned values by the interpretation directly, without any aid from the ideology. That impartial discourse is possible is a prerequisite for both those roles. It is only possible to range over all objects if all and only the objects can be collected together in some way. If something is left out of any collection because of its nature, no truly general ranging is possible. Standing for some object directly, without requiring any descriptive intermediary, can only be done if some expression is available that can single out an object without first needing to describe some characteristic of that object. None of this entails that only logical expressions can be committing.

Words like proper names, or 'I', or 'that', are not logical expressions. Neither are their formal analogues, constants. Unlike variables, they do not range over all objects generally. They stand for specific individuals. But in formal languages, constants are assigned values from the domain just like variables are. The only difference is that the interpretation of variables requires that there are alternative assignments, while constants simply single out their unique referents. So although constants are non-logical, they *do* usefully separate an object from its properties in the way that ontological commitment demands. Constants refer without any need to invoke descriptions of what is true of that thing; in Mill's phrase, they have denotations, but no connotations [Mil84, p. 182]. Any expression that denotes without connoting sets apart the object it denotes from its properties, because those properties are not involved in the semantics of assigning a denotation to the expression. Constants are certainly not logical, but neither are directly referential expressions ideology as defined by Quine—'what ideas can be expressed' [Qui51b, p. 14]—because they convey no lexical information. Insofar as a directly referential expression has 'meaning', its meaning is just its referent. As a result, it might be thought that proper names also fulfil the requirement for ontologically committing expressions that they carry no information about the natures of their bearers. If 'denotes without connoting' is a sufficient condition for being a committing expression, both names and variables are viable candidates.

4.3.4 What is a Logical Primitive?

But if it isn't the case that all objectual or committing expressions have to be logical expressions, can it still be maintained that objects are part of the subject matter of logic, or that objecthood is a logical primitive? Yes, because something can be a primitive of a system in more ways than one.

The Quinean argument is that objecthood is a logical primitive because the denoting expressions, variables, are a subset of the logical expressions. But there are several ways to disambiguate what 'primitive' means. A primitive may be an indispensable piece of vocabulary which cannot be dropped from the regimented language or paraphrased away. I will call this a *lexical primitive*. If something cannot be analysed, reduced by paraphrase, or simply dropped from the theory, it must be included in the lexicon as a primitive

predicate. This is the sense in which, for instance, Williamson thinks that knowledge is primitive [Wil00b]. Attempts to analyse knowledge into justified true belief or justified true belief plus a fourth condition fail because there are counterexamples of cases which are knowledge, but not justified true belief, or justfied true belief plus a fourth condition. Any theory which replaces statements about knowledge with statements about justified true belief is deficient from an explanatory point of view, compared to theories that do not analyse knowledge.

Objecthood is not a lexical primitive of first-order logic, since according to Quine logic has no lexicon, so it cannot have primitive predicates. A different sense of 'primitive' is one in which a primitive of a system is an ineliminable grammatical construction. When Quine, arguing for ostrich nominalism, asserts '[t]hat the houses and roses and sunsets are all of them red may be taken as ultimate and irreducible' [Qui48, p. 30], he has this kind of primitivism in mind. According to him, trying to explain away predication, giving an analysis of it, fails just as much as analyses of knowledge are bound to fail, but not in quite the same way. A Gettier case will show that 'justified true belief' is not everywhere substitutable for 'knowledge' because the subject in the Gettier case has justified true belief, but does not have what we would like to call knowledge. So the word 'knowledge' is indispensable. Analyses of predication fail because they do not show the grammatical construction of predication to be obsolete. An analysis of 'Fx' as 'x has F-ness' does not eliminate predication as such, since the proposed analysis still contains a predicate, namely 'has'. So predication is a *grammatical* primitive. The Quinean presumption that objecthood must be logical because variables are logical vocabulary appears to rely on the assumption that quantification is also an ineliminable grammatical construction. Without quantifiers and variables we cannot talk about objects at all; we would be reduced to a feature-placing language, with the expressive strength of sentential logic. As a conclusion strictly about the syntax of the language of regimentation, this concern is misguided. Quinean canonical notation can be transformed without loss of information into a Schönfinkeled [Sch24] language which contains no quantifiers or variables as grammatical categories, but is still to all intents and purposes a first-order language [Qui60a]. A theory in Quinean canonical notation and its translation into a Schönfinkeled idiom would have exactly the same models. So the insight that objecthood is a logical primitive is not derived from the grammatical primitiveness of quantification or the variables, but from their interpretation. Converseley, in a language that does contain quantifiers and variables as grammatical primitives, adding another category of committing expression does not endanger their primitive status in the syntax.

Lastly, there are *semantic* primitives. They are the ones that perform a function in an interpreted language that cannot be dispensed with without either impairing its expressive power or derailing the interpretation completely. Truth is semantically primitive in sentential logic, because its interpretation is spelled out in terms of truth values. But the semantically primitive status of truth does not dictate what expressions are used to intro-

duce it. In the case of sentential logic, the semantics need to include some truth-functional operators that are sufficient to express all possible truth functions. But as long as that condition is met, it is immaterial whether it is done with the help of five connectives, or two, or one. A sentential logic with only one connective (e.g. the Scheffer stroke) will have longer sentences and bear less resemblance to the structure of natural languages like English. It has fewer logical expressions and fewer grammatical primitives, but exactly the same semantic primitives. Similarly, standing for objects is an ineliminable semantic function that something must perform in a quantified logic, but it does not follow that *only* variables may fill this role. If objecthood is a logical notion, direct contact with an object is logically possible. So objecthood can be a logical primitive even though directly referential constants are present in the theory, or co-exist with objectual variables.

4.4 The Role of Objects in Logic

The arguments offered for the position that only logical vocabulary is capable of singling out an object in isolation from its particular nature do not stand up to scrutiny. So the idea that directly referential expressions are plausible committing expressions can be upheld, on the grounds that they denote without connoting, and are therefore purely objectual expressions. But if direct commitment is to be an option, it must be the case that objects can be denoted unambiguously. Objects must have sufficient metaphysical standing to be capable of being referred to in two different ways, generally and by direct particular reference. To be able to compare and translate first-order theories that have constants to those that lack them, we need a sufficiently robust conception of objecthood that is invariant between theories. We will return to the specific question of regimentation into canonical notation in chapter 6. I will then demonstrate that a conception of objecthood compatible with both holist and non-holist epistemologies can be devised and put to use in order to facilitate translation of both direct and indirect commitment, preventing a breakdown of communications between holists and non-holists.

Traditional Quinean commitment, as I have argued in chapter 1, makes it natural to think of objecthood as a logical notion. The particular quasi-Quinean argument that objects must be posits hypostatised on the confluence of intersecting observations and that hypostasis is done with the help of logical vocabulary is not as epistemology-neutral as we would wish, as it is informed by holism, so not all commitmentphiles will want to endorse it. But the thesis that objecthood is a logical notion may well be plausible independently of those arguments, and can be supported with the help of a realist philosophy of logic. We have already seen in this chapter that purely referential expressions, non-logical as well as logical, can be used to separate objecthood from ideological characteristics: they denote without connoting. In the next chapter we will investigate how commitmentphiles who are not Quineans in all respects can improve on Quine's criteria of logicality, proposing a realist

philosophy of logic which maintains that objecthood is a logical notion, but defending this idea in an epistemology-neutral way.

Chapter 5

An Impartial Logic: Realism and Logicality

Objecthood can count as a logical primitive even in formal languages whose objectual expressions are not a subset of the logical expressions, as long as objects and their most general characteristics are part of the subject matter of logic. This much is clear from the previous chapter; in the present chapter we will revisit the philosophy of logic and the question of logicality: what sets logic apart from the special sciences? First, there is a sceptical challenge to be answered: can logic be about objects at all? Second, what criteria should a theory meet to be worthy of the name of logic? The sceptical question and the logicality question are intertwined, since it is often suggested that the measure of logicality is topic-neutrality, which in turn is interpreted as having no subject matter. We will examine various disambiguations of topic-neutrality, and find this particular one, having no subject matter at all, to be inadequate. Topic-neutrality is best understood, not as being capable of being true even where no objects exist at all, but as treating all objects impartially. So it is perfectly coherent for logic to have a subject matter that includes objects in general, though not objects of some special rarefied kind. The answer to the logicality question, or what sets logic apart from the special sciences, also draws upon its generality and impartiality. The difference between logic and other disciplines is not a difference in kind, but of level of generality. Criteria for logicality do not include a complete lack of subject matter, but do include epistemic topic-neutrality (being applicable to all areas of enquiry), and ideological topic-neutrality (not positing any special kinds). Both are compatible with logic incorporating the notion of a being or object, and therefore being a useful vehicle for asking and answering questions of ontology, which aims to provide an inventory of the beings. I will develop a realist philosophy of logic, based on the idea that logic is about the most general features of reality. It is designed to complement a commitment-based approach to meta-ontology, and to be compatible with all epistemologies congenial to re-

alism, whether they take a foundationalist, foundherentist or holist approach to contact with objects.

Section 5.1 is concerned with different disambiguations of 'topic-neutrality': epistemic, ontological, or ideological neutrality. A theory is epistemically neutral iff it is applicable to any area of discourse whatsoever. On the metaphysical side of topic-neutrality, a theory may qualify for logicality by being neutral on *what things there are* (ontological), or on *how they are* (ideological). Ideological neutrality is interpreted as impartiality—not discriminating on the basis of nature—and as such is compatible with having a subject matter. Logic should not exclude any particular thing from its remit because of its nature, or because of what can be said of it in the ideology, but this only entails that it speaks of reality in the most general terms, not that it does not speak of reality at all.

The focus of 5.2 and 5.3 is the idea that ontological neutrality is to be identified with *ontological sterility*. An ontologically sterile theory is one that has no existential consequences at all. But sterility is not the only possible reading of 'being neutral on what things there are', nor is sterility independently attractive. Explicit arguments for sterility are few, but the clearest case in favour is the Kantian line, which presents logic as a discipline which is exclusively concerned with the form of thought; it cannot in any sense be about objects, which comprise the matter of a theory. Hence logical truths are true no matter what, independently of whether there is anything at all. The sharp Kantian dichotomy between theories that are about reality and logical theory which is true independently of reality makes it difficult to explain the continuity between logical truths and other truths. After all, true representations are true because they represent reality correctly, and logical truths are as true as any.

Although he rejects the form/matter, language/world duality, Quine too is often read as a proponent of ontological sterility. Although he repudiates second-order logic because of its 'staggering existential assumptions', this does not entail that logic must have absolutely no existential consequences, much less that all commitmentphiles are bound to accept this view. Quine's argument is brief and allusive, but it appears to trade on an ambiguity in the interpretation of 'no existential consequences', which may mean either 'not entailing the existence of any objects' or 'not positing any kinds'. Logic only treats of objects *qua* elements of the domain, not *qua* their specific natures. As the most general theory, it should not have commitments-*qua*-*F*. But the idea that no theory which entails an existence claim can be logic is strictly false, as rules out first-order logic, too, which entails '$\exists x(x = x)$'. This is not a commitment to an entity-*qua*-*F*; nothing is specified about x's nature. It features only *qua* object. Logic's being neutral does not entail that it tells us nothing about what objects there are, or how they are, but that it confines itself to speaking of objects in the most general terms. It does not discriminate between objects on the basis of their natures, which are described in the special sciences. This accords with the flat ontology requirement: there aren't different levels of being, everything is equally existent,

and posited, independently of its characteristics.

5.1 Topic-Neutrality: Epistemic, Ontological, Ideological

What makes a theory, or language, logical? In 1.5 Quine's answers to the logicality question were considered and found wanting: like so many other aspects of his view, they are steeped in behaviourism and global holism. But what really sets logic apart from the special sciences, and is it compatible with being about objects, or objecthood? Many philosophers of logic, Quineans and non-Quineans alike, balk at the suggestion that objects are included in the subject matter of logic. Logic, after all, is supposed to be a topic-neutral discipline [Ryl54, p. 116], [Haa78, p. 5]. It may seem an intuitive consequence of topic-neutrality that logic has no subject matter of its own. But this sceptical challenge to logical realism, I think, relies upon a failure to recognise the ambiguity in 'topic-neutrality'. The project of this section will be to precisify the notion of topic-neutrality and to consider the implications of the different viable candidates for the label.

Although the idea that logic is topic-neutral is an attractive one, exactly how to characterise topic-neutrality is a fraught question. Calling logic topic-neutral certainly *sounds* right, in a way. Logic holds sway over any domain whatsoever, and its rules apply to any area of enquiry. The laws of quantification are equally valid whether the topic under discussion is nineteenth-century history, or politics, or mathematics. No type of knowledge fails to be governed by logic; logic is broad enough to encompass all of them without either privileging or excluding any kind of content, or any group of individuals. Its broad and non-discriminatory applications make 'neutral' a fitting term. But what exactly does this neutrality consist in?

The term 'topic-neutral' was coined by Ryle in the following passage:

> We may call English expressions 'topic-neutral' if a foreigner who understood them, but only them, could get no clue at all from an English paragraph containing them what that paragraph was about ... "not", "and", "all", "some", "a", "the", "is", "is a member of" etc. certainly are topic-neutral, but so are "several", "most", "few", "three", "half", "although", "because", "perhaps", "may" ... ' [Ryl54, p. 116]

Ryle's interpretation of topic-neutrality is epistemic: the topic-neutral expressions are those expressions that do not enable the reader or hearer to gain any knowledge of what the utterances in which they feature are about. One drawback of his statement of topic-neutrality is that the topic-neutral expressions, thus defined, are not all and only the logical expressions. His definition is not extensionally adequate for logicality. Even Ryle's initial list, "'not", "and", "all", "some", "a", "the", "is", "is a member of" etc.' contains some

non-logical expressions: the predicate 'x is a member of y' belongs to set theory. It is a mathematical expression, not a logical one. Adherents of Quine's substitutional theory of logical consequence would deny that the 'is' of identity belongs with the logical vocabulary [Qui70, p. 63].

Ryle's approach is also suspect because the notion of 'being about' that it crucially relies upon is rather vague. Does he mean that logical expressions are about nothing in particular? But if so, should that be read as meaning that there are no things that they are about, or are they about everything, about things in general? Boolos notes that 'being about' is ambiguous between ontology and ideology. A theory is about the elements of its domain, in one sense of 'about'. But in a closely related sense of 'about,' it is equally about what its predicates and operators express: 'Is elementary arithmetic really not *about* addition, but only *about* numbers? ... [Logic] can easily be said to be about the notions of negation, conjunction, identity, and the notions expressed by "all" and "some" among others' [Boo75, p. 517]. This leaves open the question of the subject matter of logic. Ryle's epistemic reading of topic-neutrality stipulates that the topic-neutral expressions are those that do not give away anything about what the utterance as a whole is about. But there is no direct route from this to the metaphysical conclusion that logic has no subject matter. Ryle's claim does not enable him to say, for instance, that logic should be true in the absence of anything for it to be about. If anything it suggests the opposite: that topic-neutral expressions can only exist in tandem with expressions that do make it clear what they are about. For more metaphysical interpretations of topic-neutrality, we need something more than Ryle's original statement.

Lastly, Ryle's use of the term 'topic-neutrality' differs from the contemporary one because Ryle restricts its application to *expressions*. But other philosophers who use the term usually speak of logic itself as a topic-neutral discipline [Boo75, p. 517], [Haa78, p. 5], [Mac00, p. 69], though [Lyc89] is an exception. For our purposes it will be more useful to extend the usage to theories or parts of theories.

5.1.1 Epistemic Topic-Neutrality

There are several potential ways of spelling out topic-neutrality, some of which are mutually exclusive, some compatible. The first distinction to make is that topic-neutrality can be thought of as either an epistemic or a metaphysical criterion.[1] Ryle's topic-neutrality was

[1]There are various kinds of similar distinctions in the literature, but they all seem to differ from each other, as well as from mine, in their key features. Linnebo [Lin03] distinguishes epistemic from metaphysical neutrality, but means by epistemic neutrality that knowledge of logic cannot draw on extra-logical resources. MacFarlane also complains about the vagueness of 'aboutness' in topic-neutrality [Mac00, p. 69]. He suggests that topic-neutrality can be given an epistemic or a metaphysical reading. Unlike me, he thinks of these as irreconcilable approaches. It is a matter of deciding whether one's logic is epistemically based or semantically based, and then tailoring topic-neutrality to mean either inferential harmony or permutation

found to be clearly epistemic in nature, but brought us no closer to answering the question of logical subject matter. Epistemic topic-neutrality need not rely on a vague notion of aboutness. We can take it instead to be the Fregean idea that what is characteristic of logic is its universal applicability. Logical rules govern 'everything thinkable'; logic as a theory is useful to absolutely any area of enquiry. Epistemic neutrality in this sense shows up in Quine's writing under the name of 'versatile ancillarity'.

Epistemic neutrality or versatile ancillarity is an appealing necessary condition for the logicality of a theory, but it cannot, except perhaps for logicists, be a sufficient one. As Frege himself notes, a similar claim can be made about arithmetic: it also applies to anything thinkable, because anything whatsoever can be counted [Fre80a, p. 21]. But statements about numbers are not mere rules with no presumed metaphysical consequences. Mathematics as a discipline asserts that numbers exist. They are *objects* that apply to everything. (Or almost everything, since there is no number of all numbers. The implications of paradox are vast, but one aspect of it will be touched upon in section 5.3.) Even those who deny the existence of numbers usually acknowledge that if mathematics is true, it entails such existence claims. They take the burden of proof to lie with them to either give a reductive account of numbers or declare mathematics to be false or vacuously true [Fie80]. Quine takes the paradigm of a committing science to be physics, and commitment to mathematical entities to be licensed only by their indispensability to physics [Qui81d]. But he, too, ascribes 'versatile ancillarity' to mathematics [Qui70, p. 98]. For present purposes, we may take epistemic topic-neutrality as a necessary condition of logicality, but it is not the kind of neutrality that is relevant to the central question of this chapter. Epistemic neutrality so defined does not tell us anything about whether logic has a subject matter, or, if so, what it consists in. If arithmetic, with its many posits, can lay claim to epistemic neutrality as much as logic can, this kind of neutrality does not rule out that logic is about objects.

5.1.2 Disambiguating Ideological Topic-Neutrality

So we must turn to the metaphysical side of topic-neutrality. This in turn has two separate aspects: being neutral on *what* things there are, or being neutral on *how* things are. Call them *ontological* and *ideological* neutrality, respectively. The phrase is borrowed from Lewis who deploys it in the context of truth's dependence on being: 'I want to construe 'being' broadly: it covers not only *whether* things are, but also *how* they are' [Lew99, p. 206]. [2]

invariance [Mac09, sections 4-6]. I do not think of epistemic and metaphysical topic-neutrality in my sense as being in tension; a logical realist can adopt both.

[2]Quine, although at times he conflates the two, touches on both ontological and ideological neutrality. He states that what sets logic apart from the other sciences is 'the lack of special subject matter'. He elaborates: 'logic favors no distinctive portion of the lexicon, and neither does it favor one subdomain

A smooth but erroneous path from topic-neutrality to absence of subject matter is to interpret 'remaining neutral on what things there are and how they are' as 'saying nothing about what things there are and how they are'. This would result in a stringent standard for logicality: that any theory worthy of the name of logic tells us nothing at all about what things there are and how they are. There is even a more stringent standard around, which demands that logic must be true even in situations where there is nothing at all. This latter view is associated with Kant. It will be discussed in more detail in section 5.2, but even without in-depth analysis of what demands this places on logic, there are plenty of reasons to resist this view of 'remaining neutral'. Remaining neutral on something is more fruitfully interpreted as not discriminating, or speaking of it only in the most general terms.

Logic Is Continuous with Other Sciences

One argument for topic-neutrality as non-discrimination, which is more harmonious with the position that logic is about the world, has its roots in Frege. Frege avers that logic is concerned with the most general laws of truth [Fre79b, p. 128]. Truth consists in agreement between representation and reality. Though Frege himself expresses some reservations on this front [Fre79b, p. 129], virtually all theories of truth have this in common: that a true representation is true because the way it represents things as being is in fact the way things are. This brings to mind again Lewis's point about the relationship between being and truth: truth depends on '*whether* [the things that the representation represents] are, but also *how* they are' [namely, as the representation makes them out to be, or not]. To insist that logic must remain silent on anything to do with reality, or worse, must remain true in the absence of any reality whatsoever, forces a separation between logical truth and ordinary truth. Logical truth so conceived cannot consist, like ordinary truth, in an agreement between representation and reality. Logical realism finds this unsatisfactory and proposes instead that logical truths do represent reality correctly. Logical representations just concentrate on much more general aspects of reality. Logic is a theory in exactly the sense that all other theories are: it differs from them not in kind, but in level of generality. Logic is continuous with the special sciences: more general, but not a wholly different kind of theory.

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of values of variables over another' [Qui70, p. 98]. What exactly 'favor' means here is a little unclear. Does it mean that logic does not supply its own predicates or beings, that there are no distinctively logical individuals, or distinctively logical characteristics? Or does it mean that logic does not practise favouritism, that nothing is excluded from consideration by logic, and no predicates are too outlandish to be governed by logical principles? Quine's remarks on the matter of ontological and ideological neutrality are brief and sketchy, and the most notorious of those remarks is no exception. This is his deploration of second-order logic, on the grounds that it has 'staggering existential assumptions' [Qui70, p. 68]. We will revisit this issue in more detail in sections 5.1.3 and 5.3.

Ideological Topic-Neutrality as Impartiality

Another argument for interpreting neutrality as 'not discriminating' rather than 'saying nothing' is based on the fact that logic is a valuable guide to ontology, and that some purported ontologically committing expressions—like Quine's committing expressions, the variables—are themselves logical expressions. Those who think logic is about the world interpret topic-neutrality as meaning that logic informs us only of the most general features of reality. But this is very different from saying nothing. The ontological side of the question may mean that logic speaks in the most general terms of what there is: that there are things. Being, existence or objecthood are thus not ruled out as candidate topics that logic can legitimately discuss. On the ideological side, there are the most general predicates that describe how things are as a matter of logic. Plausible candidates include non-contradictoriness and self-identity. It is a desideratum for logic that it should be impartial, i.e. not discriminate on the basis of nature. As far as logic is concerned, objects feature only insofar as they are beings, not in virtue of some particular characteristics they have that other things lack. We noted in chapter 2 that impartiality is linked in this way to the generality of logic. Logic is the most general theory of all; any theory that discriminates according to characteristics some objects have, and some lack, is not absolutely general, so this theory cannot be logic; some other theory with a more inclusive domain, comprising all things regardless of their natures, would be.

Ideological neutrality, or not favouring any part of the lexicon, does not rule out that objects are part of the subject matter of logic. In fact, objecthood as a logical primitive is central to impartiality: an impartial theory treats all objects equally. What is ruled out by impartiality thus interpreted, based on the argument from generality is that logic posits some particular objects with specialised natures. Logic should certainly be 'neutral on how things are' in the sense that it cannot require the existence of objects belonging to very rarefied kinds. Since logic is applicable to any area of knowledge whatsoever, any theory asserting the existence of elephants, or pineapples, or teacups, cannot be counted as logic. But that is just because logic is the most general of theories, and the existence of these kinds of things is a contingent empirical matter. Any theory beholden to the existence of the posits of a special science cannot be neutral enough, epistemically or ideologically, to be compatible with all the special sciences, as generality demands.

But how far should the argument from generality be taken to extend? It is not yet obvious that generality by itself entails that there can be no logical entities whatsoever, or that there are no distinctively logical predicates. One potential defence of logical posits is the line that there are distinctively logical predicates, and that the things which satisfy the logical predicates are the distinctively logical objects. Call this the quasi-logicist view: some objects are the logical objects, others the non-logical objects. Quasi-logicism is not related to neo-logicism. The only logicist aspect of this view is that there are distinctively logical objects, whatever they may be. The requirement that logic must be general and

epistemically neutral is consistent with there being logical predicates in principle. Quine offers an argument against logical predicates [Qui70, p. 55], but it is not inescapable as it relies on his particular view of consequence. He subscribes to a substitutional account of logical consequence; according to him neutrality requires that any part of the lexicon can be substituted for any other without making any difference to the logical truths. Mere ideological neutrality, or being neutral on how things are, does not have to entail this particular position. For instance, MacFarlane [Mac00, ch. 6] suggests that topic-neutrality in the metaphysical sense can be equated with Tarskian permutation invariance [Tar56b]. The quasi-logicist might have any non-substitutional account of consequence she likes—permutation invariance, modal consequence, perhaps inferentialism. All she needs is that her theory of consequence does not contravene epistemic neutrality or impartiality. Logic's generality and epistemic neutrality proscribe its positing objects that should properly be posited by special sciences. But what about classes, sets, collections, or even numbers, all of which meet the 'versatile ancillarity' criterion? These are posits that do not contravene epistemic neutrality, as they are applicable to everything. Perhaps they are such highly general things that they might qualify as logical objects.

Quasi-logicism is a view we will ultimately (in section 5.3) find reason to reject. Still, quasi-logicism has some interesting features, and provides a useful contrast with the alternative logical-realist view. This view is not logicist—it does not say that logic has its own posits—but maintains that logic is nevertheless about objects. It is about objects in general, not about absolutely general objects. Logic concerns itself with the most general features of reality, so it is about all objects, and the most general truths about them. There are no distinctively logical objects in the sense that they are the ones that satisfy the logical predicates, which some objects fail to satisfy. Logical realists think that if there are logical predicates (e.g. self-identity), all objects satisfy them. But it is possible for objects to feature in a theory only *qua* purely logical objects, that is, independently of their particular characteristics. Logical realism is consistent with most accounts of logical consequence. It is not tethered to Quine's substitutional view, but may combine equally well with Tarskian permutation invariance [Tar56b], or modal consequence [Etc90] for example. Unlike the quasi-logicist, who says that there are logical predicates, the question of whether there are logical predicates remains open for the logical realist. This position is consistent with logical predicates which describe how things are in the most general of ways, which no object ever fails to satisfy. The impartiality of logic consists in its treating all objects the same, irrespective of their natures. Although the objects do not divide into the logical and the non-logical objects, objects are part of the subject matter of logic, because logic describes their most general characteristics. As far as logic is concerned, objects only register insofar as they are objects.

5.1.3 Ontological Topic-Neutrality Versus Ontological Sterility

An ontologically neutral logic remains neutral on what things there are. It is often taken for granted, though rarely stated in explicit terms, that it is a defining characteristic of logic that it does not entail that anything at all exists. The position that any theory worthy of the name of logic must have no existential consequences whatsoever is sometimes called 'ontological innocence' [Yi99, p. 141], [Lin06, p. 559], after Lewis [Lew91, p. 81]. But this position is distinct from ontological neutrality, and it is also distinct, I think, from Lewis's ontological innocence. Remaining neutral on what things there are is not the same as explicitly ruling out that the theory entails the existence of any things. And Lewis ascribes ontological innocence to plural quantification *à la* Boolos [Boo84] and (controversially, see [vI94]) to the mereological calculus, on the grounds that these are devices which, 'given a prior commitment' do not incur 'a *further* commitment' [Lew91, p. 81, his italics]. What exactly Lewis' definition of innocence is is difficult to determine [Oli94, pp. 221-223], but my gloss is that an extension of classical (first-order) logic is ontologically innocent iff it merely provides a new way of talking about the same objects that are spoken of by classical first-order logic, instead of introducing new ontological commitments. Since the participants in this debate always think of ontological commitment as Quinean, incurred by variables in existentially quantified sentences, this can in turn be glossed as follows: ontologically innocent theories have no existential consequences beyond those of first-order logic.

The debates about the ontological innocence or lack thereof of plural quantification and mereology have their roots in Quine's dismissal of second-order logic [Qui70]. Boolos [Boo84] proposed in response the purportedly innocent plural interpretation to replace the standard set-theoretic one with its manifold ontological commitments. He and his supporters [Hos00] contend that plural logic is logic because plural quantifiers incur no commitments to plural objects, since plural variables do not have values of their own. Their values are just the first-order ones, taken plurally. The new plural notation 'xx' only rearranges the first-order variables so as to achieve the expressive power of monadic second-order logic. Others deny this: they think plural variables, being newly introduced variables, must have values of their own [Par90, Res88].

For present purposes we will not be concerned with ontological innocence as a test for the logicality of extensions of first-order classical logic. This would be highly relevant to the question whether we should regiment in a modal language, or a plural language. Williamson, for instance, can be read as proposing a higher-order modal language of regimentation [Wil13]. Boolos is obviously concerned with commitment, as he actually called his paper 'To Be is to Be a Value of a Variable (or to Be Some Values of Some Variables)'. But such considerations are not our focus here. The debate on the ontological innocence of extensions of first-order logic, though, do not necessarily settle whether classical first-order logic itself has commitments. The implicit suggestion is that the extension cannot be

called logic if it has ontological commitments because its commitments show how different in kind it is from classical first-order logic, which has none. Again assuming, as these authors do, that all commitments are in quantificational form, the underlying criterion that motivates the insistence on innocence is this: logic cannot have any existentially quantified consequences. I will call this view *ontological sterility*, after Poincaré's quip.[3]

What is an existential assumption, or (non-vacuous) existentially quantified consequence, and why should having one disqualify a theory from being logic? Syntactically, it is a statement of the form $\ulcorner \exists x \varphi \urcorner$, with x occurring free in φ, which follows from the theory in the object language. (Existential consequences in the metalanguage are not ontologically committing. Vacuous existential quantifiers, where x does not occur free in φ, are of no interest as they make no existence assumptions.) Now the statement that no theory with *any* existential consequences in this sense warrants the name of logic is strictly false. First-order classical logic has '$\exists x(x = x)$' as a theorem. Quine acknowledges this, but hastens to assure the reader that this is merely an artefact of model theory, occasioned by some properties of the number zero [Qui54]. As a syntactic criterion of elimination, though, 'no existentially quantified theorems' is clearly flawed.

Proponents of ontological sterility could just amend their criterion with an *ad hoc* restriction: logic must have no existential consequences except for '$\exists x(x = x)$' in the case of first-order logic. But it is more interesting to dissect the ambiguity in 'no existential consequences', which is not noted by Quine or any of the advocates of sterility. Should it be read as 'not entailing the existence of any objects', or 'not positing any kinds'? The former reading disqualifies even '$\exists x(x = x)$', but the latter rules out only existential consequences of the form '$\exists x F x$' where F is distinct from self-identity. Advocates of substitutional consequence do not think of identity as a genuine predicate, but an abbreviation [Qui70, pp. 61-64], and so all that is expressed by '$\exists x(x = x)$' is that there is some value of a variable. Alternatively, F could be restricted to logical predicates, if identity is considered a predicate.

Ontological sterility, alone among the disambiguations of topic-neutrality, really does demand of logic that it should not be about objects, and that it should have no subject matter. But what is the argument for maintaining that logic should be ontologically sterile? Philosophers who champion ontological sterility usually do so by hinting rather than articulating an argument; I will attempt to tease out two lines of defence in favour of ontological sterility, and argue that neither stands up to scrutiny. The first is the Kantian line. There are two explicit arguments for ontological sterility to be found in Kant, which do not carry over into contemporary logic. Quine hints at another with his notorious 'staggering existential assumptions' remark which is effective against the idea that logic posits objects of some particular kind (objects-*qua*-F), but does not rule out the possibility that logic might entail that there are objects *qua* objects. By the end of the next section, it will be

[3] 'La logistique n'est plus stérile: elle engendre la contradiction!' [Poi06, p. 316]

clear that ontological sterility is not a serious contender as a criterion of logicality. So we will conclude that logic can indeed have a subject matter, and that it can speak of objects in the most general sense, not *qua*-*F*, but *qua* objects.

5.2 The Kantian Argument for Ontological Sterility

Some contemporary philosophers appeal to Kant explicitly when they argue for sterility. Here is Linnebo:

> 'no objects exist by conceptual necessity ... it is natural to regard anything having to do with the existence of objects and with their particular characteristics as belonging to the matter of thought rather than to its form' [Lin04, sec. 3].

He refers the reader to a paper by Hartry Field as evidence for this view. Field's paper states:

> 'you can't get existential assertions out of logic and definitions alone ... Kant did provide such an argument' [Fie84, p. 509].

Linnebo's assertion appears to me to run together a number of issues. He writes as though there is a single Kantian argument which establishes that no objects exist by conceptual necessity because objects are matter rather than form. In fact these are two distinct points, which Kant argues for separately. Kant contends that logic is concerned with the form of thought, and not in any way with reality. As a result, logic will hold even if there is nothing at all for thought to latch onto. When inveighing against the ontological argument for the existence of God, Kant also presents an argument that no objects exist by conceptual necessity, because there is no concept which by its very nature guarantees that something falls under it. Field's paper only relies on the second argument (conceptual necessity), not the first (Kantian formality).

Linnebo's formulation of the problem, 'no objects exist by conceptual necessity' is potentially ambiguous in the familiar way which is a theme of this chapter: between the existence of objects-*qua*-(non-logical-)*F*, and objects only considered *qua* their logical role as objects. Kant would affirm both readings of 'no objects exist by conceptual necessity' because he denies both of the following claims:

1. That there is some concept such that it is a logical fact that some object which falls under that concept exists;
2. That logical truths are true because they correctly represent objects.

Kant's attempts to refute 1. are intertwined with his rebuttal of the Ontological Argument. He avers that there is no concept which is such that the assertion that there is nothing that falls under that concept is contradictory. This is the kernel of Field's argument from his paper quoted above, aimed at neo-logicism instead of theology. Both these arguments seem to me to be sound, but they are effective only against 1., not 2. Kant's argument against 2. is based on his conception of formality. For him, logic is the pure form of thought, which deals only with concepts, and is not concerned with whether a concept correctly represents reality. This is the argument that is most naturally characterised as being about form versus matter, but it is heavily indebted to Kant's own conception of logic as the more limited Aristotelian kind. Upon closer inspection, it is not obvious that his argument has to carry over into contemporary philosophy of logic. So the Kantian defence of ontological sterility fails: contemporary logic need not be devoid of any subject matter. In fact, when we consider the virtues of Kant's arguments, they tend rather to suggest that an impartial, not a sterile logic, is to be preferred.

5.2.1 Kant's Logic and The Formality Argument for Sterility

The Kantian argument against 2. is premised on his duality of reason and sensibility. Logic falls on the 'reason' side. As such it is concerned only with the form of thought, not with the empirical question whether the thought in question correctly represents anything. The logic of Kant's day is Aristotelian syllogistic logic. Instead of having rules for sentence connectives and quantifiers, all of its arguments must be presented as syllogisms, consisting of two quantified premises and a quantified conclusion. All premises and conclusions have exactly one quantifier as their main (and only) connective.

Kant's main criterion for logicality is a peculiarly strong kind of formality. According to Kant, what logic governs is the form of thought only. Its matter is supplied by empirical investigation of the external world. This duality immediately brings to mind a corresponding one: the analytic versus the synthetic. And that particular duality plays a central role in Kant's argument for the formality of logic. His version of formality is distinct from the contemporary idea that logical truths are true because of their grammatical form. Kantian formality is defined in terms of *thought*, not language. Form in the modern sense uses a mathematical theory of strings and sequences to deliver a (usually recursively specified) syntax. Contemporary syntax delineates, or gives a recipe for deciding, exactly which strings are grammatical. Kant, on the other hand, does not separate syntax from concepts. To him, logic is formal because its only function is to rearrange and unfold concepts, whether or not the concepts are true of anything. Logic has nothing to do with objects in any sense, because objects are the things which, as a matter of empirical fact, fall under the concepts. Logic simply unpacks and reconfigures concepts regardless of their extensions, even if those extensions are empty. Kant's perspective on the tasks performed by logic is heavily reliant on his conception of logic as a purely analytic doctrine. He distinguishes

between explicative judgements—those which merely reveal something already contained in the original judgements—and ampliative ones, which extend knowledge in empirical ways. He calls a judgement analytic whenever its predicate is contained in its subject. The metaphorical notion of *containment* here has no exact equivalent in contemporary logic. Analytic judgements of this sort are often explained as 'true by definition', but a definition in the mathematical sense does not rely on concepts or containment or subject and predicate. It is a matter of specifying a string and stipulating that a string of the definiens kind can always be substituted for a string of the definiendum kind [Qui36b]. This again is a purely syntactic operation, swapping strings for strings.[4] If an axiomatic or natural deduction method is used for derivations, or as an account of logical consequence in the case of inferentialism, this is also done purely in terms of a mathematical theory of strings. But Kant, who does not separate grammatical form from conceptual form, uses explicativity to explain both definitions and logical validity. Premises entail a conclusion iff the conclusion is contained in the premises. Each conclusion can be extracted by analytically unpacking the premises, which includes logical rules like the principle of non-contradiction, as well as definitions. E.g. it is analytic that a vixen is female, because 'vixen' is defined as 'female fox'. It is difficult to identify any procedure in contemporary logic with this Kantian theory of mining the depth of concepts independently of reference. This is because modern syntax is mathematised, and interpretation always requires something external to the strings, something which elements of the syntax represent.

Kant thinks that logic does not represent at all. According to him pure thought deals only with concepts, and is not concerned with whether a concept correctly represents the way the world is. It is consistent with logic as he understands it to suppose that there is no world at all. So objects and existence do not belong to logic, as the question whether there are any objects is not answered by reason, but by empirical means.

> 'For if no intuition could be given corresponding to the concept, the concept would still be a thought, so far as its form is concerned, but would be without any object, and no knowledge of anything would be possible by means of it. So far as I could know, there would be nothing, and could be nothing, to which my thought could be applied.' [Kan29, B147]

Now this part of Kant's philosophy of logic does amount to an argument against 2. above and, if true, would prove that logic is ontologically sterile. It tallies with Linnebo's characterisation quoted earlier, that anything to do with the existence of objects is 'matter' rather than form. One problem that comes immediately to mind is that the quote from Kant is not exactly uncontroversially devoid of ontological commitments. He speaks of the possibility that a concept 'would be without any object', meaning that it has an empty

[4]Since it is purely syntactic and does not mention concepts, philosophers who are sceptical about analyticity in ordinary or scientific interpreted languages need not extend their scruples to definition in this precise mathematical sense [Qui36b, Qui36a].

extension. Nevertheless, is the concept itself not a thing in the widest possible sense, the one needed for ontology? The statement 'there is a concept with nothing falling under it' should incur at least a prima facie commitment to concepts. Perhaps concepts are eliminable. But Kant also invokes the possible scenario that there 'could be nothing, to which my thought could be applied'. This 'nothing' can only coherently be read as describing not an empty universe, but a solipsistic one, devoid of extra-mental reality. But a solipsistic theory still has an ontology. Consider the *cogito*, committing the thinker to the existence of a thinker. The *cogito* holds whenever solipsism is true. At the very least, Kant is committed to a referent for the phrase 'my thought'. Objects are only excluded from consideration here if they are *not* objects in the wider sense that ontological commitment demands, but in a weaker sense of 'empirically discoverable extra-mental entity'. At least one out of the concept, the self, or the thought should be a subject of commitment, especially if they are the only things about which true statements can be made.

A representation that is true despite there being nothing for it to represent is a dubiously coherent thing without a clear language/world duality. Unless it is already established that there is reality on the one hand, and representation on the other, a situation in which *there is* nothing, but *there is* a representation is contradictory. Judgements or linguistic things are things. Whenever there are things, it is not the case that there is nothing. But this issue can perhaps be averted by reverting to a modern version of Kant's doctrine that does not rely on Aristotelian logic, and concentrates on grammatical form, not the form of thought.

Syllogistic and Decidability

Aristotelian syllogistic has the expressive power of monadic first-order logic, and the syllogisms comprise some particular subset of the arguments of monadic first-order logic. Monadic first-order logic is decidable, which means that logical deductions are an entirely mechanical process. In some sense this fits well with Kant's theory of concept-unpacking. The modern characterisation of Kant's idea can then be rephrased as 'every conclusion can be extracted by substituting strings for strings according to the syntax and definitions'.

If we try to go beyond the syllogistic forms to giving a Kantian-inspired account of sentence connectives, an objection due to Susan Haack rears its head [Haa78, p. 12]. In sentential logic, P entails $P \vee Q$, even though 'P', considered only as a string, plainly does not have as a part the string '$P \vee Q$'. Even without considering only a strictly mathematical theory of strings and parts of strings, in what sense could Kant really maintain that 'P' *contains* 'P or Q'? It's true that the word 'contains' is even more metaphorical in this context. But the objection can be answered by taking a page out of Wittgenstein's book [Wit74]: the meaning of the truth-functional connectives is contained in their truth tables. If P is

true, then, by the truth table for $\vee$, so is $P \vee Q$. The truth tables can be thought of as providing the basis for syntactic rules that give the proper introduction and elimination conditions for the connectives.

Objects and Variables in Monadic First-Order Logic

Sullivan suggests [Sul04, p. 717] that Kant's logic isn't object-involving specifically because it is decidable. Statements that cannot be formalised without the help of variables are synthetic rather than analytic, because variables link subject and predicate. But variables are not needed in decidable logic—they are dispensable because monadic first-order logic has no need for 'nesting' variables. It can be formalised in such a way that no variable is ever in another variable's scope. Therefore, according to Sullivan, Aristotelian logic's not being object-involving is to do with the fact that variables are dispensable with respect to its regimented syntax: 'the variables have no real work to do, and can be dropped' [Sul04, p. 718].

This argument is interesting because it portrays Kant as grouping the notion of objecthood with that of a variable, as Quine was to do much later. It also raises intriguing questions about Frege's disagreement with Kant on the matter of objects and logic: Frege does believe that logic relies on the idea of what Sullivan calls a 'common objectual bearing', to which we shall return in chapter 6. But the claim that variables have no real work to do stands in need of further elaboration. Sullivan says that it is because they can be 'dropped', but this cannot be simply elimination of the syntactic kind. That would mean that variables as a lexical category no longer feature in the syntax. Some formalised languages, though, have no syntactic category of variables and still manage to do all the work of polyadic first-order logic. I am thinking in particular of Quine's variable-free first-order language in [Qui60a], developing an idea of Schönfinkel's [Sch24]. We would not say that these languages aren't object-involving. The role normally discharged by variables is not made obsolete even though there are no variables in the syntax. A Schönfinkeled language has the same models as the corresponding first-order logic with variables. But there is another very salient point to be made about monadic vs. polyadic first-order logics. Monadic logics contain no relational vocabulary. A relational predicate has two terms flanking it, and since these can be two distinct terms relational predicates bring in 'nested' variables: one in the scope of the other. Although monadic first-order logic with identity is still decidable [Loe67, pp. 243-245], monadic logics are incapable of expressing the weaker equivalence relations required for criteria of identity. So monadic languages cannot discharge one of the key tasks of ontology: the ability to determine whether two posits are in fact the same posit. As a result, taking stock of the cardinality of a theory is very problematic in a monadic logic.

5.2.2 Objections to the Formality Argument

The idea that logic is not about reality but wholly about the form, if not of thought, then of language lives on. Versions of it appear in such otherwise un-Kantian works as the *Tractatus* and *The Logical Syntax of Language*. In the former, the logical truths are not about anything, but mere limiting cases of propositions. The latter especially embraces the analytic/synthetic duality of the Kantian account: 'Pure syntax is thus wholly analytic .... An analytic sentence is not actually "concerned with" anything, in the way that an empirical sentence is' [Car37, p. 7]. This particular style of argument for sterility is summarily rejected by Quine, who famously believes that no sharp boundary can be drawn between analytic and synthetic sentences [Qui36b, Qui51c]. His views with respect to formalised languages are a bit more subtle than a simple prohibition of anything that looks like analyticity. He does not object to mathematical theories of definitions in terms of substituting strings for strings, for instance, and in fact promulgates such theories in [Qui36b] and [Qui36a]. These are just syntax, as far as he is concerned; but no analyticity can be claimed for interpreted logics or logic as a subject of philosophical investigation [Qui70, p. 96]. The Kantian argument, by contrast, relies upon a principle which is anathema to Quine: that there are truths that are true because of the world, and truths that are true because of language alone. Stipulating that in some given formal language, strings of one kind may be substituted for strings of another does not make any claim about truth, since it is a syntactic rule. But Kantian formality does require that sentences (or, in Kantian parlance, judgements) are separable into a formal component (reason) and a factual component (sensibility), where an analytic truth has a null factual component—an idea Quine apostrophises in "Two Dogmas" as 'nonsense, and the root of much nonsense' [Qui51c, p. 39].

I take Quine's arguments against the analytic/synthetic distinction seriously, but I will not adopt a position for or against the distinction here. I do not think that favouring a commitment-based approach to ontology by itself compels a philosopher to renounce this distinction. But that does not mean that the Kantian formality argument is a threat even to commitmentphiles who uphold the distinction, as long as they are realists about logic. The belief that logic is about the world leads to the idea that although logic is the most general theory, it is not wholly different in kind from other theories. In other words, there should be continuity between logic and other theories, between logical truth and truth in the special sciences. The formality argument implies that logical truth is not, like other truth, a matter of correct representation. Merely formal truth is expected to remain true even in the absence of anything at all for it to be true of; its truth depends only on the form of thought or language. But it is very natural to take truth to consist in some agreement between representation and reality. If purely formal sentences are not, as Carnap says, 'concerned with anything' (on an objectual reading of 'anything'), because they do not represent reality, what kind of truth is analytic or logical truth? It does not bear much

resemblance to the truth of Aristotle's dictum, which explicitly invokes *what is*; 'To say of what is that it is not, or of what is not that it is, is false, while to say of what is that it is and of what is not that it is not is true' [Ari84, 1011b, 26].

For the logical realist, on the other hand, logic does represent reality. Logic does not represent every aspect of reality, but it does represent the most general ones. Logical truth is continuous with truth in other sciences, because like any theory it aims to describe the world correctly.

5.2.3 Conceptual Necessity and Definitions

The idea that logical truths are true because they correctly represent objects remains a viable position, since the previous section provided ample reasons to doubt Kant's argument against it. Yet the suggestion is sometimes made that it is Kant's argument against the Ontological Argument that leads to the conclusion that logic is ontologically sterile. The two distinct claims under discussion are:

1. That there is some concept such that it is a logical fact that some object which falls under that concept exists; and
2. That logical truths are true because they correctly represent objects.

Even though 1. may well be false, its falsehood does not entail that 2. is false too, and for our purposes we only need 2. to be true, not 1. Field's claim that Kant proved 'you can't get existential assertions out of logic and definitions alone' [Fie84, p. 509] gives the impression that he believes that Kant refuted 2. by refuting 1. But 1. may be false even though 2. is true. It is perfectly coherent to believe that logic is about objects, but there are no objects which, because of their special characteristics, are forced into being by logic. Think of the contrast between the quasi-logicist, who believes that there are distinctively logical individuals, i.e. those which satisfy the logical predicates, and the logical realist, who believes the weaker thesis that the truth of quantified logic requires some object, but any object will do.

The argument against 1. is an argument that there are no objects which exist by conceptual necessity. Kant's attack on 1. is intended as a counter to the ontological argument for the existence of God. The ontological argument begins by giving a definition of God, such as 'the *ens realissimum*, which possesses all reality' [Kan29, A596/B624] or 'the substance whose essence involves existence' [dS84, prop. 11 and ax. 7], and concludes that the non-existence of such a being is impossible, or self-contradictory. Kant declares that 'impossible' cannot in this context mean anything but self-contradictory:[5] 'in the absence

[5]This actually does not seem quite true about Anselm's ontological argument, which moves from the definition 'something a greater than which cannot be conceived' (as Malcolm translates 'aliquid quo nihil

of contradiction I have, through pure *a priori* concepts alone, no criterion of impossibility' [Kan29, A595-6/B623-4]. His diagnosis of the flaw in this argument is that there is no concept such that the assertion that no object is described by it yields a contradiction. For a contradiction, in Kant's Aristotelian logic, is formed by adding to a concept a predicate which is excluded by some other predicate already contained within the concept. But to say that something does not exist, according to Kant, is not to add a predicate, but to decline to posit that thing: that is, to make a synthetic judgement. 'If its existence is rejected, we reject the thing itself with all its predicates; and no question of a contradiction can then arise.' [Kan29, A594-5/B622-3].

This argument turns on the idea that existence claims are synthetic, and therefore not logical. Nevertheless, it does not actually prove the negation of 2. with respect to contemporary logic. The argument can be transformed to suit classical first-order logic by equating Kant's concepts with our ideology: the predicates. Instead of saying that there is no collection of (Aristotelian) predicates such that it is contradictory not to posit a thing with all those predicates, we say that there is no object-language predicate such that it cannot coherently occur in place of Φ in $\ulcorner\neg\exists x\Phi x\urcorner$. As it happens, this criterion only fails for self-identity. '$\exists x(x = x)$', after all, is a theorem of classical first-order logic. But adding 'with the exception of "$x =$"' to the criterion seems a defensible reply, because it now amounts to the idea that logic has no posits-*qua-F*. '$\exists x(x = x)$' is a neutral, impartial characterisation of an object. It is not an object-*qua-F*, because nothing is said about its nature. It features only insofar as it is an object in the domain, something for the theory to be about. It occurs here *qua* purely logical object, not *qua F*.

Modernising Kant's argument so that it bans objects-*qua-F*, but not objects in general, establishes the negation of 1., but not 2. One philosopher who affirms both 1. and 2. is Frege [Fre80a]. His necessary beings are not divine entities, but sets and numbers. He does not avail himself of concepts that contain existence or being in their essence. Instead, he uses abstraction principles: biconditionals with an equivalence on one side and an identity claim on the other, which are taken to be definitional. Examples include 'the direction of a = the direction of b iff if a is parallel to b', or Hume's Principle, 'the number of Fs = the number of Gs iff there is a one-one correspondence between the Fs and the Gs' [Fre80a, sec. 66]. Hume's Principle is logically equivalent to an existential claim: that whenever the Fs and the Gs are 1-1, there is something which is the number of Fs and Gs [Boo97, p. 308]. Neo-logicists have jettisoned some of Frege's project, notably his conception of extensions, which is inconsistent [Rus67a], but wish to hold on to Hume's Principle and its existential consequences. They take Hume's Principle to be a definitional, analytic, linguistic stipulation. Field, in his [Fie84] in which he invokes Kant, objects to such neo-logicist stipulations on the grounds that one cannot prove the existence of anything

maius cogitari possit' and its variants [Mal60]) via the premise that it is greater to exist in reality and thought than merely in thought, to the conclusion that God exists in reality [Ans98].

non-linguistic on the basis of linguistic stipulation. According to the neo-logicists' account, the definitions they view as belonging to logic, and as analytic, have, in our terminology, posits-*qua*-*F*. Field's argument seems to me to be sound, but whether or not he views it as an argument for sterility, what it establishes is that logic should not include analytic stipulations which introduce posits-*qua*-*F*. Although Kant's objection to the ontological argument does have merit, it does not prove that logic should be ontologically sterile. In the form in which it it relevant to contemporary logic, it turns out to be an argument for impartiality—logic should have no special logical ideology or specialised logical posits—compatible with the negation of ontological sterility.

5.3 Quine's Argument for Ontological Sterility

Quine is often cited in support of, or criticised for appearing to hold, the position that logic should be ontologically sterile [Tha75, Boo75, Boo84, Sha00]. If indeed it is true that he takes this view, his arguments for it are more allusive than explicit. Much is made of his brief remark, barely an argument at all, that he questions the logicality of second-order logic owing to its 'staggering existential assumptions' [Qui70, p. 68]. Ontological sterility does not sit especially well with Quine's opposition to the analytic/synthetic dichotomy. Also, there is some tension between the demand that logic be devoid of any existential consequences, and his choice of first-order logic, whose theorems include '$\exists x(x = x)$' and whose objectual variables are logical expressions.

One hint is provided in his claim that logic has no special subject matter, since it has the special property of 'versatile ancillarity'—what I call 'impartiality'—which he clarifies by saying it does not favour any distinctive part of the lexicon or values of variables [Qui70, p. 98]. His flavour of ontological neutrality entails that there are no special logical objects. But the question of ontological *sterility* is not about whether some values of variables are more logical than others, but whether logic may work just as well had there been no values of variables at all. Yet he appears to suggest that 'no special subject matter' is equivalent to 'no existential assumptions' when he deplores second-order logic. The answer, I think, resides in a failure to distinguish 'no special logical predicates or objects' from 'no existential assumptions'. This is fallacious because it equates 'entailing the existence of anything at all' (e.g. '$\exists x(x = x)$'), with 'entailing the existence of something in virtue of its particular nature' ('$\exists xFx$' for some non-logical F). In the terms in which I explained Quine in earlier chapters, the latter constitutes being committed to an object-*qua*-*F*. The former merely constitutes being committed to *something*.

5.3.1 Objects-*qua-F*, Flat Ontologies and Impartiality

According to my interpretation of Quine, ontological commitments for him are always commitments-*qua-F*. Reification appears on the scene when sentences receive a newfound structure by locating a pronoun on the intersection of observation sentences, thereby separating them into the logical expression—the variable—and the non-logical predicate. The variable connotes no more, and no less, than existence; being an object. All the information about what is true of the thing is confined to the ideology of the theory. Commitment only applies to things insofar as they fall under some kinds describable in the theory. A theory is committed to whatever satisfies some predicate or concatenation of predicates belonging to it: objects-*qua-F*. I also noted in chapter 2 that the resulting flat ontology, an unordered, unstructured domain of all the beings, is an ideal model of the underlying philosohy of existence. Since variables are the one semantic category that represent the introduction of reification, or positing beings, the beings are all on a par with no ordering or hierarchy imposed on them, since all things are equally existent and equally posited. There are no differences in *being*, but only in *nature*, all expressed by the ideology. The presence of a variable , connotes only objecthood, not nature, which is left to the 'F's the objects satisfy. Only one notion of *being* or *object* is in play: the most general one. Logical theory is only concerned with entities insofar as they are objects in the domain. Ordering or arranging them falls to the special sciences, not to logic, which merely collects together all the beings so they are available for being talked about all at once. This was called in chapter 2 the *unity* of existence (and the corresponding *univocacy* of 'existence', or 'being'): all existents are in the domain, regardless of their differences. This reflects the fact that there are no different kinds of being or existence. The only differences are differences in nature, always translatable into the ideology.

All this is very much in harmony with the argument from generality presented in 5.1.2 above to support impartiality, or ideological neutrality. An ideologically neutral logic confines itself to speaking of objects only in the most general terms, not discriminating between objects on the basis of their natures as described in the special sciences. Were a theory to discriminate in this way, it would be insufficiently general to merit the name of logic. Logic treats all objects equally. Neutrality does not rule out that logic has a subject matter where that means that it has a domain. According to the flat ontology picture, there aren't different levels of being; everything that exists simply shows up in the domain merely insofar as it is an object, independently of its particular characteristics. The most general description of an object is simply '$\exists x(x = x)$', and this is all the flat ontology requires of a being. No further strictures can be imposed by logic, because as far as logic is concerned, everything there is just functions as an element of the domain. An impartial, absolutely general logic is the theory that has all objects in its remit. Any theory that excludes some objects from consideration is not logic, since it would not be impartial. Some more comprehensive theory, the one that talks about all the objects, would be logic. So

the flat ontology picture leads naturally to impartiality.[6]

The flat ontology requirement helps reveal some tension between second-order logic and Quinean commitment. If predicate variables have values, it is difficult to see how to phrase the question, in the language of regimentation, whether they are identical with something in the first-order domain. But this is necessary to determine the cardinality of the domain. Identity, according to Quine, is identified in the canonical language with facsimile identity, or sameness with respect to all predicates of the theory. How to apply this *salva congruitate* to the value of a predicate is unclear, even apart from the vagueness surrounding the intensional or extensional identity conditions of their purported values. Quine hints at this when he 'deplore[s] the use of predicate letters as quantified variables' [Qui70, p. 67], and entreats those philosophers who really can't help themselves at least to write 'x has y' instead of 'x has F' . But this argument is not decisive for anyone other than Quine, given that it is so wedded to Quine's own epistemology.

5.3.2 'Staggering' Existential Assumptions

What are we to make of Quine's brief and cryptic remark concerning higher-order logic? He appears to just baldly assert that higher-order logic should not be counted as logic because of its staggering existential assumptions [Qui70, p. 68]. (He then deletes some of it from the next edition [Qui86a] after Boolos's critique [Boo75].) Perhaps the best way to make sense of this three-word 'argument' is that it suggests not a demand for sterility, but a kind of ontological neutrality that is based on not positing objects-*qua*-F. Although 'no existential assumptions' strictly speaking is not a good criterion for logicality, it is more reasonable to ask that logic should not be committed to the existence of objects-*qua*-F, for non-logical F. For Quine, the number of logical predicates is zero. Non-Quinean commitmentphiles, on the other hand, will probably include at least the identity predicate if they have a non-substitutionalist position on logical consequence.

The above is my way of making sense of and expanding on Quine's cryptic remark. Whether to endorse the argument and its conclusion is a different matter. Personally, I do want to tentatively endorse the principle that logic should not be committed to objects-*qua*-F, for non-logical F: that is, what I have called above 'strong impartiality'. In the section below it will become apparent why sets probably should not count as logical objects, nor set membership as a logical predicate. But I do not think it is mandatory for anyone who

[6] Impartiality without a flat ontology might also be possible; for instance, we might say the domains of ramified type theory jointly speak of all objects but without gathering them all together in a universe of discourse. In this case there is some ordering according to nature, but no objects are excluded from consideration because of their nature. No level by itself is sufficient to collect together all objects, but all levels collectively do perform this task. This would be a mitigated impartiality: although there is an imposition of order it is still non-discriminatory.

wants to take a commitment-based line on ontology to think that logic should have no commitments-*qua*-non-logical-F; others may prefer a mitigated impartiality, for instance to accommodate higher-order languages of regimentation (e.g. see 2.1.3, 3.5, 4.3.1 and footnote 5 above). Whether it is wise to renounce second-order logic as logic, or to opt for a non-standard interpretation of second-order logic, I will not attempt to settle either. I have argued that a Kantian duality between logic and sensibility is in tension with a realist view of logic and therefore unattractive to the commitmentphile, but this case seems less clear. There are those who argue that the language of regimentation should be higher-order [Boo75, Boo84, Sha00, Wil02, Wil13]. Those who follow Boolos think that this is acceptable only on the plural interpretation, for reasons of ontological innocence [Boo84, Hos00]. Shapiro and Williamson disagree, the former advocating for the standard, set-theoretic interpretation, the latter proposing to read second-order variables as ranging over properties.

To return to Quine's embryonic 'argument', there is one potential misreading I want to dismiss. It would be an error to interpret 'logic cannot have staggering existential assumptions' as 'logic may have existential consequences, but only if they are not staggering in size'. The reason that the existential assumptions of second-order logic are unacceptable, and those of first-order logic acceptable, cannot be because the former are simply too numerous. As we saw in 1.3.4, there can be no legitimate cardinality limit on ontology. How many Fs there are is immaterial; the issue is whether Fs are indispensable. If they are not, then they can be rejected or paraphrased away without considering how many there are; if they are, then we cannot make do without them and must admit however many of them there turn out to be. So the judgement that '$\exists x(x = x)$' is an ontologically kosher assumption, but '$\exists x(x$ is a set)' is not, cannot be made on the grounds that the set-theoretic universe is overpopulated. It must be because there is something wrong with sets themselves as a logical posit. But this judgement can be made on logical grounds. Because logic is impartial, and treats all objects the same regardless of their natures, existential consequences of logic are acceptable only if they do not discriminate according to nature. Posits-*qua*-F, where F is some characteristic some things have but other lack, do not belong to logic.

It is possible to read Quine as refusing to take first-order logic's existential assumption '$\exists x(x = x)$' with ontological seriousness. On this reading he means to convey that logic makes no ontological assumptions, but with the *ad hoc* exception of '$\exists x(x = x)$' for the sake of model-theoretic elegance. It is not unlikely that Quine in fact intended to say this; the claim is certainly compatible with his views in earlier papers [Qui53b, Qui54]. I, by contrast, prefer what I take to be the more interesting position that we should disqualify only candidate logics that have commitments-*qua*-F for Fs that are distinct from self-identity. $\exists x(x = x)$ is not a commitment to an entity-*qua*-F; nothing is specified about x's nature. It features only *qua* object. The standard interpretation of second-order logic, by contrast, incurs a commitment to sets: all subsets of whatever the first-order domain is. This is

a commitment to objects-*qua*-*F*, namely *qua* set. Recall Quine's [Qui51a] discussion of [Car50], where he distinguishes between subclass questions and category questions, showing that what Carnap regards as unintelligible category question can be translated into intelligible subclass questions. There is one category question in a first-order regimented language, viz. 'are there objects?' It is answered, affirmatively, by logic, since '$\exists x(x = x)$' is a logical truth.

For Quine, who has a substitutional theory of logical consequence, there are no logical predicates, and the identity predicate is interpreted as indiscernibility with respect to all predicates of the language. So '$x = x$' is read as 'x satisfies all the same predicates as x'—it says no more than that x is an object in the domain. Logic has no commitments-*qua*-*F*, because no F is intrinsically logical according to his theory of consequence. Quineans with alternative views of logical consequence may think of identity as a logical predicate. They can still happily assert that logic has no commitments to objects-*qua*-non-logical-*F*.

5.3.3 Absolutely General Objects and Paradox

The hypothetical philosopher I have dubbed the quasi-logicist might raise an objection at this point. It is clear why logic should not incur commitments to things falling under non-logical kinds. Logic does not favour any kind of thing over another; such discourse does not belong to the realm of logic. All remarks about what kinds things belong to are ideological, and favouring particular natures is inconsistent with impartiality. But does this entail that there should be no logical predicates? Not according to the quasi-logicist. She is not a full-blooded logicist who thinks analytic stipulations can generate commitment to non-linguistic objects. The quasi-logicist makes the more moderate claim that it has not yet been proved that there cannot be both logical predicates as well as distinctively logical things that satisfy them.

Kinds, predicates, or natures can be more or less specific. For instance, 'x is human', 'x is physical', 'x is a member of some set', are listed in descending order of specificity. It is clear that for logic to meet the conditions of epistemic neutrality and fulfil Frege's demand that it be applicable to anything thinkable, logic must be as general as possible. Anything that is applicable exclusively to things with natures discussed only in some particular special science cannot be logic. In and of itself this does not immediately rule out that there are some distinctively logical predicates. It has not been established that there are no predicates that are such that they must be true of everything thinkable. If there are such kinds, they may have a claim to being logical. Pioneering logicians embraced theories with numerous existential consequences as logic, like the theory of classes or extensions [Fre80a, Fre64]. Of course a theory asserting the existence of elephants, or pineapples, or teacups, cannot be counted as logic; the existence of these kinds of things is an empirical and highly contingent affair. Why logic cannot entail that there are classes, or collections,

or properties, is harder to see. Logic should not say that some very particular things exist, because of its generality, but sets, classes, abundant properties and numbers are such highly general things that they might qualify. Any collection whatsoever forms a class; everything has some property. They are highly general like logic itself, and apply to any realm of thought. So the quasi-logicist proposes that they be counted as logical objects. If successful, her argument could provide the basis for a case of second-order variables as committing expressions.

The difficulty with this view, I think, is that logic should not merely be as general as possible, but absolutely general. Sets, properties and numbers, on the other hand, are not *absolutely* general objects, because if they were, they would apply to themselves and so lead to a version of Russell's paradox or the Burali-Forti paradox. Frege had high hopes for his purportedly absolutely general extensions, only to be stymied when confronted with a version of Russell's paradox: the set of all sets that aren't members of themselves both is and isn't a member of itself [Rus67a]. It may be that one of Quine's underlying motivations is that set theory elevates a the predicate of set membership to the logical even though it is not fully impartial, unlike logical theory. For a theory to qualify as logic, it has to collect together absolutely all objects in its remit, and speak of them all purely *qua* objects, independently of what they are like. If a highly general theory excludes just a single existent from its domain of discourse, it thereby violates the impartiality criterion of logicality. It is no longer a suitable candidate for the label of logic; some even more general theory would be, whose domain was the union of it plus the singleton of the excluded thing. Frege thought that his extensions had a comparable property: that they could apply to absolutely any object or plurality of objects. But the fatal flaw in his account was self-application.[7] There is no number of all numbers, no set of all sets [Rus67b]. Although these things are very highly general, and their corresponding predicates applicable to almost everything, they are not absolutely general or applicable to absolutely anything. Perhaps what is behind modern logicians' insistence on sterility, and Quine's aversion to sets as logical posits, is a wish to avoid being embroiled in Russell's paradox.

5.4 Objects, Regimentation, and the Subject Matter of Logic

In conclusion, there is no need to suppose that because logic is topic-neutral, it cannot be about objects—to think that one entails the other is to trade on ambiguities in both 'topic-neutral' and 'being about objects'. 'Topic-neutrality' can be interpreted variously as 'being applicable to all areas of enquiry'—epistemic neutrality—'being neutral on how things are'—ideological neutrality, which can be equated with impartiality, or treating all objects equally without discriminating according to nature—and 'being neutral on what

[7]Strictly speaking, Frege does not allow that concepts ever apply to concepts, or objects to objects—he corrects Russell to that effect in his letter [Fre80b].

there is'. We found that there is no obvious reason for demanding that logic be ontologically *sterile*, without existential consequences or capable of being true in the absence of anything at all; rather, we took topic-neutrality to be strong impartiality, having no posits-*qua*-*F*. This means theories with posits *qua* set, or *qua* number are potentially problematic, but '$\exists x(x = x)$' as a logical truth is acceptable, since nothing is said of x's nature. The logical predicate '$x = x$' is satisfied by anything whatsoever. So x features only *qua* object, not *qua F*. It is consistent to call logic topic-neutral and also maintain that it is about objects and objecthood. Identity can count a logical predicate even under strong impartiality. Impartiality does not prohibit logical predicates as such, as long as they are predicates satisfied by everything in the domain, as is the case with self-identity.

What does this mean for our language of regimentation? The findings of this chapter validate the choice of first-order logic with constants and identity. First-order logic is a safe bet given the tension between higher-order resources and strong impartiality: since the values of higher-order variables are standardly thought of as sets, higher-order logic has posits-*qua*-*F* in the object language. Alternative interpretations of higher-order logic and/or mitigated impartiality may bring solace, but for now we will concentrate on using first-order resources. The intuitively committing force of directly referential expressions was upheld in chapter 4, where we concluded that denotation without connotation is a useful sufficient condition for committing expressions. Like variables, directly referential expressions are capable of singling out an object without communicating anything about its nature. In this chapter we encountered further reasons to believe that logic can speak of objects in the most general sense: it does not sort or order objects according to nature, but collects all objects together in one domain, leaving their natures for the special sciences to fill in. Since neither variables nor constants are concerned with natures, they do not interfere with impartiality. In the next chapter, we will consider how our epistemology-neutral canonical language handles the issue of identification and criteria of identity.

Chapter 6

Objecthood and Identity

In the previous chapter it became apparent that it is possible for existence and objecthood to be part of the subject matter of logic even though logic is the most general discipline of all. Logic can be both absolutely general and topic-neutral, without that entailing that it tells us nothing about what objects there are, or how they are. All it means is that logic confines itself to speaking of reality in the most general terms. It ought not to discriminate between objects on the basis of their natures, since that is the task of the special sciences. The question now arises how our choice of canonical language combined with this philosophy of logic affects our conception of objecthood and the process of regimenting a theory.

We concluded in favour of a language of regimentation with two kinds of committing expressions: constants and variables. Both are *bona fide* committing expressions, we found in chapter 4, since they denote without connoting: they single out a being without making any comment on its nature. Logic, and the language of regimentation, treat objects impartially: they leave ordering and categorising things to the special sciences, speaking of them only *qua* things. The objective is for the language of regimentation to be epistemology-neutral as well as neutral on nature. We want to be able to translate object-foundationalists as using constants as committing expressions, holists as using variables, hybrid theories as using both. Our main complaint about Quine's process of regimentation was that it misrepresents those who wish to commit directly. By banishing all directly referential resources, he built thin objecthood and facsimile identity into the syntax. One of the tasks for a neutral language of regimentation is to avoid building another epistemological perspective into the syntax. Strict object-foundationalists like Barcan Marcus assume that objects are encounterable things, out there for us to find without first needing to limn their boundaries by description. Can our language of regimentation be neutral enough to translate both Quine and Barcan Marcus without prejudicing the debate? And does the hybrid conception have

a coherent story to tell, given that it admits both methods?

In this final chapter we will encounter reasons to answer 'Yes' to both questions. Logical languages are especially helpful for ontology for various reasons: they separate *being* from *nature*, and their truth depends on correctly representing the most general aspects of the world, including objecthood. An additional argument states that non-computable logics, which have the expressive strength to encode relational vocabulary, are especially useful for ontology because their ability to express relations enables them to state criteria of identity in terms of equivalence relations. This conception of objecthood, loosely based on Frege according to whom logic incorporates the notion of different representations centring on a common object, gives pride of place to identity. Logic can express representations of an identical common object. All this is compatible with translating Quinean theories without demanding that we adopt his problematic identity-facsimile. We adopt a system with primitive identity that also allows identity to be definable for some systems or some ontological categories within a system. To achieve this we draw upon Barcan Marcus' distinctions between different kinds of extensionality. According to her, to extensionalise is to equate identity with a weaker equivalence relation. Explicit extensionality principles can be formulated for whole theories of for particular metaphysical categories within the theory. Some categories within a theory may be subject to criteria of identity while others are not. The circumstances under which things can be declared identical will depend on their role in the system and the theory's epistemology.

Quine declares all objects identical whenever they are indiscernible according to our best theory. In a neutral language of regimentation, this would take the form of a theory-wide explicit extensionality principle. For philosophers who admit direct access, indiscernibility according to the theory does not imply identity. Some descriptively indiscernible things may be discerned by direct access, e.g. ostensively or introspectively. Such objects will not be subject to criteria of identity. Hybrid theorists believe in direct contact with things, but they need not think that all objects can be accessed directly. Our mode of access to some kinds of objects, mathematical objects for instance, may be purely descriptive. In that case some kind of extensionality principle applies: e.g. sets are held to be identical iff they have all and only the same members. I will conclude that for the purposes of determining their ontology, philosophers should be translated into a canonical language at least as strong as first-order logic with constants, where their directly referential expressions, if they use them, are translated as constants, and their discourse, if they engage in it, about ontological categories whose members we can only access by description or abstraction is translated in descriptive terms, where the committing expressions are variables.

6.1 An Improved Canonical Language

6.1.1 Regimentation without Built-In Holism

In chapter 1 we found that there are good reasons for agreeing with Quine that the objectual variables of a theory translated into a properly logical language are committing expressions. They neatly separate talk of *being* from talk of *nature*, facilitate ontological reduction, and have no trouble bringing to the fore those commitments that remain hidden in natural-language theories. But Quine's language of regimentation has a significant drawback: it lacks the syntactic resources to model direct commitment via the use of a directly referential expression. Quine has a rather thin conception of objecthood. He simply equates being an object with being posited on the intersection of persistently overlapping observations, any one of them being always potentially dispensable. Both this and the ban on direct reference are ultimately the result of global holism. Non-holists have ontologies too, so we want a framework for asking and answering ontological questions that is not beholden to any particular epistemology. In the third chapter, we considered reasons for admitting another kind of commitment, namely commitment via direct contact with an object. The contrast between knowledge by acquaintance and knowledge by description applies to commitment too: here the contrast is between committing to an object *qua* individual, and commitment to an object-*qua*-*F*, *qua* satisfier of some description. There is a good case to be made for adding directly referential expressions to the language of regimentation because all purely objectual expressions, at least, present objects as logic sees them: only as objects, leaving their natures and relations to each other to the special sciences.

If there are acts of cognition where a mind reaches out directly to an object, then intuitively speaking the object should surely go into that epistemic agent's ontology. The vehicles for such codification are directly referential expressions, or in formal languages, the constants. They are purely objectual expressions—the interpretation assigns them objects as their values; they stand for objects without any help from the ideology. We need not deny that pronominal expressions whose regimented analogues are variables are committing on that basis: it is perfectly coherent to have two kinds of objectual committing expressions. Nor does it mean that all expressions that look directly referential in ordinary language should be translated as committing expressions. Although all directly committing expressions go into the language of regimentation as individual constants, which expressions are translated as such depends on the theory which is being regimented, and potentially on the epistemology of the person who propounds it. Philosophers differ over which expressions are directly referential. Barcan Marcus [Mar61] and Kripke [Kri80] both think that proper names are directly referential, but Barcan Marcus means by this only names of actualia [Mar85], whereas Kripke seems to suggest that possibilia can also have directly referential names [Kri80]. Russell believes in directly referential expressions [Rus10], but thinks that there are far fewer of them than Kripke and Barcan Marcus do. Ordinary-language proper

names, for him, are not directly referential but short for definite descriptions. An early temporal slice of him believes that the self is a proper object of acquaintance, so 'I' is a directly referential committing expression, as are 'this' and 'that' [Rus10, Rus12]. Soon afterwards, he ceases to believe in the self [Rus19]; his set of directly referential expressions then shrinks to only 'this' and 'that'. On these grounds it would make sense to translate Barcan Marcus' theory into canonical notation by rendering names of persons as constants, but names of fictional objects or mere possibilia as definite descriptions. Since she disavows commitment to fictional objects or possibilia, these should be thought of as logical constructions; no existentially quantified sentences about them follow from her regimented theory. Unlike Barcan Marcus, Kripke thinks of variables as committing expressions [Kri76]. Since he also admits ineliminable Millian names, it is plausible to class him, with Russell, as a devotee of the hybrid criterion of commitment that comes with a foundherentist attitude towards objects: they allow commitment by acquaintance as well as by description. In translating the early Russell, 'I' and 'this' would be rendered as constants, names of persons as definite descriptions. Translating Quine yields only definite descriptions and existentially quantified sentences, since he rejects proper names and direct contact with objects. The epistemology-neutral language of regimentation ought to accommodate all three, so it should be at least as strong as first-order logic with individual constants.

6.1.2 Revisiting the Desiderata

In 1.2 we laid out some desiderata for ontological commitment:

1. that there must be some **ontologically committing expressions**, and some expressions that are not committing.
2. that it can account for **true and coherent negative existentials**, or statements of non-being, by explaining how a true statement of the form ⌜There is no x such that Fx⌝, or ⌜There is no x such that $a = x$⌝, is true because 'F', or 'a', does not apply to anything.
3. that it counts among the commitments of a theory not only those entities it explicitly asserts there are or refers to, but also those that it **implicitly** relies on.
4. that it explains **interdependence** between metaphysical categories, especially attempts at reduction.

Quinean commitment, which translates theories into a properly logical language and disquotes all existentially quantified sentences of the resulting regimented theory closed under consequence, performs well on these criteria. The ontologically committing expressions are all and only the variables; only they stand for objects, all other expressions are logical operators or lexicon. The committing expressions are not only clearly circumscribed, but also

apparent in the regimented surface grammar. If nothing is F, everything in the domain fails to satisfy 'F', and so '$\neg\exists xFx$' readily follows. This provides a clear account of what it is for there to be no Fs: all the beings, the objects in the domain, are such that 'F' is false of them. There is no need for obscure categories like impossible objects or nonexistent beings. Formalisation is also helpful in explaining interdependence. Someone who thinks that mental states are brain states, for instance, must attempt to state her theory in such a way that its regimented version quantifies only over brain states whilst explaining mental phenomena. In general, if talk of Fs can be translated speaking only of Gs, then Fs are reducible to Gs. Where the Fs and Gs in question are assumed in the background in a natural-language theory, we naturally think about whether an existence claim logically follows from its statements. Ordinary-language vagueness and ambiguity can hide their entailment, so translation into a formal language ensures that implicit commitments are just existentially quantified consequences of a fully regimented theory.

How does our improved language of regimentation fare on the desiderata? Using a first-order logical language preserves the virtues of Quinean regimentation: taking into account implicit as well as explicit commitments, a well-defined consequence relation, a univocal treatment of ontological vocabulary like 'there is' and 'exists'. The main difference with Quinean commitment is that the ontologically committing expressions also include constants. Constants will be used in translating some philosopher's theory into canonical notation whenever she is plausibly interpreted as attempting to commit to an object directly. So we can account for negative existentials with constants in them, of the form ⌜There is no x such that $a = x$⌝, by showing that no object in the domain is called 'a'.

A first-order language with objectual quantification, constants, and identity is preferable to a language of regimentation with *only* constants as committing expressions, along the lines Barcan Marcus proposes [Mar72, Mar78]. Her language can account for negative existentials: '$\neg\exists x(x{=}a)$' follows just in case none of its theorems contain 'a' as a tag, and $\neg\exists xFx$' iff no referent of a tag satisfies 'F'. But implicit commitment and interdependence resist translation into her idiom of choice. We noted in 3.5.4 that since constants must be enumerable, Barcan Marcus has no way of speaking about metaphysical categories presumed to have non-enumerably many members, such as numbers, sets, space-time points, or possible worlds. I explained then that this is not an oversight, but a natural outgrowth of her nominalism and strict object-foundationalism; she prefers to interpret such locutions, including modal and propositional vocabulary, in substitutional terms. Contact with objects is only ever direct, the mind reaching out to an individual and assigning a tag to it—a process which seems as explicit as any. There are no hidden existential assumptions, since the variables in existentially quantified consequences of a theory do not count as committing expressions for her. Our language of regimentation respects her insistence on commitment via direct access to objects; her substitutional reading of mathematical, propositional and modal discourse can be rendered as simulated quantification, as in Quine's virtual theory of classes [Qui70, pp. 68-74] and simulated propositional quantification [Qui70, pp. 74-75].

On this reading, sets, propositions, etcetera are logical constructions to which there is no commitment.

6.1.3 Primitive vs. Facsimile Identity

Another change we have made compared to Quine's language of regimentation is the interpretation of the identity predicate. In 1.4–1.5 above, I conjectured that there is a connection between Quine's strangely thin conception of objecthood and his predilection for facsimile identity which boils down to indiscernibility-within-the-theory. The variable is no more than an x that marks the spot where observations overlap. Objects are mere posits, always dispensable if the theory demands it. Quine's criterion of commitment is very well integrated with his epistemology and his philosophy of logic, but thereby becomes ill-equipped to account for individuals that can be identical or distinct *simpliciter*. His construal of objecthood as positing fits with a philosophy of logic which separates *being* from *nature*. Objects *qua* objects, not *qua* satisfying some description, are part of the subject matter of logical theory, since logic treats all objects impartially. But according to Quine's criterion theories only have commitments to objects-*qua*-F, for Fs supplied by the ideology, because objects are hypostatised on their intersections. So to say that two objects are the same is just to say that they are the same object-*qua*-F: that is, indiscernible according to the theory. Stronger equivalence relations are not needed. And replacing the primitive identity predicate with a defined facsimile means that nothing stronger than intra-theoretic indiscernibility can be expressed. Translating Quine into canonical notation now poses the problem of accurately representing his weakening of the equivalence relation in question (called 'extensionalising' in 3.4.3).

6.2 Identity, Identifiability, and Thin vs. Robust Objects

The arguments of chapters 3 and 4 made facsimile identity seem dubious. The usual reading of the identity predicate is that it expresses the strongest equivalence relation, namely *being the same thing*. A key objection to reading facsimile-identity in place of primitive identity was Ramsey's (see 3.3.4, 4.2.3): it is always logically possible for indiscernibles to be distinct [Ram31, p. 31]. In the object language, all weaker equivalences are necessary, but not sufficient, for sameness of thing. Identity entails indiscernibility, sameness of spatiotemporal location, sameness of colour, etcetera; but sameness in a respect can never formally entail sameness of thing.

Ramsey's objection is one reason to favour identity as a logical predicate. Another consideration is the possibility of direct contact with an object, such as introspection, ostension or acquaintance. Descriptive indiscernibility may do very well for objects-*qua*-F, but does

not imply identity where objects are introduced by means of a directly referential expression. These can be descriptively indiscernible, but ostensively or introspectively discernible. Non-holists, it seems, have a more robust conception of objecthood. For Quine's objects-*qua*-*F*, it is a given that any one of them is dispensable whenever the theory demands it. Other intersections of observations could be chosen as focal points for reification. But objects to which my mind reaches out directly are not so easily dispensed with. Perhaps I cannot coherently explain away my own existence as an observer, or the existence of my current mental state.

Ramsey's objection reminds us that as far as philosophy of logic is concerned, there is no reason to promulgate the identification of indiscernibles. So Quine's attempt to build facsimile identity into the very grammar of logic grants too much power to syntax. Distinct indiscernible objects are certainly not a logical impossibility. Nevertheless, in a theory like Quine's which admits only objects-*qua*-*F* as elements of the ontology, the identification of indiscernibles is perfectly defensible: where we encounter an object-*qua*-*F*, followed by an object-*qua*-all-and-only-the-same-*F*s, we only have reason to posit one thing. Facsimile identity is a good fit for objects-*qua*-*F*, since they are subject to some sort of criterion of identity. An epistemology-neutral language of regimentation should make room for the kind of direct commitment Quine cannot shoehorn into his grammar, but without making Quine's grammar appear incoherent in turn. Our language must find some way of encompassing Quine's facsimile, and his thin objects, as well as the more robust kind of objecthood that comes with primitive identity.

6.2.1 The 'Common Objectual Bearing' Argument

Why should we think of logic as having something to say about the identity or distinctness of objects? In 5.2.1 above we saw that Frege, with the help of his new, improved polyadic logic, challenged Kant's contention that logic is completely separate from being and reality, and can be true in the absence of any existents whatsoever. Frege defends a strong thesis of logical objecthood. He not only thinks that *being* comprises part of the subject matter of logic, but also that there are special logical beings, the posits of logic: extensions. As we all know, his theory of extensions is unfortunately inconsistent. Still, the absence of special logical beings does not lead ineluctably to the conclusion that logic is not about beings at all. Singling out some among the objects for special treatment is different from making the existential assumption that there are objects in a general way. A more modest argument for a theoretical connection between logic and being can be made, one that does not posit special logical beings, but on which logic does speak of objects *qua* objects. The argument is based on the increased expressive power that polyadic logic has compared to Kant's monadic Aristotelian logic. Sullivan notes that Frege's logic incorporates the notion of a 'common objectual bearing' [Sul04, p. 718], unlike monadic logic. Although Sullivan does not elaborate much on the meaning of 'common objectual bearing', I proposed in

5.2.1 that it is related to polyadic logic's capacity to express relations, specifically equivalence relations. Monadic logic, having no relational vocabulary, can speak of objects by means of names or variables, but has no way of putting things equal to each other, or, in Sullivan's words, of saying that two representations have an objectual bearing in common. Without a way of settling whether purported objects are held to be identical or distinct, the cardinality of a theory is indeterminate. So it is difficult to state the ontology of a theory formulated exclusively in a monadic language. Some headway might be made by adopting the Tractarian convention [Wit74] that the use of a different expression implies that a new referent is introduced. But this does not help make sense of the possibility that two things posited for different purposes might turn out to be the same thing. Nor does it allow for the possibility of reduction and paraphrase. This problem is reminiscent of the issues we identified with Carnapian deflationism in 2.3, where variables of different kinds cannot be put equal to each other [vI02]. In a monadic language nothing can be put equal to anything, even itself, so the possibility of theoretical identification of two posits previously held to be distinct is blocked off completely.

Frege's tendency to think of common objectual bearing as belonging logic suggests a thicker conception of objecthood, to which identity is integral: two representations share a common objectual bearing by both centring on a common identical object. But in fact Frege wavers between taking identity as primitive [Fre67] and defined, sometimes arguing that identity between objects is 'complete coincidence', or having all their properties and relations in common [Fre97, p. 177]. This indicates that although Frege believes that identity cannot be construed as merely language-relative and extra-logical, he also takes identity to be definable for some systems or some ontological categories within a system. Frege, always careful to distinguish object from concept, does not put forward a criterion of identity properly so-called for functions, but a second-order analogue of identity, which holds for functions with all and only the same objects in their extensions [Fre97, p. 177].

6.2.2 Kinds and Criteria of Identity

Even in a first-order language like our improved language of regimentation, criteria of identity might be appropriate for some of the metaphysical categories of a given theory. If an object is introduced specifically as 'whatever satisfies the condition "F"', treating it as an object-*qua*-F is reasonable. Two objects-*qua*-F, for example, encountered in different theoretical contexts, both of which satisfy the condition of being natural numbers without predecessors, have a good claim to be identified. Numbers and other mathematical posits are a paradigm case of objects which we access, if at all, wholly by descriptive methods—criteria of identity seem appropriate for metaphysical categories accessed by descriptive methods only. This implies that although '0' looks syntactically like a name, it is natural to think of it as a disguised description, short for 'the natural number which is not a successor'. The word '0' thus understood is not a Millian name, since it has sense as well

as reference. It should go into the regimented version of this theory as a descriptive phrase, not a constant.

The task of the logical part of the theory is not, like Quine says, to present objects only as idealised nodes, mere points of confluence of observable characteristics; that view would entail his thin conception of objects and his facsimile of identity, amounting to mere indiscernibility within the theory. His treatment of identity runs up against Ramsey's objection: being indistinguishable by predicates, no matter how sophisticated, never entails being the same thing. Still, when Quine says that 'to try to decide whether the penny now in my pocket is the one that was there last week, or just another one like it, I would have to explore quite varied aspects of my overall scheme of things' [Qui92, p. 24] he appears to be making a sensible point about identifying two purported middle-sized physical objects. We need significant descriptive resources to identify something as a penny, which must be invoked to identify something as last week's penny. But criteria of identity that are purely third-personally descriptive do not help Sally the scientist from chapter 4, who was confronted with two descriptively indiscernible data points which are distinguishable only ostensively. That is not an issue we are likely to face with numbers, since our methods for getting in contact with numbers were presumed to be description-only, never ostensive or introspective. In the case of Sally's data points, she has, according to Quine, good theoretical reasons to identify the two: they are objects-*qua*-F for all and only the same descriptive Fs. Still her sense perceptions tell against it: there are clearly two objects. In this case, although there are some descriptive methods involved in identifying a data point, purely descriptive criteria of identity are likely to lead us astray.

When are criteria of identity appropriate? And what is the difference between such entities as numbers, middle-sized dry goods, and presently occurring mental states? To answer these questions we take a page out of Barcan Marcus' book, and turn to her characterisation of intensionality and extensionality. We saw in 3.4.3 that Barcan Marcus believes that extensionality comes in degrees, with languages being more extensional the weaker the strongest equivalence relation they substitute for identity. I noted then that her characterisation is accurate for Quine, who in general holds indiscernibility-according-to-the-theory to be the strongest equivalence relation expressible in any language which meets his standards. Within those languages certain metaphysical categories can be given even weaker criteria of identity, which Barcan Marcus spells out in terms of extensionality principles. The solution I want to give to the present problem is that the different kinds of access which epistemic agents can have to different kinds of objects dictate what kind of extensionalising principles are appropriate, if any.

6.3 Access to Objects and Explicit Extensionality

6.3.1 Barcan Marcus on Extensionality

According to Barcan Marcus [Mar60, Mar61] the contrast between intensionality and extensionality is not all or nothing; rather, languages can be extensional to a higher or lower degree. The more extensional the language, the weaker its strongest equivalence relation. An implicit extensionalising principle holds for a language when it forms part of its governing logic or grammar, which entails that the language cannot express fully-fledged identity, but only some weaker equivalence, like indiscernibility. Quine's insistence that logic proper does not contain a fully-fledged identity predicate, but only his defined facsimile, can be seen in Barcanian parlance as an implicit extensionalising principle. Instead of primitive identity, the defined predicate of facsimile identity abbreviates exhaustive lists of sameness with respect to all the predicates [Qui70, p. 64]. From within the object language, facsimile-identical objects are impossible to tell apart, since they are objects-*qua*-all-and-only-the-same-Fs. Speaking *about* such a language, though, it is easy to demonstrate that such objects are only indiscernible-according-to-that-language, which does not entail that they are identical *tout court*.

Explicit extensionality principles will be helpful for regimenting criteria of identity. As we noted in 3.4.3, they have a logical form along the lines of

(EEP) x eq $y \rightarrow xIy$,

where 'eq' stands for some equivalence relation weaker than identity, 'I' stands for identity, '$\rightarrow$' is a conditional that is part of the language or a metalinguistic conditional, and 'x' and 'y' go proxy for purely objectual expressions [Mar61]. There are two kinds of explicit extensionality principles: those that hold for a language or system as a whole, and those that govern only some particular category within it. We saw in 3.4.3 that Barcan Marcus would classify Quine's 'reading identity in place of river kinship' [Qui50, p. 66] as an explicit extensionality principle for rivers.

Our aim is to achieve a language of regimentation that can regiment the theories of both Barcan Marcus, who thinks that all objectual expressions are directly referential, and that encounterable objects cannot be paraphrased away, and Quine, who denies both those claims. One step towards an epistemology-neutral theory of ontological commitment with regimentation is to make Quine's global implicit extensionalising principles explicit. Quine's views on theory formation—moving from feature-placing observations to reification on the loci of significant overlap—lead him to speak as though all languages, all of which share a logical structure, have an extensionality principle built into them: that whenever two objects are objects-*qua*-all-and-only-the-same-Fs, they count as the same object. That principle of extensionality, which remains implicit in Quine, merely part of the background

logic, should be brought to the foreground in a neutral language of regimentation, and translated as an explicit extensionality principle for his theory.

My reservations about Quine's insistence on *global* criteria of identity stemmed from his thin conception of objecthood. For him, the only handle we have on objecthood is via the use of variables, which are used to mark significant intersections in observations. Although this makes objecthood a logical notion in that all objectual expressions are part of the logical vocabulary, it entails that identity is not a logical notion, but explained away as indiscernibility within the language. In chapters 4 and 5 we covered the question of objecthood as a logical notion in our language of regimentation; it was found not to depend on logical committing expressions or rejection of primitive identity. The point of this section is that a language of regimentation like the one I propose, with constants and primitive identity, does not amount to making thin objecthood or criteria of identification impossible to understand. Quine's language is implicitly extensionalised; it incorporates facsimile identity into the very syntax of logic, which is to build an epistemological perspective into its grammar. But our language, which is not implicitly extensionalised, does not thereby make extensionalising principles—even global ones—incoherent: it just demands that they be made explicit, so that a holist language is forced to wear its epistemic presuppositions on its sleeve. Besides global extensionalising principles for specific regimented theories, many theories will also contain extensionalising principles for specific metaphysical categories.

6.3.2 Metaphysical Categories and Extensionality

Besides being a matter of degree rather than all-or-nothing, Barcan Marcus' extensionality also provides the option of category-restricted extensionality principles. Some categories are more strongly extensional than others. Sets are a good example of a metaphysical category that is subject to an explicit extensionality principle. Two sets are normally thought to be identical if all their members are identical, which is encapsulated by the Axiom of Extensionality: $\forall x(x \in a \leftrightarrow x \in b) \rightarrow a = b$. Sets have a clear criterion of identity, namely having all and only the same members. A rather weak equivalence relation is held to be sufficient for identity. Properties, by contrast, are usually described as being more strongly intensional than sets. Their criterion of identity will be formulated in terms of a stronger equivalence relation than that of sets, because two properties can be intuitively distinct even though they have exactly the same instances. Every creature with a heart is a creature with a kidney. Yet the property of being a cordate and the property of being a renate seem like two different things. So the extensionalising principle in question equates identity for properties with a stronger equivalence relation than the one that works for sets. The criterion of identity for properties is controversial, but certainly involves sameness in more respects than having all the same instances. Those who believe in both properties and particulars take particulars to be more strongly extensional than

properties. Identifying two particulars on the grounds that they satisfy all the same descriptions runs up against Ramsey's objection that such indiscernibility does not formally entail identity, and against the possibility of first-personal or ostensive individuation. To institute purely descriptive criteria of identity for particulars would be contentious to say the least. But most realists about properties do accept some form of purely descriptive criteria of identity for properties; properties and other universals are not usually thought of as being first-personally or ostensively encounterable. So it is not especially contentious to reject indiscernible properties.

6.3.3 Barcan Marcus, Russell's Thesis and Encounterable Objects: Foundationalism and the Rejection of Criteria of Identity

These reflections suggest that criteria of identity are suitable for objects which we access by descriptive methods. Such objects are usually introduced into the theory as posits: objects hypostatised by the theory to function as best explanations of observed phenomena. As they are specifically introduced *qua* satisfier of some description, there is no objection to treating them as objects-*qua*-*F*. Adherence to a strictly holist epistemology is not a requirement for this use of posits, which is open to object-foundherentists too. Objects of direct commitment resist such treatment. Let us call such entities 'encounterables'. Encounterables, denoted by constants, are not thin objects, tentatively marked on the foci of theoretically interesting patterns of observations. They are, according to the theories in question, out there in the world for us to bump into unthinkingly, possibly without any help from the ideology. Since the mind reaches out to them directly, it is harder to think of them as potentially dispensable.

In a theory like Barcan Marcus', where all objects in the ontology are encounterables, only primitive identity is admitted and there are no criteria of identity. Recall Russell's Thesis from section 3.3.4, also endorsed by Barcan Marcus: 'the identity sign is ... *never* flanked by descriptive phrases' [Mar85, p. 191], but only by constants and variables. Names that are to be translated as constants cannot be disguised descriptions or in any way retain descriptive features. Since identity only obtains between a thing and itself, only purely objectual expressions —including Millian names and variables—can be used in identity statements. Indirectly referential expressions, like descriptions, will not do because instead of picking out the thing directly, they determine their referent through satisfaction of some descriptive phrase. This very technique disqualifies them from flanking the identity predicate because they single out objects *qua* satisfier of some description, turning the object in question into an object-*qua*-*F*, for which the identity of indiscernibles should hold. Criteria of identity specify some condition the object must satisfy, which does nothing to prevent the possibility of Ramsey's objection arising: that two things may well both satisfy that condition and still be distinct.

6.3.4 Direct Commitment: No Criteria of Identity

All theories grounded in strict object-foundationalism only admit direct commitment using constants, captured by the criterion 'to be is to be the referent of a constant'. A fully regimented theory of this sort will not contain any criteria of identity for elements of the ontology, all of which are encounterables. Encounterables are not objects-*qua*-*F*, but capable of being objects of acquaintance or other direct methods without descriptive intermediary. Extensionalising principles stipulate that, for the purposes of some particular theory, there is some cluster of descriptive conditions which provides sufficient reason to consider any two objects-*qua*-*F* which satisfy them to be identical. But Barcan Marcus does not conceive of any of the elements of her ontology as objects-*qua*-*F*: all commitment is to encounterables.

Although Barcan Marcus' own characterisation of her canonical language does contain extensionalising principles, when we translate her theory into first-order logic with constants and identity they disappear. This is because our preferred quantification is objectual, not substitutional. When Barcan Marcus introduces terms and substitutional quantification to talk of mathematical entities, possibilia, propositions and universals, none of this talk is committing since no such entities are assigned purely objectual tags, and their variables never take tag-substituends. So for our purposes, this is simulated quantification, since it cannot be characterised in terms of committing expressions. She contends that extensionalising principles hold for such simulated entities, but not for the referents of tags. But in my preferred language of regimentation, we would represent Barcan Marcus' tags as constants, and her substitutional quantification without tag-substituends as logical constructions: incomplete symbols which disappear upon analysis, along the lines of [Qui70, pp. 68-74]. The theory could contain contextual definitions for the purposes of ontological reduction, paraphrasing away such entities, or entail negative existentials featuring descriptions of them, but cannot contain reference to them.

It should be noted, though, that whether or not an object is encounterable is theory-relative, not a feature of the object's nature. It depends on the kind of access that particular theory takes epistemic agents to have to objects in general, or to objects of that kind. Barcan Marcus adheres to a kind of classic nominalism where everyday objects are directly encounterable, and the purported posits of mathematics, modal logic, propositional objects, etcetera are barred from the ontology because they fail to fit her nominalist model of encounterability [Mar78]. I also mentioned earlier on that it might be natural to think of mental entities characterised by privileged access as a likely example of encounterables, and of mathematical entities as the opposite end of the spectrum: objects to which our access is purely descriptive. Object-foundationalists like Barcan Marcus firmly reject the latter; holists like Quine debar the former from their ontologies. But I do not mean to suggest that it is mandatory to think of the former as encounterables, or that mathematical entities can only be thought of as objects-*qua*-*F*. Mental entities might be the subject of indirect

commitment in an epiphenomenalist theory. They would then be translated into canonical notation as descriptions.

6.3.5 Indirect Commitment and Extensionalising: Criteria of Identity

Some theories are governed by an epistemology which only allows for indirect contact with objects. Quine's view is the familiar example.[1] They should be translated into the language of regimentation without constants, using only variables as committing expressions. All objects in such theories are objects-*qua*-*F*. They contain a global extensionalising principle, a criterion of identity for all objects: objects which are indiscernible with respect to all open formulae of the theory are to count as identical. All equivalence relations are extensionalised to some degree in these theories: identity is always equated with some slightly weaker equivalence relation, such as descriptive indiscernibility. In addition to that, these theories sometimes contain specialised criteria of identity for particular categories. Such criteria might impose weaker equivalence relations than intra-theoretical indiscernibility, making some categories within the theory more strongly extensional than others. In Quine's case, for instance, two spatiotemporal zones are identical iff they have the same co-ordinates. The identity of rivers requires additional criteria: sameness of co-ordinates as well as the presence of flowing water in sufficient quantities [Qui50]. For someone like Armstrong (temporarily setting aside the difficulties first-order regimentation presents for him), sets are identical iff they have all their members in common, but properties are less strongly extensional: they have to share all their instances as well as sharing their explanatory role in natural laws [Arm80].

6.3.6 Metaphysical Categories and Extensionality for Hybrid Commitment

A theory in which a hybrid criterion of commitment holds may contain some objects which are presented by the theory as things with which our minds can have direct, unmediated contact. Those objects are encounterables, represented in the regimented theory by constants, and are not subject to criteria of identity. Identity for encounterables is primitive: simply old-fashioned sameness of thing. So hybrid theories do not contain a global extensionalising principle equating identity with indiscernibility-according-to-the-theory. But they reserve the right to introduce extensionalising principles for some of their metaphysical categories. Whether an object counts as an encounterable vs. an object-*qua*-*F* for a

[1] As we saw above, this might also apply to the later Frege—the Frege of [Fre97] where he equates identity between objects with 'complete coincidence', falling under all and only the same concepts, and its second-order analogue for functions with having identical extensions [Fre97, p. 177].

particular theory depends on how the theory views the kind of cognitive access that epistemic agents have to the objects in that category. It may seem more natural to think of a mental state as directly encounterable than to think of a set that way. But philosophers can coherently put forward theories of noëtic rays or mathematical intuition, and believe they assign names directly to sets or numbers; such names would then be rendered in the language of regimentation as constants.

A more conventional treatment of numbers suggests that our only access to them is via descriptions. Mathematical 'names', on such a view, are actually disguised descriptions, such as '0' for 'the natural number which is not a successor'. Such singular terms should always be regimented into descriptive form. By contrast purely objectual constants, if they are not to fall afoul of Russell's thesis, cannot have any descriptive content. If they were, their singling out their referent would be conditional upon the referent's satisfying that description. But true names, which are to be translated as constants, are Dartmouth-invariant: once assigned, they never fail to apply, or cease to apply, depending on ideological changes in their referents. Singular terms which retain descriptive meaning are not Dartmouth-invariant. We could coherently continue to call a city 'Dartmouth' after the river Dart changed its course [Mil84, p. 20], but to wonder whether 0 is a successor is either to be confused about the meaning of '0', or perhaps to ponder a change or refinement in mathematical definitions. Extensionalising principles which function as criteria of identity are appropriate for descriptive expressions, including descriptions in disguise: they rely on the object's satisfying some descriptive condition F.

Some categories of objects in hybrid theories are accessed by mixed methods: a combination of direct and indirect contact. Plausible examples include middle-sized physical objects, the boundaries of which are settled by descriptive methods, but with which we also have some perceptive contact, and sentient organisms, which are known from the outside by observers, and from the inside by the sentient creature itself. Another interesting example is Maddy's sets, the boundaries of which are delineated by conditions set out in mathematics, but of which, she claims, we also have perceptual experience [Mad80]. Names for such entities can in some cases be translated into the language of regimentation as purely referential constants. The mixed mode of access makes it possible to assign names by description without thereby turning them into disguised descriptions. Apparent names which retain some descriptive sense must be regimented in descriptive terms. But mixed methods make it possible to deploy descriptive methods to determine the boundaries of some object in descriptive terms, and subsequently to assign a non-connotative directly referential expression to it. Kripke might be cited as an example here: although in general he favours a causal theory of naming, sometimes names are assigned with the help of a description. The examples he gives, though, are not purely descriptive, but include some ostensive or first-personal element, as for instance when someone 'points to a star and says, "That is to be Alpha Centauri" ... "By "Alpha Centauri" I shall mean the star right over

there with such and such coordinates"' [Kri80, p. 95].[2] Names assigned by description need not be reducible to descriptions. If they are, they must be regimented as descriptions; if they are not, as constants. Recall the difference between theories of *naming* and theories of *reference*: direct reference, denotation without connotation, is possible even though names are *assigned* with the help of descriptive methods. We know this because names assigned by description can be Dartmouth-invariant. Take the example given in 3.5.2 of the person who said 'my first baby will be called "Chris"'. Once assigned, 'Chris' refers to Chris independently of Chris's satisfying the original description. Even if it were to turn out that the descriptive information is wholly false, because Chris turns out to have been switched at birth, 'Chris' will still refer to Chris. Although the hybrid criterion would be congenial to Russell, too, he leaves no room for this kind of assignment of names. He regards ordinary proper names as disguised descriptions, and that is how we should translate them into canonical notation. Constants would only be used where he believes himself to be engaged in direct commitment, for instance, to the self and sense data in [Rus12].

6.4 A Language of Regimentation Compatible with a Broad Range of Epistemological Views

The findings of this chapter bode well for expansions of the language of regimentation. I have shown how adding constants to a first-order language of regimentation and allowing for primitive identity to be used permits the translation into regimented form of a wide variety of theories which would otherwise have run up against Quine's prohibition on direct commitment. Although Quine had his reasons for insisting that any object is just a potentially dispensable posit, an x marking the spot of some confluence of observable characteristics, such thin objects and the attendant facsimile identity are less useful for non-holists. Quine builds some of his own epistemology into the syntax of logic, making it impossible to ascribe direct commitment via introspection or acquaintance to his opponents. To achieve our irenic goal of being able to let each party to the dispute state what their commitments are in a shared language, it is vital not to build in a different kind of epistemology that would invalidate Quinean theories. Simply substituting thick objecthood and primitive identity will not do. Instead we used Barcan Marcus' conception of extensionality to bring Quine's implicit weakening of the identity relation out into the open, translating it as a global criterion of identity for objects-*qua*-F, and allowing for

[2] Kripke's suggestions seem tentative, and he does not claim to be giving a theory of naming. Burgess [Bur97] appears to indicate that Kripke takes social-historical chains to be part of the *reference* of names, a theory of reference far removed from Barcanian tags. I would distinguish theories of naming from theories of reference: historical chains are involved in naming, but it does not follow that they have to be involved in reference. Barcan's tags are assigned directly because she does not believe in indirect contact with objects, not because direct reference entails causal assignment. Kripke may well believe in direct reference in precisely the sense Barcan Marcus does.

custom-made extensionalising principles to fit particular metaphysical categories within non-foundationalist theories. Primitive identity can be expressed by means of directly referential expressions, but weaker forms of equivalence can go proxy for identity for objects to which our minds reach out using descriptive methods. Some form of identification of indiscernibles is still defensible for elements of the ontology which function in the theory as objects-*qua*-*F*. So both the thinner, potentially dispensable, *qua*-*F* objecthood of posits and the more robust, theory-independently encounterable objecthood of foundationalism are accounted for. Direct, indirect and hybrid criteria of commitment are all expressible, and no longer forced to talk past each other. It combines the good parts of Quinean commitment—a univocal treatment of 'being' and all ontological vocabulary, clear explanations of interdependence, ontological reduction and implicit commitment—with a realist view of logic and quantification, while also making room for first-personal and acquaintance commitment, and managing to be neutral on epistemology.

Conclusion

Quine's quantificational criterion of ontological commitment is so deeply interwoven with Quine's epistemology and philosophy of logic that it thereby becomes incapable of accommodating commitment to individuals. His philosophy of logic has the advantages of promoting the unity of being and the univocacy of all ontological vocabulary, and seamlessly explaining ontological reduction and implicit commitment, unlike natural language or alternative logical systems. But any expressions which refer directly to individuals, though intuitively committing, are paraphrased away in terms of descriptions under the Quinean criterion, which allows only commitment to objects-*qua*-*F*. It leaves no room for Millian names, first-personal vocabulary, or any way of encoding in the language of regimentation such methods as acquaintance, ostension, or introspection, even where they further the aims of science. The underlying reasons are to do with Quine's adherence to behaviourism and holism, demanding a wholly third-personal scientific language in which any object whatsoever is potentially dispensable when the theoretical weight of the entire theory is brought to bear. Although there is good reason to agree with Quine that a logical language is the best medium in which to conduct ontological enquiries, his particular choice of logical language, first-order logic without constants, was found to be too narrow.

Alternative criteria of ontological commitment with their own canonical languages can be formulated to suit non-holist epistemologies. Where contact with an object is allowed to be direct, thought reaching out directly to an object without the medium of a theory, directly referential expressions can be used to capture such cognitive acts in language. The wider sense of ontological commitment with regimentation I proposed, on which a theory's ontology comprises all and only the values of the objectual expressions of its translation into canonical notation, allows a choice of objectual expressions and canonical notation. An object-foundationalist, who countenances only direct contact with objects, will choose only directly referential committing expressions, resulting in a first-order logic with constants, *à la* Barcan Marcus. Advocates of intermediate epistemologies, such as Russell and perhaps Kripke, adhere to a hybrid criterion: they allow commitment by acquaintance as well as by description. They will need at least a first-order language with objectual variables as well as constants. I therefore propose to expand the language of regimentation, at least

to include constants. The translation process should take into account whether the theory being translated into canonical notation allows for direct or indirect access to objects, or both. Barcan Marcus' extensionalising principles can be put to good use to explain why some theories, or certain categories of objects but not others within some theories, have to make use of criteria of identity.

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