Chapter 16
Ontology and Methodology in Analytic Philosophy

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16.1 Introduction

From a certain perspective it is remarkable that a tradition which regards Rudolf Carnap, Ludwig Wittgenstein, and John Austin as central figures in its recent history, currently devotes so much of its intellectual energy to basic metaphysical questions. Given the prominence of anti-metaphysical doctrines and arguments, espoused by positivists, pragmatists and ordinary language philosophers, the fact that ontology is flourishing among analytic philosophers in the early twenty first century deserves some explanation.[1] Ontology is a slippery business which is usually characterized via the claim that it is the inquiry into the nature of existence or the attempt to determine the kinds of things that exist. It sometimes seem to lack enough real content to be considered a meaningful enterprise, but clearly many familiar areas of philosophical inquiry involve ontological questions and demand arguments on behalf of, or against ontological theses. With the revitalization of analytic metaphysics in recent decades there has been a gradual convergence towards a cluster related ontological problems and methodological assumptions. The purpose of this essay is to introduce some highlights of recent ontology in their proper conceptual and historical context.

In their *Oxford Handbook of Metaphysics*, Michael Loux and Dean Zimmerman describe the generational shift which coincided with the emergence of modern analytic ontology as follows:

> By the mid-1980s a new generation of philosophers was coming to the study of metaphysics. These philosophers had no first-hand knowledge of the positivist or ordinary language attacks on metaphysics. For them, the attacks were quaint episodes from a distant past rather

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[1] The development of analytic ontology over the past three decades deserves extended discussion. There are a number of introductory anthologies which cast a broad net, including Barry Smith and Hans Burkhardt (1991) and Roberto Poli, and Peter Simons (1996). Two examples of recent work in analytic ontology which provide a solid introduction to the contemporary debates are Trenton Merricks (2007) and Theodore Sider, (2003). Dale Jacquette makes a case for the importance of logic in ontology in his (2002).

R. Poli, J. Seibt (eds.), *Theory and Applications of Ontology: Philosophical Perspectives*, DOI 10.1007/978-90-481-8845-1_16,

> than serious theoretical challenges. Accordingly, they were not in the least apologetic about doing metaphysics, nor were they content with a piecemeal approach to metaphysics. Unlike their predecessors they were willing to attempt the construction of comprehensive ontological theories, building upon the work of such trailblazers in the rehabilitation of systematic metaphysics as Roderick Chisholm, David Armstrong, and David Lewis. (2003, p. 4)

One of the goals of this essay is to explain why philosophers, beginning in the 1970s and 1980s rejected the standard theoretical challenges to ontology and how the contemporary ontological landscape took shape. Very briefly, the story I will tell runs as follows: Ontology reemerges in a very robust and unapologetic manner thanks to a confluence of developments in the 1950s and 1960s. These include Quine's criticism of the analytic-synthetic distinction, Strawson's presentation of the metaphysical assumptions underlying our ordinary ways of talking and thinking, and Barcan Marcus' defense of modal reasoning. By the early 1970s, Saul Kripke's account of necessary aposteriori truth and David Lewis' analysis of counterfactuals had the important effect of encouraging philosophers to entertain the possibility that metaphysical theses should be evaluated independently of theses in the philosophy of language or epistemology.

It is relatively uncontroversial to point out that Kripke's arguments in his 1970 lectures, later published as *Naming and Necessity* were especially important in the revival of metaphysics. Developments in late twentieth and the early twenty-first century metaphysics, including David Lewis' defense of Humean supervenience, the explosion of work in the philosophy of mind, the deep and ongoing discussions of modality, and the emergence of a two-dimensionalist approach to language and metaphysics can all be read as either reactions to, or developments of Kripke's insights in those lectures.[2]

In very general terms, Kripke's work allows for a principled distinction between metaphysics and epistemology; a distinction between the study of the world itself and the study of how we come to know the world. Kripke's arguments undermine a broadly Kantian approach to philosophy according to which, we are unable to know the world apart from our experiential or epistemic apparatus. Thus, according to this Kantian perspective, we are unable to begin a metaphysical investigation without first determining the scope and limits of our cognitive or experiential access to the world.

In the twentieth century it was common for philosophers to regard language as playing this mediating role between minds and worlds. Such philosophers often dismissed ontological investigation as naively ignoring the mediated character of understanding and experience. As we shall see, this anti-metaphysical posture not so easy to sustain in our time and, in fact, it was not universally shared by pre-Kripkean analytic philosophers.

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[2]Scott Soames (2005) has argued persuasively for the centrality of Kripke's work in the revival of metaphysics.

The early days of analytic philosophy were relatively friendly to ontology. Bertrand Russell and (the early) Ludwig Wittgenstein espoused versions of logical atomism which can be understood as attempts to provide a fully general account of the ontological characteristics of reality. Furthermore, one of the main features of Gottlob Frege's philosophy is his view that concepts and objects should be regarded as basic ontological categories. Among the other important facets of the ontological discussion in early analytic philosophy were Frank Ramsey's criticism of the distinction between universals and particulars and his analysis of the ontological commitments of scientific theories. (Ramsey 1931) Even in the Vienna Circle, in the midst of what we might see as the least friendly environment for ontology, discussions of ontological questions were lively and productive. Gustav Bergmann's effort, beginning in the 1940s to create a realistic ontology was informed by developments in the Vienna Circle and is perhaps the most constructive product of those discussions for ontology.[3]

The most important methodological principles guiding contemporary analytic ontology are continuous with the concerns and approach we find in these early figures. A broadly realist approach to ontological questions, a preference for parsimony, and an emphasis on common sense methodological conservatism are foremost among the features which contemporary philosophers share with those at the origins of the tradition. Thus, the ontological and methodological commitments of these early figures are worth reviewing in any attempt to understand the development of contemporary metaphysics.[4]

While the roots of contemporary ontological investigation run deep in the history of analytic philosophy, the tradition's focus on language and logic has sometimes proved detrimental to progress with respect to ontological questions. Historically, an increased focus on the philosophy of language in the middle of the century was accompanied by a general distrust of ontology. So, while Frege, Russell and the early Wittgenstein made maximally general claims concerning the categorial structure of reality, many mid-century philosophers urged their readers to abandon ontological inquiry entirely.

In his later work Wittgenstein, John Austin and their followers rejected ontological disagreements as at best misguided and at worst an utterly meaningless or misleading enterprise. In recent years, criticisms of ontology have continued along roughly similar lines. While it was popular in the 1980s and 1990s to speak, in somber fin de siècle terms, of the death of philosophy, recent decades have actually seen an increasing level of activity and energy focused on the most basic questions in metaphysics, moral philosophy, philosophy of logic and the philosophy of mind.

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[3]While this essay will not discuss Bergmann's ideas, his struggle to reconcile positivism and ontology is a fascinating example of the more general problem, in analytic ontology of reconciling common sense presuppositions with formal and scientific insights. Herbert Hochberg provides a very informative discussion of Bergmann's views in his (1994).

[4]Two books which examine the ontological views of early analytic philosophers are Jan Dejnozka (1996) and Gideon Makin (2001)

Ontology has figured prominently in this return to fundamental questions in philosophy. Critics of metaphysics like Hilary Putnam and Richard Rorty called, in the 1980s and 1990s, for a broadly pragmatic approach to philosophy and an end to analytic philosophy.[5] While Putnam and Rorty were advocating some form of post-metaphysical thought, metaphysicians had been engaged in interesting and fruitful work. Philosophers in the 1980s and 1990s have been busily sharpening our understanding of basic notions related to modality, mind, causality, individuation, free will, and the like. In fact, it is probably fair to say that many of the richest, clearest and most detailed studies of these topics have been written in recent decades.

Relatively recently, philosophers have begun to examine some of the methodological assumptions underlying work in analytic metaphysics and epistemology. There has been an increasingly self-conscious reflection on the assumptions and techniques which govern philosophical work. In addition to a range of articles and books on conceivability, possibility and intuition, philosophers have begun to develop important analyses of the relationship between purely conceptual investigation and formal methods drawn from logic and mathematics.[6]

In recent analytic philosophy, ontological investigations are conditioned by at least three competing principles. In imprecise terms, the most important of these can be characterized as a conservative approach to philosophical methodology which, as touched on above, aims to preserve as many common sense theses and explanations as possible. The second principle is far crisper, namely the rejection of epistemic criticisms of metaphysics and the adoption of a realistic approach to basic philosophical questions. A third principle involves commitment to the view that attention to the structure of language or logic should inform ontological investigations. Clearly, these principles are not adhered to universally. In fact, depending on how strictly one interprets them, these principles, they may even be mutually incompatible. In any event, it is a relatively easy to find prominent examples of philosophers who reject one or more of them. In this essay these principles are offered as a way of introducing the contemporary state of ontology in very general terms and as a way of connecting contemporary developments with some of the guiding themes in early analytic ontology.

The complicated relationship between ontology, logic and language is one of the topics which this essay will discuss from a variety of perspectives. As is well known, the ontological views of early analytic philosophers were closely connected

[5]Most recently, in his *Ethics Without Ontology* Hilary Putnam argues that ontology has had disastrous consequences for philosophy of mathematics and moral philosophy. Like Carnap, he argues that moral and mathematical reasoning can be conducted apart from debates concerning the foundations of these endeavors, arguing in effect, that ontology factors out of our moral and mathematical reasoning. Given his earlier criticisms of logical positivism, it is striking that Putnam comes so close to the anti-ontological arguments which we find in the *Aufbau* and in *Pseudoproblems of Philosophy.*

[6]By way of examples, the see the papers collected in Szabo Gendler and Hawthorne (2002) and Vincent Hendricks' *Mainstream and Formal Epistemology*.

to the development of modern logic. Theses in the philosophy of logic and language continued to shape attitudes towards ontology well into the second half of the twentieth century. However, in the work of the later Wittgenstein and the ordinary language philosophers, reflection on language and logic were deployed as part of a critical posture towards traditional ontology. In the mid-twentieth century, many of the most prominent criticisms of ontology and arguments against metaphysics were motivated by claims about the nature of language and the relationship between metaphysical theses and our epistemic capacities.

For Russell and Frege, logic and ontology were intimately entangled and it is not always a simple matter to determine which of the two has priority in their philosophical work. It is often difficult to separate the strands of their arguments into distinctively formal and distinctively metaphysical types. In fact, many of the most important interpretive questions in the study of Frege's work involve the problem of determining the relative importance he attached to ontological and logico-linguistic considerations in philosophical reflection. In Russell's early work, abstract entities are invoked in order to support the possibility of logic, but as we shall see below logical techniques like the theory of descriptions and methods like logical construction also serve to inform us with respect to our ontological commitments. While there are a range of difficult interpretive questions which can be raised here, there can be little doubt that ontology is inextricably related to logic in the thought of these early figures.

In a somewhat different vein, G.E. Moore's deeply influential account of common sense in philosophical reasoning, gave a central role to the ontological claims that are part of our ordinary experience of the world. Moore encourages us to be highly suspicious of any attempt to abandon common sense theses for what he saw as exotic theoretical reasons. Following Moore, a conservative emphasis on common sense in philosophical methodology has been one of the near constant features of ontological investigation in the analytic tradition. As we shall see below, the methodological conservatism that Moore's work inspires has played an important role in the development of contemporary ontology.[7]

Ontological questions have played a central role in recent analytic metaphysics. Among the themes which explicitly engage with the kinds of concerns which ontologists share are the debates between perdurantist and endurantist views, debates over the existence of specific aspects of reality or specific kinds, such as numbers, ordinary objects, minds etc. Investigations into the character of vague predicates, the reality of natural kinds, the nature of causal powers and dispositions are also of direct importance for the development of a meaningful ontology. In contrast with the kind of ontological work in mainstream analytic metaphysics (the kind of work which we might associate with philosophers like Kit Fine, Ted Sider, Trenton Merricks, Amie Thomasson, Clifford Elder and others), there is also a variety of stand-alone efforts to develop complete ontological frameworks. Prominent among

[7]Scott Soames makes a compelling case for the centrality of Moore's thought in the development of analytic philosophy in the twentieth century in his (2005)

these is E.J. Lowe's four category ontology which will be discussed briefly below. In a chapter-length contribution, it is very difficult to provide even a brief treatment of the many important views and proposals which ontologists have generated in recent decades. The purpose of this chapter is not to provide an encyclopedic account of the history of ontology in the analytic tradition, but rather to provide a sketch of some of the defining figures and approaches to ontological questions.

16.2 Ontology and Logic for Frege

Standard accounts of the history of analytic philosophy see the tradition as starting with the work of Gottlob Frege, Bertrand Russell and G.E. Moore. In the present context, Frege is striking insofar as his ontological views play such a central role in his philosophical system. Frege understood concepts and objects to constitute ontologically fundamental categories. His ontology is coordinated directly with some of the key features of the logic that he presents in *Begriffsschrift*. In that book, Frege not only articulates the central advance that defined modern logic – the logic of polyadic quantification – but also prepares the way for the ontological claims articulated in later essays like 'Function and Object' and 'Concept and Object'. Moreover, *Begriffsschrift* contains the first statement of Frege's description of the misleading effect of ordinary language in philosophical reflection. Frege's criticism of ordinary language is well-known. However, understanding his view of the proper role played in philosophical reflection by language involves a high level of interpretive complexity. This circumstance has led to divergent readings of Frege's philosophy.

While some important points in Frege's philosophy of language continue to be debated, there is no interpretive doubt concerning his view of the inadequacy of natural language. In this respect, his complaints have set the tone for many philosophers who favored formal philosophical reasoning in the twentieth century. Bertrand Russell, for example, exemplified the Fregean insistence that ordinary language is a source of error for philosophers. In sharp contrast with the later Wittgenstein, Austin and others, Russell argued that 'an obstinate addiction to ordinary language' is 'one of the main obstacles to progress in philosophy'. (Schlipp 1944, p. 634) While the view that ordinary language is an inadequate guide to philosophical investigation has been an ongoing feature of more formally-oriented thinkers, it has faced opposition from philosophers who argue that we must rely on common sense, ordinary language or more recently on our intuitions. This tension between common sense and formal or scientific reasoning continues to be an ongoing feature of philosophical practice.

Fregean and Russellian criticisms of ordinary language were due, at least in part, to the perception that formal techniques provide insights which would otherwise be difficult to achieve. Specifically, Frege and Russell were impressed by the insight that comes via a clear view of the interplay of quantifiers, variables and predicates. For both Frege and Russell, the surface features of ordinary language distract us from a clear view of logical and ontological matters. Rather than looking to the surface syntax of natural languages, Frege turns instead to the mathematical notion of

the function as a starting point in his project to reform philosophy. For Frege, refashioning logic in terms of quantifiers, variables, names, and functions allows us to avoid the philosophically misleading features of natural language. In Frege's view, if one did not have access to the new logic and relied solely on ordinary language to grasp the implications of complex expressions involving embedded generality, one would be at a profound disadvantage.

Throughout his career, Frege believed that the 'logical imperfections' in 'the language of life' stand in the way of philosophical investigation. (1979, p. 253) Frege believed that his new logic could liberate us from the thrall of language. He writes, for instance, '[i]f it is a task of philosophy to break the power of words over the human mind, by uncovering illusions that through the use of language often almost unavoidably arise concerning the relations of concepts, by freeing thought from the taint of ordinary linguistic means of expression , then my Begriffsschrift, [. . .] can become a useful tool for philosophers.' (1967, pp. vi–vii) According to Frege, the reason that language taints our thought is that its grammar does not reflect the underlying structure of our judgments. Attachment to the superficial grammatical features of natural language blocks philosophers from achieving a clear view of the structure of valid reasoning.

This view of ordinary language is not simply a mark of his early enthusiasm for logic. In Frege's posthumous writings we find this criticism of grammar repeated in uncompromising terms. In his *Logic*, he writes, for instance: 'We shall have no truck with the expressions 'subject' and 'predicate' of which logicians are so fond, especially since they not only make it more difficult for us to recognize the same as the same, but also conceal distinctions that are there. Instead of following grammar blindly, the logician ought to see his task as that of freeing us from the fetters of language.' (1979, p. 143) As Frege saw it, the central step in the creation of a proper logic (which on his view is one which allows for multiple, embedded expressions of generality) involved drawing our attention away from grammatical subjects and predicates and towards arguments and functions (1967, p. 7). This step is emphasized throughout Frege's entire body of work. It was pivotal to the development of modern logic and it shapes his view of ontology.

In his 1925 paper 'Universals' Frank Ramsey extended the spirit of Frege's attitude towards grammar and ordinary language by showing that the grammatical distinction between subject and predicate does not, by itself, support the distinction between universals and particulars (1931). This claim is somewhat at odds with the Fregean distinction between objects and concepts described below, but it is consonant with Frege's criticism of the role of grammatical distinctions in ontological investigation.

Ontology has, as one of its major topics, the study of identity and difference. From Frege's perspective, ordinary language is an obstacle to our capacity to form true judgments concerning identity and difference and one important task of the logician is to remove these obstacles. Frege was justified in thinking that his logic offers a more accurate representation of distinctions and identities than analyses based solely on the grammatical distinction between subject and predicate permit. It is well known that if the words 'all' or 'some' appear in the predicate

place in a traditional syllogistic logic, then invalid inferences can be shown to follow straightforwardly. Syllogistic reasoning provides no insight into the logical structure of multiply embedded statements of generality and is often positively misleading. It can be shown easily that by introducing polyadic quantification in the *Begriffsschrift*, Frege was able to express a range of judgments which had eluded previous attempts to formalize logic.[8]

The formal features of *Begriffsschrift* itself are directly related to one of the core philosophical insights in Frege's work, namely his application of the mathematical idea of the function. Specifically, the mathematical concept of the function inspires Frege's characterization of the structure of judgment. Ordinarily, functions can be understood as taking arguments and giving values, some function, for example $f(x) = 2x$, gives the value 4 when it takes 2 as its argument. The variable 'x' in this context plays the role of an empty slot or placeholder, which, in this context is filled by numbers. On Frege's view concepts play a similar role.

Concepts, by themselves, are incomplete expressions or, as he sometimes puts it, they are 'unsaturated'. This incompleteness is filled by singular terms. Singular terms name objects and when singular terms are placed in the gaps of an incomplete expression, (in the same way that a number can serve as the argument for a function) then concepts and singular terms combine to give a truth value. For Frege, truth values are special kinds of objects: 'The true' and 'the false' are singular terms which name those objects. So, continuing the analogy with functions in mathematics, concepts have as their codomain, two objects; the true and the false. Their domain is (with some important qualifications) the set consisting of every object.

The division of everything into two ontologically fundamental categories; concepts and objects, is motivated by Frege's view that no deeper analysis of these notions is possible and that these two categories suffice to generate the logic presented in *Begriffsschrift*.

In his 1892 paper 'Concept and Object' Frege recognizes a counterintuitive consequence of his ontological view. If we claim, for instance that the concept 'x is a horse' is a concept, then given Frege's view of concepts and objects, we have actually said something false. This is because the claim in question treats the concept term as a singular term. On Frege's view, only objects can be referred to using singular terms. Since the sentence 'the concept 'x is a horse' is a concept' is false, it surely seems as though Frege is driven to accept the paradoxical judgment that 'the concept 'x is a horse' is an object'. While a great deal of interpretive effort has been devoted to understanding this problem, it is important to note that Frege regards this situation as the result of the inadequacy of ordinary language and does not waiver from his ontological thesis.

Frege's ontological commitments, I would argue, are such that he is willing to accept that the sentence 'the concept *horse* is a concept' is false! However, the apparent strangeness here is not as serious as some have worried. Anthony Kenny alerts

[8]For a more expansive and detailed account of the advantages of Frege's logic over syllogistic logic, see Anthony Kenny (1995, 12–26).

us to a footnote in 'Concept and Object' where Frege points to a way of resolving the apparently paradoxical implication of his account (1995, p. 124). Frege points out that there a range of cases in natural language in which we make strange sounding statements as a result of the awkwardness of ordinary language. He describes, for example how, by explicitly calling some predicate a predicate, we deprive it of that property. In modern terms we would say that Frege is pointing out that ordinary language is subject to possible use/mention confusions of the kind which we try to avoid via devices like quotation marks or italicization.

Kenny suggests that the expression '"the concept. . ." is really meant to serve the same purpose for our talk of "concepts as is served by quotation marks in relation to predicates.' (1995, p. 125) Without examining the details of this resolution, it is enough here to note that on Frege's view, any fault which might exist, lies with language rather than with his ontological thesis.

Note also that in the employment of devices like quotation marks we are attempting to make our language conform to our intentions with respect to the ontological state of affairs under consideration. If one writes, for instance, ''the mailbox' contains ten letters' the quotation marks do not indicate that there are ten pieces of mail in the physical mailbox, but rather that the string of two words in the quotation marks contains ten letters. If one intends to talk about relatively abstract things like letters of the alphabet rather than letters in envelopes, one can easily indicate this intention via artificial typographic devices. It is more difficult (but not impossible) to make the same kinds of ontological distinctions in unaided spoken language. The introduction of the typographical conventions discussed here assumes that there is a level of insight into ontological facts which leads us to supplement natural language with various kinds of formalism. I would argue that Frege assumed that we do have such insight.

Formal devices, from quotation marks to quantifiers are employed in order to expand the expressive power of our language. Specifically, the function of these devices is to capture genuine distinctions and identity claims which language would fail to encompass in their absence. Frege's view of the significance of these extensions is clear.[9] In the *Begriffsschrift*, for example, he draws an analogy between his logical notation and the microscope which, while lacking the versatility of our eyes, proves useful for matters where scientific precision is demanded (1967, p. 6). Frege sees his logical formalism as a supplement to natural language which permits philosophers a more precise view of the nature of judgment and which is more faithful to the ontological facts than the superficial grammar of ordinary language.

As I have described them so far, Frege's views on logic and ontology are intertwined with his criticisms of ordinary language. By emphasizing Frege's ontological commitments, the present discussion is somewhat at odds with at least one

[9]He writes that "the mere invention of this ideography has, it seems to me, advanced logic" (1967, 7)

prominent interpretation of Frege's philosophy.[10] Frege's foremost contemporary interpreter, Michael Dummett has argued that the central innovation in Frege's philosophy is his conversion of questions about ontology into questions about the nature of meaning. According to Dummett, traditional ontological questions become 'part of the theory of meaning as practised by Frege' (1981, p. 671). Dummett not only regards this as one of the most important features of Frege's philosophy by also as a general principle which helps form the distinctive methodology of the ensuing analytic tradition. For Dummett and like-minded readers, the lingua-centrism of much of analytic philosophy is due to Frege's own commitment to transforming philosophy into the philosophy of language.

The present essay is not the appropriate venue to tackle Dummett's claim about the origins or the distinguishing features of analytic philosophy in detail. Instead, it suffices to note that alternative readings of the relative fundamentality of ontology and language can be justified. Clearly, Frege's ontological theses cannot be separated completely from his views on the nature of language and human epistemic capacities. However, the interpretive challenge is to understand precisely how he believes ontology and language are related. According to Dummett, traditional ontological questions are completely subsumed within Frege's larger theory of meaning. There is some evidence to the contrary which I will discuss very briefly.

Frege recognizes that he cannot provide a purely formal account of, for example, the distinction between concept and object; that he must move beyond the formal language of *Begriffsschrift* and must appeal to hints or elucidations that depend on his readers' grasp of the roles of names and predicates in ordinary language.[11] However, readers have disagreed on the manner in which he regarded the argument for accepting his ontological taxonomy of concepts and objects as dependent on an understanding of language.

As Joan Weiner argues and as we saw in our discussion of 'Concept and Object' above, Frege's ontological claims did not arise via a slavish adherence to the surface properties of language. As Weiner notes, he was alert to sentences in ordinary language like 'The horse is a four-legged animal' where the grammatical structure indicates a simple predication but where Frege argues that it should not be understood as such (1990, 249 footnote). As we saw above, Frege's own account of, for example, the difficulties involved with talking about 'the concept *horse*' support interpreting him as seeing ontological commitments as more fundamental than theses in the philosophy of language. While it runs counter to the mainstream reading of Frege, I believe that it is consistent with the textual evidence to see him as placing primary importance on ontological rather than linguistic theses. At the very

[10] Although Gideon Makin (2000) makes a strong case for the seeing both Frege and Russell's work as fundamentally oriented towards metaphysical questions rather than attempting to replace metaphysics with philosophy of language.

[11] See Anthony Kenny's discussion of the 'unbridgeable gulf between concepts and objects' and Frege's reliance on common sense acquaintance with the distinction between predicates and names in his (1995, 121). Joan Weiner has an extended reading of the distinction between definition and elucidation for Frege in her (1990), especially pp. 99–104 and 227–280.

least, it seems clear that Frege believe that ontological considerations should guide our understanding of grammatical categories and logical formalism rather than vice versa. For example, as we saw above, Frege regarded 'the concept *horse*' problem as a product of the inadequacy of ordinary language rather than as a symptom of a problem with his ontology.

As Claire Oritz Hill has noted (1997) Frege's goal of creating a language free from the imprecision and systematically misleading features of ordinary language, was forced to face the ontological challenge of accounting for identity. Ortiz Hill addresses Frege's views on the nature of identity with special focus on the ambiguity which Frege found in identity statements. She quotes the following striking remark in § 8 of *Begriffsschrift* 'thus along with the introduction of the symbol for equality of content, all symbols are necessarily given a double meaning: the same symbols stand now for their own content, now for themselves'. (Quoted in 1997, p. 5) Concerns over the nature of the equals sign in Section 16.8 of the *Begriffsschrift* involve ontological considerations and are not merely a matter of the nature of signs. Since Frege's reflection on the nature of identity claims motivates his pivotal distinction between the sense and the reference of a sentence, we can understand the problem of identity as motivating, at least in part, his account of how the content of a sentence is determined. In this sense, pace Dummett, one can read Frege's ontological concerns as motivating his interest in philosophy of language.

16.3 Logical Construction in Russell, Ramsey and Carnap

After Frege, one of the most significant points of origin for twentieth century analytic philosophy is Russell and Moore's reaction against what they saw as the speculative excesses of British Idealism. This reaction is often seen as a turn towards Humean empiricism or positivism.[12] However, reading Russell and Moore as anti-metaphysical and as narrowly empiricist is a profoundly mistaken approach to their work. For the purposes of this essay, the most significant problem which results from an empiricist reading of Russell and Moore is that it distracts attention from the importance of ontological considerations on their early thought. As we can see from the careful studies of Russell's early philosophy provided by Peter Hylton (1990) and others, it makes more sense to read the anti-idealist turn in Russell and Moore as the developments of a conservative methodological stance with respect to common sense judgments and ordinary experience.

Russell and Moore famously rejected the views of their neo-Hegelian teachers. For Russell, this turn only takes place once he had already completed work on the

[12]David Pears' *Bertrand Russell and the British Tradition in Philosophy* (1972) is a prominent example of the empiricist reading of Russell's turn away from British Idealism. Peter Hylton's *Russell, Idealism and the Emergence of Analytic Philosophy* (1990) presents a more accurate and detailed analysis of the early philosophy of Russell and Moore which notes the centrality of abstract entities in Russell's thought. In his early work, Russell often had recourse to abstract entities in ways which do not comport with the kind of empiricism that Pear and others have in mind.

first part of his plan to produce an encyclopedic synthesis of scientific and political thinking in the spirit of Hegel's philosophy (Russell 1897). Both Russell and Moore were driven to abandon Idealism because of their inability to reconcile it with a common sense attitude towards the reality of objects, the truthfulness of propositions and the objectivity of judgment. While Russell's conversion to Moore's common sense realism was pivotal to his philosophical development, his encounter with modern logic in the work of Frege and Giuseppe Peano provides the technical backbone and content for many of the most important developments which followed.

The influence of the newly developed formalism on Russell's ontological views is well known. Among Russell's seminal achievements is his theory of descriptions. Perhaps the most important feature of the theory of descriptions was its implications for ontological reasoning. Russell describes how we can formalize sentences in such a way as to permit us to see more clearly what the ontological commitments of our assertions are. So, for example, when one hears the assertion that the present King of France is bald, one might be concerned about the ontological status of the monarch under consideration. At the moment, France is free of kings. However, one might worry that denying or assenting to claims about the King's baldness commits one to an ontology which includes the non-existent King of France.

Alexius Meinong had understood judgments concerning non-existent objects as committing us to a realm of objects, including impossible objects, which do not exist in the ordinary sense. Whether an object exists is a question which is distinguishable, according to Meinong, from questions concerning its properties. The fact that an object does not exist, on this view, is not a barrier to our making true claims concerning that object. For Meinong, there is a variety of properties that a non-existent object can possess. Consequently, he regards part of the task of ontology to involve cataloguing the characteristics of nonexistent objects as they relate to our reasoning and discourse. Meinong's ontology is extremely rich and generates a range of interesting and fertile questions.[13] However, Russell's theory of descriptions has had an important role insofar as it allows a principled way of blocking the move from judgments about objects like the present King of France to claims about their exotic ontological status. Russell's strategy is simply to unpack the implicit embedded quantification relation in the sentence:

$$(\exists \mathrm{x})\,(\mathrm{Kx}\,.\,((\forall y)\,((\mathrm{Ky} \rightarrow (x = y))\ .\ \mathrm{B}x)$$

As such, it becomes clear that, whether the King is said to be bald or not bald that the sentence is straightforwardly false because it is making a false existence claim. This is a simple, yet critically important step in our thinking about ontology. The theory of descriptions shows how our sentences cannot always be taken at their face value and do not automatically license ontological claims. Instead, logic allows us (at the very least) an alternative analysis of our ontological commitments, such that we do

[13] See John Findlay's (1963) for a very clear presentation of some of the subtleties of Meinong's ontology.

not mistakenly regard judgments concerning Kings of France and golden mountains as forcing us to make exotic ontological claims. There may be other reasons for accepting a Meinongian ontology, but Russell shows one very important reason for pausing before taking this step.

Like Frege, Russell saw logic as permitting us a way of getting clearer on the ontological presuppositions of our theories and in *Our Knowledge of the External World* he proposes the principle that 'Wherever possible, logical constructions are to be substituted for inferred entities.' (1914, p. 112) Russell's application of logic to ontological questions provided a new way of thinking about how we approach investigations in ontology. Russell exemplified a strategy in metaphysics whereby one could show that the apparent ontological commitments of some sentence or theory could be reconsidered while maintaining the relevant content of the theory or sentence. Again, like Frege, Russell is clarifying the fact that our ordinary ways of talking and thinking about existence need not compel us to follow the grammatical structure of our sentences blindly. Russell believed that with this technique we could legitimately hold that there are no unreal objects.[14]

Frank Ramsey would extend Russell's insight in two important ways. As mentioned above, Ramsey's criticism of the distinction between universal and particular, takes aim at the idea that the subject predicate structure of judgments in ordinary language compel us to adopt an ontology consisting of universals and particulars. In addition to his criticism of universals, Ramsey applies the technical apparatus set forth by Russell in his account of the relationship between the structure of theories and their ontological commitments. Ramsey's account of theories had profound ramifications for philosophy in the late twentieth century and would shape the core ontological presuppositions of functionalist theories in philosophy of mind and philosophy of biology.

Ramsey asks us to consider some scientific theory T where T ranges over unobservable properties A*1*… A*n* , observable properties O*1* … O*n* and individuals *a1* … *an.*

$$\mathrm{T}(\mathrm{A}1 \ldots \mathrm{A}n, \mathrm{O}1 \ldots \mathrm{O}n)$$

The ascription of some unobservable property (say the property of being a neutron) to some individual or region of space-time *a* can be carried out via a sentence containing a higher-order existential quantifier along the following lines:

$$(\exists \mathrm{A}1) \ldots (\exists \mathrm{A}n)\,[\mathrm{T}\,(\mathrm{A}l \ldots \mathrm{A}n,\ \mathrm{O}1 \ldots \mathrm{O}n)\ \text{and}\ \mathrm{A}ia)]$$

[14]One could argue that because the theory of descriptions makes all claims about fictional or unreal objects false, it is thereby too restrictive and potentially self-undermining. This objection forces Russell to introduce the distinction between primary and secondary occurrence of a term which fails to denote. The secondary occurrence of the term 'Hamlet' in a sentence like 'Hamlet was a prince' allows us to claim that what is really intended here is the true sentence 'The play tells us that Hamlet was a prince'. Names for unreal or fictional objects can still play a role in true sentences in this sense.

This definition characterizes unobservable theoretical terms based solely on existential quantification, observables and the structure provided by the theory. If we understand our theory T as providing a unique ordering of properties, then reference for problematic terms; things like neutrons, beliefs, or market forces can be fixed via their relationships with one another and with the observable phenomena described by the relevant theory. The structure of relationships between the elements of a theory is presented by the theory *T* and to say that some individual has some property can be converted into a claim about relative placement within the structure described by T, in this case that *a* has the *i*th of A*1*. . . A*n*.

Ramsey's work would have important ramifications later in the century, especially in the development of functionalism in the philosophy of mind and the philosophy of biology. David Lewis' application of Ramsey's technique to characterizations of functionally individuated concepts (1972) was widely understood to simplify the ontological status of claims made, for example, in folk psychological discourse. Treating such concepts as existentially bound variables specifies the role of theoretical terms via the system of relationships defined by the structure of the theory (1931, pp. 212–236). Given some psychological theory, the Ramsey sentence can serve as a way of providing definitions for mental terms that do not themselves include mental terms.

Metaphorically speaking, we can say that the Ramsey sentence serves to provide non-question begging definitions of mental terms by treating them as locations in the network provided by a theory. If our theory provides a unique ordering of properties, then reference for theoretical terms is fixed via their relationships with one another and with the observable phenomena described by the relevant theory. The structure of relationships between the elements of a theory is presented by the theory and to say that some individual has some property can be converted into a claim about relative placement within the structure described by the theory.

Ramsey elimination does not make any significant difference in the development of a scientific theory of mind since it assumes the existence of a theory that is both finished and true. It tells us nothing about how one might settle on a causal structure appropriate to particular explanations: It assumes an ordering without saying anything about what it is, or how one might decide between alternatives. Of course, Ramsey's account was not originally intended to answer such questions and so this defect does not matter for his purposes. His goal was to account for the meaningfulness of theoretical terms in an established theory. Lewis's use of Ramsey faces the well known threat that even if a part of the folk psychological theory turns out to be false, the statement of the theory in terms of a Ramsey sentence will also be false. Additionally, as Jaegwon Kim points out, even if the folk psychological theory has false non-mental consequences, the whole Ramsey sentence turns out false (1996, p. 108).

If we ignore these threats and settle *apriori* on a particular psychological taxonomy and decide that it is not subject to revision, then functionalism suffices as a theory of mind in the sense that it provides a way of resolving the meaningfulness of our talk of mind without encountering ontological worries. This was Lewis' strategy insofar as mental states are 'physical states of the brain, definable as occupants of

certain folk-psychological causal roles.' (1999, p. 5) By deferring to folk psychology, Lewis' position denies the relevance of progress in psychology to philosophy of mind. This might be a defensible position if it could be shown that we have access to folk psychology in a way which resists correction or refinement via inquiry. Elsewhere, I have argued that Lewis' use of Ramsey sentences is undermined by the assumption that it is possible to improve our understanding of psychological terms. (Symons, forthcoming)

The approach to ontology which is pioneered by Russell in 'On Denoting' and which we find developed in Ramsey's work involves embracing the idea of logical construction mentioned above. The idea of a network of relations defining a theory and the possibility that these relations can be thought of in lieu of inferred entities, had profound effects in the philosophy of mind and the philosophy of biology in the late twentieth century. Functionalism can be seen, in large part, as a development of the ontological insights which we find in early analytic philosophy.

Most importantly, the ability to characterize complex and interdependent systems of relations via multiply embedded statements of generality, changed the manner in which terms behave in our theories and led to a fundamental rethinking of the place of mental and other nonphysical terms in our ontology. The other major effect of the Russellian approach to logical constructions was the development of a profoundly anti-ontological line of thinking in Rudolf Carnap's work. While this is not the place to provide detailed account of Carnap's philosophy, his anti-metaphysical position has had a profound influence in twentieth century thought. Carnap's major works are less well known to philosophers than some of his more provocative and readable articles. As Philipp Frank notes, the paper which brought Carnap most attention and have the widest consequences was 'The elimination of metaphysics through logical analysis of language' Frank describes the effect of that paper as follows:

> People who have always had an aversion against metaphysics felt an almost miraculous comfort by having their aversion justified by 'logic'. On the other hand people for whom metaphysics had been that the peak of human intellectual achievement have regarded Carnap's paper as a flagrant attack upon all 'spiritual values' from the angle of a pedantic logic. Logical positivism got the reputation of being cynical skepticism, and simultaneously, intolerant dogmatism. (1963, p. 159)

Analytic philosophy is occasionally criticized for being narrowly focused on language, logic or conceptual analysis to the detriment of ontological or metaphysical investigation. More commonly, analytic philosophy has been accused of an excessively deferential attitude to mathematics and the natural sciences.[15] This line of criticism obscures the historical reality and contemporary diversity of the analytic tradition. However, it is true that analytic philosophers have generated some of the severest criticisms of traditional metaphysics. Many early analytic philosophers, in particular those who were part of or influenced by the Vienna Circle, tended to

[15]One of the most explicit general criticisms of analytic philosophy as a movement is Stanley Rosen (1985). While Rosen's discussion of the history of analytic philosophy is not reliable, his criticisms exemplify widely held complaints against mainstream philosophical practice.

identify metaphysics with obscurantist or reactionary cultural tendencies.[16] By contrast with traditional metaphysics, philosophers like Carnap, Neurath, and Schlick were motivated by a modernist ideal of a reformed philosophical practice which was guided by the kinds of intellectual virtues which they believed were exemplified by the natural sciences. Science offered a more appealing and progressive example of intellectual activity than the kinds of traditional philosophy with which they were familiar.[17] The sciences, they believed, offer a model of clarity, openness and internationalism which stood in stark contrast to, for example, the ontological rumblings that members of the Vienna circle heard coming from Heidegger's hut.[18] Heideggerian forms of ontology, were anathema to the refugees from fascism who helped to shape philosophy in the second half of the twentieth century.[19]

Historical, social and political factors partly explain some of the strongly anti-metaphysical rhetoric which we read in the Vienna circle. Nevertheless, in spite of this apparent hostility to metaphysics, ontological questions have always been central to the enterprise of analytic philosophy. For example, Wittgenstein's *Tractatus* was held in the highest esteem by the members of the Vienna Circle. Few books tackle ontological questions as directly as the *Tractatus*. Today, metaphysical debates are at the heart of philosophy and these debates are guided, perhaps more so than ever in the history of philosophy, by basic ontological questions.

In the pages that follow I will introduce briefly some of the general background to Carnap's criticism of metaphysics. Specifically, it is important to grasp his view of the role of logical construction in philosophy. Carnap's approach to ontology was influenced, to a very great extent by Russell's theory of descriptions and his account of relations. In his *Logical Structure of the World,* Carnap describes his project as '[a]n attempt to apply the theory of relations to the analysis of reality' (1967, p. 7) and asserts that his own work is a radicalization of the major

[16] Richard von Mises (1951) provides an introduction to positivism which emphasizes its cultural implications and contrasts prior philosophical orientations with the liberal model of inquiry and social progress to which the positivists aspired.

[17] In his criticism of analytic philosophy Avrum Stroll emphasizes what he sees as the scientistic mainstream of analytic philosophy. He contrasts the vices of scientism with the virtues of the those philosophers who would draw a sharp distinction between science and philosophy (in his view this was Wittgenstein and Austin) One problem with this view is, among other things, the centrality of the distinction between science and philosophy in the work of the Vienna circle and specifically in Carnap's distinction between scientific and non-scientific propositions. Stroll, like Rosen and other critics often seem more concerned with philosophical style or tone, than with any specific philosophical point.

[18] See Michael Friedman's *A Parting of the Ways* (2000) for a detailed discussion of the political and cultural background to Carnap's criticism of Heidegger. The resolute opposition to metaphysics is more easily understood in historical context.

[19] As Friedman (2000, 11–13) and others have noted, Carnap's well known criticism of Heidegger's account of nothingness; Heidegger's notorious claim that "Nothing itself nothings [*Das Nichts selbst nichtet*]" is not a crude application of verificationism. Instead, Carnap sees Heidegger's usage as violating the logical form of the concept of nothing. Heidegger's vice is less a matter of metaphysics than of misology

direction of Russell's philosophy *(ibid*, 8). However, unlike Russell, Carnap's attitude towards metaphysics is profoundly critical. For Carnap, metaphysics tended to generate meaningless statements. In *The Logical Syntax of Language* (1934) he presents this critical attitude as follows: 'In our Vienna Circle' as well as in kindred groups... the conviction has grown and is steadily increasing, that metaphysics can make no claim to possessing a scientific character. That part of the work of philosophers which may be held to be scientific in its nature...consists of logical analysis' (1959, p. xiii). According to Carnap, philosophy was to be purged of metaphysical claims by means of the development of a logical syntax which was to serve as the logic of science: 'The aim of logical syntax is to provide a system of concepts, a language, by the help of which the results of logical analysis will be exactly formulable. *Philosophy is to be replaced by the logic of science.* That is to say, by the logical analysis of the concepts and sentences of the sciences, for *the logic of science is nothing other than the logical syntax of the language of science'* (1934, p. xiii). [italics in the original] In *The Logical Syntax of Language* (1934) he writes: 'By the logical syntax of a language we mean the formal theory of the linguistic forms of that language'.

Carnap distinguishes between sentences of two types: 'real' (empirical sentences) and 'auxiliary' (logico-analytic sentences). On Carnap's view, empirical inquiry provides the former while philosophy is restricted to the latter. Strictly speaking, according to Carnap, the logico-analytic sentences with which philosophers are concerned have no empirical content.

In his early work, Carnap arrives at his criticism of metaphysics via an attempt to understand the nature of philosophical disagreement. His earliest major philosophical work begins with an attempt to provide an analysis of disagreements over the nature of space and specifically, an analysis of distinct frameworks within which the term 'space' functions. This work diagnoses philosophical disagreements as resulting from confusions of physical, perceptual, and mathematical frameworks. These distinguishable frameworks each employ 'space' in legitimate, but incommensurable ways. This early analysis gives way to a more sweeping dismissal of all metaphysical claims in the years which followed.

Carnap's view of the nature of metaphysical disagreement is very straightforward. He argues repeatedly that metaphysical disagreements simply factor out of meaningful discourse altogether. Metaphysical considerations, on Carnap's view, are simply irrelevant to inquiry. Before describing this move in his work, it is instructive to consider the following biographical comment:

> in my talks with my various friends I had used different philosophical languages, adapting myself to their ways of thinking and speaking. With one friend, I might talk in a language that could be characterized as realistic or even materialistic... In a talk with another friend, I might adapt myself to his idealistic kind of language... With some I talked a language which might be labeled nominalistic... I was surprised to find that this variety in my way of speaking appeared to some objectionable and even inconsistent... When asked which philosophical position I myself held, I was unable to answer. I could only say that in general my way of thinking was closer to that of physicists and of those philosophers who are in contact with scientific work. (1963, pp. 17–18)

Carnap describes his way of thinking is 'neutral with respect to traditional philosophical problems'. This stance is formulated as the principle of tolerance in *The Logical Syntax of Language.*

In his *Pseudoproblems of Philosophy* Carnap imagines two geographers engaged in a disagreement concerning the reality of the external world. Given the task of discovering whether some mountain in Africa is only legendary or whether it really exists, the realist and the idealist geographer will some to the same positive or negative result. According to Carnap, in all empirical questions 'there is unanimity. Hence the choice of philosophical viewpoint has no influence upon the content of natural science. . . There is disagreement between the two scientists only when they no longer speak as geographers but as philosophers' (1967, p. 333).

In *The Logical Structure of the World* (1928) Carnap presents an attempt to show how the structure of the world is derivable from the moments or time points of experience by means of a single relation. The relation he employs is that of 'partly remembered similarity'. Carnap's thesis is that science deals only with the description of the structural properties of objects. Proof of the thesis depends on demonstrating the possibility of a formal constructional system containing all objects in principle. What Carnap meant by 'formal' in this context is given by the following definition: 'A theory, a rule, a definition, or the like is to be called *formal* when no reference is made in it either to the meaning of the symbols (for example, the words) or to the sense of the expressions (e.g. the sentences), but simply and solely to the kinds and order of the symbols from which the expressions are constructed' (1934, p. 1). The notion of construction which Carnap favored shares many important features in common with Russell's.

Carnap is often read as attempting to reduce all of reality to perceptual experience along the lines of a deductive model of reduction of the kind we find later in Ernst Nagel's work for example (1961). While Carnap uses the term 'reduction' throughout the *Aufbau,* the purpose of his reductions is not ontological in the sense of showing that the physical facts or facts about perception are exhaustive of all the facts. Instead, reducibility in Carnap should be understood as transformation. Thus, for example, one of his examples of the kind of transformations which he has in mind is the interdefinability of fractions and natural numbers. Statements about fractions can be transformed into statements about natural numbers without any loss of content thereby. Carnap's account of reductions as transformations or logical constructions is clearly stated:

> To reduce *a* to *b, c* or to *construct a* out of *b, c* means to produce a general rule that indicates for each individual case how a statement about *a* must be transformed in order to yield a statement about *b, c.* This rule of translation we call a construction rule or constructional definition. (1967, p. 6)

Scientific knowledge, according to Carnap, consists solely in the presentation of systems of relations. The structural features of the systems permit possible transformations of various kinds such that we gain insight into essential character of scientific inquiry and are no longer distracted by non relational features of scientific discourse.

The task of the *Aufbau* is to demonstrate the possibility of a complete constructional system the goal of which would be to provide a unified system which would permit us to overcome the separation of unified science into special sciences. More deeply, such a system would allow us to move from the 'subjective origin of experience' however such an origin is to be understood, to something like an intersubjective basis for objectivity. Carnap writes that the constructional system will show how to 'advance to an intersubjective, objective world which can be conceptually comprehended and which is identical for all observers' (1928, p. 7). Carnap's thesis is that science deals only with the description of the structural properties of objects. The intersubjectively objective world that science provides consists of a set of relationships which can be grasped in them selves and apart from any specific subjective experience. What Carnap proposes is a purified structural characterization of scientific knowledge which can be conveyed to readers via the kind of formal strategies which Russell had already pioneered. On Carnap's view, logic provides a way of tackling all problems of the pure theory of ordering without much difficulty (1928, p. 7).

The burden of the *Aufbau* is to provide something like an existence proof for the very possibility of a constructional system. More specifically, proof of his thesis depends on demonstrating the possibility of a formal constructional system which could in principle contain all objects.

Rather than focusing on properties and objects, Carnap's logical construction is concerned with the purely formal properties of relations between objects. It is worth noting, for instance that Carnap rejects the Fregean distinction between concepts and objects. On the contrary Carnap claims that '[i]t makes no logical difference whether a sign denotes the concept or the object' (1928, p. 10). Carnap's concerns are formal and his account of 'formal' means involves the claim that formal characterizations can be understood apart from the specifics sense or meaning that we assign to the subject matter or to the objects or to the terms involved. By formal properties of a relation, he means those that can be formulated without reference to the meaning [inhaltlicher Sinn] of the relation and the type of objects between which it holds. These formal properties of relations can be presented in quantificational terms (they are the subject of the theory of relations). Carnap lists some of the formal properties of relations, such as symmetry, transitivity, reflexivity, connectivity etc. and then begins to consider the possibility of comparing relations in purely formal terms. He asks for instance that we consider relations in terms of arrow diagrams. The arrow diagram for Carnap is a way of visualizing relations stripped down to their most basic characteristics.

> If two relations have the same arrow diagram, then they are called *structurally equivalent*, or *isomorphic.* The arrow diagram is, as it were, the symbolic representation of the structure. Of course the arrow diagrams of two isomorphic relations do not have to be congruent. We call two such diagrams equivalent is one of them can be transformed into the other by distorting it, as long as no connections are disrupted (topological equivalence)

For contemporary readers, this passage seems to substantially anticipate some of the goals and strategies of the branch of mathematics known as category theory. His

focus on capturing the most general features of relations has a strikingly modern flavor and, arguably, indicates the general direction of his work.

The final step in the development of the constructional system is the move from relation descriptions to structure descriptions. Structure descriptions are intended by Carnap to capture precisely what it is that makes scientific claims objectively intelligible. We can derive structure descriptions from the properties of relation descriptions such that the intelligible core of scientific inquiry is laid out in its most objective form. Carnap describes the move from individuals to relation descriptions to structure descriptions as a process of dematerialization, by which he means a removal of the specific or subjective component of knowledge in order to reveal an intersubjective reality underlying our knowledge claims.

> It was possible to draw conclusions concerning the properties of individuals from the relation descriptions. In the case of structure descriptions this is no longer the case. They form the highest level of formalization and dematerialization (23)

For Carnap, many prominent traditional ontological disputes, disputes between phenomenalists and materialists were between idealists and realists were a distraction from more productive lines of inquiry. On the view presented in the *Aufbau* the genuine content of knowledge lies in its structural features. These structural features are preserved no matter whether the scientists in question adopt a realist or an idealist ontological perspective.

As many recent interpreters of Carnap have noted, it is extremely difficult to read his work without being influenced by Quine's depiction of his views in papers like 'Two Dogmas of Empiricism'. However, in recent years, there has been an increasingly sophisticated return to Carnap's philosophy and a growing appreciation of its depth.[20] Michael Freidman (1989, 1992) and Alan Richardson (1998) have provided some especially compelling readings of the *Aufbau* and have clearly demonstrated the ambitious nature of Carnap's attempt to uncover the intersubjective core of inquiry.

While Carnap was a harsh critic of metaphysics, it is possible to read him (at least in his early work) as offering something akin to a version of structural realism as a replacement for traditional ontology. Contemporary advocates of structural realism will occasionally cite his work as anticipating some of the problems under consideration today (See for example Cao 2001). In a certain sense, Carnap's criticisms of traditional metaphysics occupy far less space in his work than his constructive efforts. While these criticisms have drawn the most attention, they tend to be somewhat weakly argued when compared with the effort invested in some of his more constructive projects. Strikingly, for instance, his criticisms of ontology tend to be restricted to examples drawn from realism/anti-realism debates and likewise, his criticism of metaphysics points to classic cases of obscurantism and confusion. The

[20]The best discussion of Carnap's constructional system is Alan Richardson's *Carnap's Construction of the World.* In general terms, my presentation owes a great deal to Michael Friedman's reading of the *Aufbau* in, for example, "Carnap's *Aufbau* Reconsidered" and his "Epistemology in the *Aufbau*"

most fruitful interpretation of Carnap's work for the purposes of ontology are likely to begin from his characterization of logical construction and his account of the possibility of an intersubjectively accessible system of relations.

In Carnap's later work, it is possible to detect a shift in his attitude towards ontological questions. Rather than maintaining a hypercritical stance towards all metaphysical claims, Carnap admits the necessity of ontological commitment as a part of inquiry. Inquiry depends, in an important sense on having at least some ontological commitment. In his 'Empiricism, Semantics, and Ontology' (1950). Carnap presents a pragmatic conception of ontological questions as having meaningful answers within specific linguistic frameworks. While external questions, which ask for example whether some linguistic framework has the properties that framework defines, are still regarded as meaningless by Carnap, the kinds of ontological questions which scientists might ask are regarded as internal questions. Carnap's adopts a fallibilist attitude towards ontological questions, such that any ontological commitments are subject to revision in light of new evidence.[21]

16.4 Quinean Naturalism and Ontological Commitment

For much of the late twentieth century, Carnap's work was overshadowed by W.V. Quine's approach to philosophy. Quine's most widely read article 'Two Dogmas of Empiricism' is a sustained critique of attempts to draw the kind of distinction between analytic and synthetic truths that Quine claims is required in order to support Carnap's distinction between questions that are internal and external to science. Quine's work served to undermine the Carnapian criticism of ontology and set in its place a compellingly simple worldview known as philosophical naturalism. Naturalism has been one of the dominant currents in late twentieth century thought. The relationship between ontology and naturalism is complicated and deserves further exploration. However, for the purposes of this essay it will suffice to show how Quine's criticism of Carnap helps to make room for the modern revival of ontology and also how Quine's account of ontological commitment is connected to some of the developments in early analytic philosophy which we have already touched upon above.

Naturalism is a simple doctrine to introduce. Naturalists argue that science and philosophy should not be sharply distinguished; that they are continuous theoretical enterprises. For Quine, philosophy does not stand apart from our engagement with the natural world. There is no privileged standpoint, or 'first philosophy', that can permit us to discover or determine the rules for natural science, for aesthetics, politics or even ethics apart from an engaged practical acquaintance with these pursuits.

Philosophers, according to Quine and other naturalist thinkers, simply do not have access to the kinds of *a priori* truths (propositions that are true apart from

[21] Thanks to Stephen Elliot for pointing me towards "Empiricism, Semantics, and Ontology".

experience) that can allow us to regulate or legislate the scope and content of human knowledge. Carnap believed that philosophers are primarily in the business of analyzing and explaining the meanings of important concepts and, as we saw above with showing how structural features of scientific inquiry can be transformed without loss of content. Conceptual analysis of various forms, it was taught, could be practiced without the need for experimental results of any kind. While the topic of conceptual analysis, on Carnap's view, was science, the practice and results of philosophical analysis per se did not have any genuine content.

Quine's work had the effect (at least among philosophers in the United States during the 1950s and 1960s) of undermining the notion that philosophers working on the meanings of concepts were engaged in a qualitatively different kind of enterprise from scientists working in their laboratories. Quine focused his criticism on what he saw as Carnap's notion that philosophers uncovered analytic or purely conceptual truths as opposed to the synthetic or empirical truths of the natural sciences. The assumption that certain statements were analytically true (true by virtue of their meanings alone) had seemed to provide a way for philosophers to carve out a useful niche for themselves in the service of science. For example, a statement like 'all bachelors are unmarried males' seemed like the kind of truth that one could discover apart from any scientific research. The concept 'unmarried male' seems included in the concept 'bachelor' in such a way as to render the statement 'all bachelors are unmarried males' true by meaning alone. Quine depicts his philosophical predecessors as seeing philosophy as purely a matter of investigating and discovering such analytically true statements.

In 'Two Dogmas of Empiricism,' (1954) Quine argued that no non-circular account of analyticity can be provided that would justify the claim that a statement can be true by virtue of its meaning alone. For, if one claims that analytic truths are sentences that are true on the strength of their meanings, then the question shifts to the definition of meaning? Quine argued that an attempt to pin down the notion of meaning leads us back to analyticity and that there is therefore no non-circular definition of analytic truth. According to Quine, this means that the notion of analytic truth crumbles. Through his criticism of the 'analytic-synthetic' distinction, Quine understood his work as having brought the traditional dream of a distinctly philosophical kind of knowledge to an end.

According to naturalists, philosophers and scientists are engaged in the collective human project of inquiry. This continuity has the practical effect of allowing philosophers to apply empirical results to the solution of traditional philosophical problems. More specifically, the naturalist believes that all of reality, including mental life, ethics and culture, can be understood as part of a single natural order. Nothing in nature, according to the naturalist needs to be explained by reference to something that falls outside of the causal order of nature. Naturalists reject the idea that we have access to *a priori knowledge*, which cannot be corrected or rejected in light of future evidence. All knowledge comes to us through our dealings with the natural world and there are no divine revelations or philosophical intuitions that can underpin our claims.

Quine's views of ontology should be understood in the context of this broader naturalist framework. However, naturalist sloganeering, by itself was not responsible for the influential account of ontology which Quine's work provides. Instead, as we shall see, his account arises directly out of his consideration of the role of existential quantification in formal theories.

Quine's theory of ontological commitment states that if a thing exists it will be the value of the variable in a theory once that theory is construed in logical terms: 'To be is to be the value of a variable.' As was the case for Ramsey and Carnap, Russell's theory of descriptions serves as the basis of Quine's analysis. Unlike Carnap, Quine sees no principled away of distinguishing scientific from philosophical investigation and does not accept Carnap's rejection of ontology. For Carnap, ontological disputes do not have any bearing on genuine scientific inquiry. As we saw above, Quine's naturalism challenged the sharp distinction between analytic and synthetic propositions. Since this distinction licensed Carnap's claim to be able to see ontology as otiose with respect to meaningful inquiry, one of the effects of Quine's argument was to encourage a reconsideration of the nature of metaphysical and more specifically of ontological claims. In this respect, Quine's work was one of the catalysts for the revival of ontology in the second half of the century.

Like Carnap, Quine's views on the nature of ontology were directly informed by Russellian reflections on the relationship between logic and ontology. Quine's initial work on ontological questions concerned the notion of the proposition as it relates to sentences in logic. He first published on the topic of ontology in 1934. In his paper 'Ontological remarks on the propositional calculus' Quine challenges what had, by then become a widely shared view, namely the idea that sentences denote propositions. Quine's argument rests on the idea that we can do without the notion of the proposition insofar as propositions are taken as the denotata of sentences while still maintaining the identity of the components of our discourse. He argues, quite simply, that we can simply conflate sentences and propositions without losing anything of significance. Any role which might have been played by propositions understood as independent entities, for example, the maintenance of sameness of meaning, can be accomplished via convention or via the sameness of structure of written marks. Quine's first foray into ontology was very much in the spirit of Russell, Ramsey and Carnap, insofar as it sought to eliminate otiose objects from our ontological inventory.

Quine's engagement with ontological questions undergoes a dramatic shift once he begins to reflect on the nature of quantification. In particular, the nature of existential quantification becomes central to the development of Quine's perspective on ontology. The goal of his account of ontological commitment is to specify as precisely as possible, the nature of existence claims. His ontological position is articulated most famously in his essays 'On what there is' and 'Ontological Relativity'.

Quine's holistic account of language commits him to a picture of existence claims such that they cannot be understood apart from consideration of the background language in which those claims are made. Usually, his discussions of ontology connect existence claims to the claims made by theories. However, whenever we begin to

analyze Quine's account of ontology, it is always entangled to an important extent with his views of the nature of language and truth. It is extremely difficult to untangle, for instance, the Quinean doctrine of the inscrutability of reference from his account of the relativity of ontology.

The subject matter of some theory is, presumably, that set of objects or processes that the theory is about. In order for the theory to be true those objects or processes must exist. The implicit existence claim of that theory is what Quine calls its ontological commitment. The ontological commitments of the theory are readily apparent once the theory is articulated in terms of first-order logic. Specifically, for every existentially quantified sentence that the theory mentions there must exist some object which could go in for the variable which is bound by the existential quantifier such that the sentence would be true. Roughly speaking, we can say that if the theory is committed to or implies a statement involving existential quantification, then the theory can only be made true given the existence of some object such that the open sentences corresponding to the existentially quantified sentences are made true by the object. Peter Hylton (2004) cites the following presentation of Quine's account of ontological commitment:

> The theory is committed to those and only those entities to which the bound variables of the theory must be capable of referring in order that the affirmations made in the theory be true.[22]

It is important to recognize that for Quine ontological questions only arise in any meaningful sense once a regimented language is in place. Moreover, for Quine, the very possibility of reference only arises once some coordinate system is in place. Ontological considerations are, for Quine, always preceded by some notion of reference or truth. Insofar as reference and truth are connected to some coordinate system, it should come as no surprise that Quine's ontological views will make our choice of such a system central to our analysis of ontological commitment.

Quine admits that a range of possible formal languages or methods of regimentation can be applied to scientific language and that as a result of variety of possible ontological interpretations of the theory are admissible (1969, p. 86). This is one sense in which Quine admits the possibility of ontological relativity. Like everything else in Quine's philosophy our ontological commitments are subject to revision and refinement. Moreover, on occasion Quine emphasizes how specifying the universe of discourse for some specific theory is relative to the choice of background theory. Ontological relativity is the result of relativity with respect not only to choice of background theory but also, according to Quine, with respect to the truce choice of how to translate from some object theory into the terms of the background theory. Unlike Carnap's principle of tolerance, Quine's claims about ontological relativity do not amount to the idea that we're free to choose any one system of regimentation over another. For Quine, we have no neutral standpoint from which to make such a

[22] 'On what there is', in *From a logical point of view*, second edition. Cambridge: Harvard university press, 1961 1–19

choice. Instead, we always find ourselves embedded within some preexisting world theory or background to theory which we inherit from our scientific community.

Quine's view of ontology is inextricably bound up with his broader naturalist framework. This naturalism has had considerable influence on late twentieth century thought, in a variety of ways. In one sense, as discussed above, Quine's criticism of Carnap opened the door to the revival of ontological and metaphysical investigation. On the other hand, Quine's criticism of modal reasoning, as we shall see below, was an obstacle which metaphysicians were obliged to overcome. In the remaining pages of this section, I will describe the relationship between naturalism and ontology in slightly more general terms.

Put in its simplest possible terms naturalism is the combination of two basic notions: that the natural world is all there is, and that we do not possess any non-natural sources of knowledge. Put in slightly more Quinean terms, for the naturalist, there is no super-scientific or transcendent standpoint that allows us to know more than our latest, best science tells us. The essence of his view is that 'it is within science itself, and not in some prior philosophy, that reality is to be identified and described' (1981, p. 21). All of Quine's philosophy can be understood as a reflection and an elaboration on this simple insight.

While many philosophers have contributed to naturalism and have agreed with Quine's general position, his view has created significant critical response. In fact, much of the most interesting and important philosophy in the second half of the last century was written in direct opposition to Quine's view. A list of philosophers critical of Quine would include Saul Kripke, Jaakko Hintikka, Ruth Barcan Marcus, David Lewis, Jerry Fodor and Hilary Putnam. To varying extents, these philosophers have objected to the implications of Quinean naturalism.

Quinean naturalists stand in opposition to philosophers who contend that we can take some set of common sense intuitions as starting points in philosophical reflection. As we shall see, this puts Quine's view in opposition to much of the mainstream of philosophical opinion. Quine's opponents have, for the most part, objected to the radical consequences of his view. For instance, Quine's strict behaviorism with regard to mental life and his apparent rejection of notions like possibility and necessity have struck some philosophers as so contrary to common sense as to be completely implausible. As we shall see in the next section, the mainstream of opinion in the analytic tradition is committed to the idea that philosophy should be guided by our common sense intuitions and that these intuitions are, at least to some extent insulated from the results of the natural sciences.

While some might contend that we have a special set of intuitions or insights that allow us to step outside of science and judge it from some superscientific vantage point, naturalists see all human knowledge as subject to the same basic standards. Eschewing transcendence, naturalists prefer to see both philosophy and science as a set of all-too human activities conducted by scientists and philosophers who are themselves parts of the natural world. Both philosophy and science are communal endeavors which take as their starting point the world view we inherit. 'I philosophize' he admits 'from the vantage point only of our own provincial conceptual scheme and scientific epoch, true; but I know no better' (1958, p. 7). While the

inherited world-view is a starting point, the naturalist argues that continued scientific investigation and discovery improves and revises our inheritance. The scientific wisdom of our age is held to be provisionally true and none of our knowledge claims are held to be sacred or beyond modification.

At its best, according to the naturalist, philosophy is the practice of thinking through the consequences of our inherited scientific worldview. It is the informed reflection of science on its own workings. Rather than attempting to determine the principles or logical framework that scientific research must obey, the naturalist philosopher sees herself as an active participant in the scientific practice of her community. Part of this participation involves the criticism of certain scientific practices or research programs, but this criticism, if it is to be worthwhile, should be informed by our best scientific evidence. Philosophy and science are, as Quine put it, *reciprocally contained*.

> There is thus reciprocal containment, though containment in different senses: epistemology in natural science and natural science in epistemology. . .We are after an understanding of science as an institution or process in the world, and we do not intend that understanding to be any better than the science which is its object. This attitude is indeed one that Neurath was already urging in his Vienna Circle days, with his parable of the mariner who has to rebuild his boat while staying afloat in it. (Quine 1969, p. 84)

Quine avoids the trap of fixing his naturalism to a particular conception of nature or mind, insofar as it rests instead on a way of understanding scientific inquiry and explanation rather than on any fixed image of what nature or the knower must be. Furthermore, for Quine, human knowledge itself is a matter best investigated via natural science. Epistemology itself is naturalized; it becomes a set of problems that we can investigate using whatever means are available to us, including the techniques of psychology and neuroscience. By contrast with the kind of aprioristic reasoning that characterizes most epistemology, Quine's willingness to admit the fallibility of all inquiry is one of the defining characteristics of his philosophy.

So, for example, it would run counter to the spirit of philosophical naturalism to take a particular materialist or physicalist ontology as a starting point on purely metaphysical grounds. Rather, if we accept a physicalist ontology it is because we have strong scientific or empirical grounds supporting our view. From the naturalist perspective, physicalism with respect to most aspects of the natural world happens to be the best ontological position we have found to date, better than idealism, vitalism and dualism for example. Physicalism, for Quine is the notion that a difference in a matter of fact is 'a difference in the fulfillment of the physical-state predicates by space-time regions.' (178, 166) It is difficult to imagine how one could specify a *change* in any other way.

While Quine is takes a physicalist position on most questions, he famously denied that physicalism was a complete ontology. So, for example, Quine's attitude towards mathematics is strikingly Platonist. For Quine, physics provides our best scientific understanding of the natural world. However, physics requires measurement and measurement requires mathematics (or at least set theory). In order for our mathematical (or set-theoretical) propositions to be true, Quine claims that sets must exist as abstract entities. Physics, he argues, is the most accurate

account of the natural world we currently have. Mathematics is indispensable for physics and realism about mathematics is entailed by the truth of our mathematical propositions.

Quine briefly flirted with nominalistic solutions to ontological problems in work with Nelson Goodman (1948). However, Quine soon recognized the inability of nominalism to make sense of scientific generalizations, in particular quantitative reasoning. Not only does Quine maintain a naturalistic attitude towards his ontological commitment, he also recognizes that the meaning of notions like 'physical' is the product of scientific deliberation. What it means to be a physical thing is not something we can know *apriori*. Rather, 'physical' is a term that we come to know via our latest, best science. The naturalist will happily agree that the physics of his era, and the conception of physical thing that it assumes, is likely to contain errors. Of course, the only way to show the flaws of our latest, best science is by engaging in a better science and if such changes result in our having to adjust our metaphysical presuppositions, so be it. For Quine, as we have seen claims about ontology are ultimately simply questions about the ontological commitments of our theories.

16.5 Barcan Marcus and Kripke on Modality

Where Quine seems most at odds with contemporary ontology is in his attitude towards questions of possibility and necessity. Quine famously rejects any consideration of possibilities that fall beyond the way the world actually is. For Quine, talk of possible worlds, counterparts and counterfactuals is simply misguided. While certain features of Quine's naturalism have become relatively standard parts of philosophical practice in contemporary philosophy, his Quine's views of logic and modality remain deeply controversial. Quine's rejection of the notions of necessity, possibility and essence, placed him in clear opposition to some of the most prominent metaphysicians in the second half of the twentieth century. Contemporary metaphysics is, in large part, a matter of reasoning about the consequences of basic beliefs about necessity and possibility.

Quine's opposition to modal logic and modal metaphysics rested on arguments whose validity has been challenged repeatedly in recent decades. As we come to understand some of the shortcomings of Quine's criticisms of modality, it is possible that we will be able to separate the broader naturalistic perspective from the anti-modal arguments that defined much of Quine's perspective on metaphysics. While Quine's specific criticism of modality may have been mistaken, his general philosophical position has a number of important implications for metaphysics.

Naturalism came of age prior to the heyday of modal metaphysics over the past three or four decades. As a result, Quine's work is largely disconnected from analytic metaphysics as it is currently practiced. The work of philosophers like Kripke, David Armstrong, David Lewis and Alvin Plantinga set the stage for some of the most important work in contemporary metaphysics. Kripke, Lewis and

Plantinga develop metaphysics around certain features of ordinary terms like 'can', 'must', 'possible', 'necessary' etc. These modal notions can be understood in formal terms using the techniques of modal logic. Since the late 1960s philosophers have developed sophisticated accounts of traditional metaphysical notions like identity, essence and causality via the use of modal logic.

Unfortunately, Quine defined his own position in opposition to philosophers who explored modal notions using the techniques of formal logic. He famously denied that notions like necessity and possibility can play any significant role in philosophical or scientific investigation. Against philosophers like Jaakko Hintikka, Ruth Barcan Marcus and Kripke, Quine argued that realistic interpretations of notions like possibility and necessity lead to incoherence. As we shall see, Quine mistakenly believed that realistic interpretations of modal notions have no place in legitimate discourse. One of the most unfortunate consequences of Quine's denial of modality was its effect on the development of a sophisticated naturalistic metaphysics. Historically, it can easily look as though Quinean naturalists were on the wrong side of the development of contemporary metaphysics.

Quine's criticism of modality rested on a view of language which was closely tied to the Russellian descriptivist tradition. Ruth Barcan Marcus was one of the first philosophers to recognize that once we consider an alternative approach to language, the core objection to modal reasoning is circumvented. Rather than thinking of names in descriptivist terms, Barcan Marcus suggested that we consider names on the model of what she called 'tags' (1961). These tags can be understood as picking out objects directly in some sense. Rather than seeing the naming relation as somehow including or involving descriptions which mediate between the words and their reference, for Marcus, tags can be seen as simply attaching to objects directly and arbitrarily. Her insight paved the way for Kripke to provide a full exposition of the metaphysical implications of what he called 'rigid designation'. Once Barcan Marcus' response to Quine was in place, his criticisms of modal reasoning could be understood as unnecessarily restrictive. Quine's resistance rested on the failure of substitutivity in modal contexts.

Quine's reasoning runs along the following lines: Sentences which involve modal claims do not meet one of the necessary conditions on legitimate scientific discourse, namely the requirement that replacing a term in a sentence with a different term referring to the same object as the original term should have no bearing on the true value the original sentence. If for instance the terms 'Farookh Bulsara' and 'Freddie Mercury' pick out the same man then replacing one for the other in some sentence should not alter the truth value of that sentence. Quine argued that both modal terms and the propositional attitudes were useless for science. Consider the following sentence:

(a) 'If Freddy Mercury comes to town there will be a commotion'

Notice that this sentence contains no propositional attitudes, no mention of belief, desire, thought and the like, nor does it make any reference to the necessity or possibility of the truth of the sentence. Given this statement as part of my wider theory I can make a number of perfectly reasonable predictions and inferences. Despite its

strangeness, this little law of nature in our imaginary theory has the same logical structure as:

(B) 'If water is brought to 100° Centigrade it will boil'

or

(C) 'If enough snow falls on that branch it will break'

However, as soon as I introduce propositional attitudes or modal qualifiers into the statements of my theory, trouble ensues. The reason is simple. Given for instance:

(D) 'Jean believes that Freddy Mercury was the lead singer for Queen'

We cannot infer with certainty that

(E) 'Jean believes that Farookh Bulsara was the lead singer for Queen'

This is the case despite the little known fact that Freddy Mercury and Farookh Bulsara were the same person. As all die-hard fans know, Bulsara changed his name to Freddy Mercury in order to make himself more acceptable to a British audience. Jean, of course, may not be a fan and may never have heard the name Farookh Bulsara, therefore (E) may not be true. So, (D) and (E) are not interchangeable, by virtue of containing propositional attitudes. But now consider our original statement (A) above, the one that contained no mention of propositional attitudes:

(A) 'If Freddy Mercury comes to town there will be a commotion'

If this is true, then it will also be true that

(A*) 'If Farookh Bulsara comes to town there will be a commotion'

In (A) and (A*) we are referring to a particular physical object – a man – whose presence is likely to cause a commotion, whereas in (D) and (E) we are referring to a something far more problematic, the propositional attitude belief that. Quine argued that this failure of substitutivity in (D) and (E) is enough to vitiate all theories that include propositional attitudes and that, if we want good science, the very least we can ask for is that the law of substitutivity hold. Therefore, according to Quine we should eliminate talk of propositional attitudes from our science.

A similar problem obtains in the case of modal notions. If I say for instance that

(F) Necessarily, nine is greater than seven

and

(G) Nine is the number of planets

I cannot replace 'the number of planets' with 'nine' in the modal context without generating the false claim that

(I) Necessarily, the number of planets is greater than seven.

The failure of substitutivity in modal contexts is the principal reasons for his rejection of modality. Barcan Marcus points out that Quine's argument is undermined by what she sees as his confusion with respect to the nature of identity and by his failure to recognize the possibility of a non-descriptivist account of names.[23]

[23] See her classic paper 'Modalities and Intensional Languages' in *Modalities: Philosophical Essays*, Oxford University Press, 1993. pp.3–39

In terms of identity, she argues, Quine fails to distinguish between the 'is' of predication and the 'is' of identity. So for example to make the claim that nine is the number of planets is to invoke the 'is' of predication whereas claims like 'nine is nine' or 'nine equals nine' are meant to indicate identity rather than predication. The 'is' of predication involves ascribing properties or characteristics to objects whereas the 'is' of identity makes a metaphysical claim concerning the objects themselves/itself.

When one makes the assertion that 'Her shoes are purple,' the word 'are' serves to indicate a relationship of predication. Obviously since other things are purple one cannot say that her shoes are related to purple via an 'is' of identity because if one claims that her shirt is also purple one is committed to saying that her shoes are her shirt since identity is a transitive relation. Now, clearly, the 'is' of predication does not have the property of transitivity, by contrast, transitivity is a defining characteristic of the 'is' of identity.

The two different ways in which we use the word 'is' shed some important light on the notion of reference. In addition to problems related to identity, Quinean objections to the introduction of modal terms involve confusing tags with the objects picked out by those tags. Once this confusion is removed, then Quine's claim that substitution fails in modal contexts can be overcome. The price, according to Quine is a return to what he calls 'Aristotelian essentialism'.

Ruth Barcan Marcus' response to Quine sets the stage for Kripke's treatment of modality. Kripke's *Naming and Necessity* is widely appreciated as central to the recent history of philosophy insofar as it clarifies the distinction between logical, epistemological and metaphysical notions of necessity. The implications of this distinction are deep and far reaching. Most strikingly, it allows for Kripke's recognition of aposteriori necessary truths. By untangling necessity from apriority and analyticity, Kripke shows how metaphysical investigation can avoid traditional epistemological criticisms.

The argument of the lectures is well-known: Kripke follows Barcan Marcus in arguing against a descriptivist view of reference and for a direct-reference model of names. Direct reference is intended to capture the way proper names and natural kind terms serve to track objects across possible states of affairs. In this context, names serve as rigid designators. While Kripke's claims concerning rigid designation are widely regarded as providing a new theory of reference, it is important to recognize the function of notions like rigid designation in support of his more basic metaphysical argument. Insofar as there is a new philosophy of language in Kripke's work his account of language is secondary to the more basic metaphysical purpose of the lectures.

Naming and Necessity begins with some relatively straightforward metaphysical assumptions. For example, identity is understood to be a relation. Identity, he claims, never holds between two things and if it holds, it always holds of necessity. From here, the claim that if *a* is identical with *b* then it is necessarily identical with *b* is the result of a very simple semi-formal argument which runs as follows: If we accept the necessity of self-identity, then for all *x,* necessarily *x=x.* If we accept the principle of the indiscernibility of identicals then, for all *x* and for all *y,* $x=y \rightarrow \forall \varphi (\varphi x \leftrightarrow \varphi y)$.

Now, if *a* is identical with *b* and if *a* is identical with *b* then whatever is true of *a* is true of *b*, then it is necessarily the case that *a* is identical with *b* since it is true of *a* that it is necessarily identical with *a* and whatever is true of *a* is also true of *b.*

However, accepting the result leads to some odd sounding claims. As Kripke points out, it seems to entail, for instance that if Ben Franklin is the first postmaster general, then it is necessarily the case that Ben is the first postmaster general. There is an apparent mismatch between the formal reasoning (which led us to the necessity of identity) and our ordinary ways of using the word *is.*

Kripke's lectures criticize descriptivist approaches to language replacing it with his account of names as rigid designators. The elaboration of Kripke's so-called 'new theory of reference' in *Naming and Necessity* serves to reconcile the formal or semi-formal insights with respect to modality and identity with ordinary identity statements. Kripke's arguments in these lectures are designed to lend some commonsense plausibility to the underlying metaphysical argument.

In *Naming and Necessity*, the notion of intuition is deployed in three distinguishable ways. Intuition is connected to the meaningfulness of certain terms and concepts, it is taken as indicating the conclusiveness of arguments and it serves as a way of distinguishing between formal and informal reasoning in philosophy. Distinguishing the various roles played by intuition in Kripke's work is important insofar as it clarifies our own uses of this notion in philosophical investigation.

Carrying the heaviest argumentative burden in Kripke's defense of modal reasoning is the idea of intuition as the means by which we connect to the 'ordinary' or 'commonsensical' meanings of our words. So for example, he stresses the familiarity of modal discourse when he writes:

> When you ask whether it is necessary or contingent that *Nixon* won the election, you are asking the intuitive question whether in some counterfactual situation, *this man* would in fact have lost the election. (1980, p. 41)

Modal questions can be intuitive and presumably, he believes, ordinary questions. That modal questions have some connection to ordinariness is intended as a means of certifying their meaningfulness; on this view, ordinary sentences and questions are meaningful sentences and questions. While neither 'Is it contingent that Nixon won the election?' nor 'Is it necessary that Nixon won the election?' sound like ordinary questions to my ear, Kripke is less concerned with these particular examples and is focused instead on leading us to recognize that we ask a range of modal questions in ordinary daily life. He is specifically interested in counterfactual reasoning – 'Would Nixon have lost his bid for re-election had he not followed Kissinger's advice?' and the like.

Kripke's notion of meaningfulness here is informed by the ordinary language tradition in philosophy. His confidence that the meaningfulness of words and questions is grounded in their ordinary usage as we see in the following passage, where Kripke writes:

> It is very far from being true that this idea [that a property can meaningfully be held to be essential or accidental to an object independently of its description] is a notion which

> has no intuitive content, which means nothing to the ordinary man. Suppose that someone said, pointing to Nixon, 'that's the guy who might have lost'. Someone else says 'Oh no, if you describe him as 'Nixon', then he might have lost; but, of course, describing him as the winner, then it is not true that he might have lost.' Now which one is being the philosopher, here, the unintuitive man? It seems to me that obviously the second. The second man has a philosophical theory. (1980, p. 41)

Kripke's characterization of meaningful and meaningless questions introduces the notion of 'intuitive content'. If an idea has 'intuitive content' then, according to Kripke, it is meaningful to the 'ordinary man.' The reference to the ordinary man here is connected with the idea of intuition or commonsense which is operative. By adding 'intuitive' to 'content', he means to distinguish contexts where the content of a term might be due to some stipulation or some unusual specialist usage. The ordinary man is contrasted with the philosopher, who in this passage is characterized as the 'unintuitive man'. Here, Kripke is deploying commonsense or intuition in a manner very close to that of the ordinary language philosophers. Intuitive content contrasts with content derived via formal or technical considerations. In Kripke's thinking, formal considerations are distinguished from and perhaps even subordinated to intuitive content. In terms of justificatory force, one clear impression is that intuitive content plays a more central role in philosophical deliberation than theories generated by 'unintuitive men'.

Kripke's account of possible worlds marks a break with Quine's naturalism in terms of its methodological emphasis on common sense or intuition. As indicated above, Kripke's philosophy owes a great deal to ordinary language philosophy insofar as it rests on the idea of familiar intuitions which serve as guides in our ontological or philosophical reflection.

16.6 Common sense, Ordinary Language and Categorial Ontology

Quine's naturalism runs counter to the emphasis on common sense and ordinary experience in twentieth century analytic philosophy. The interplay between formal considerations and intuitive common sense principles is an ongoing theme of analytic ontology. This section traces that emphasis from the early work of Russell and Moore through the ordinary language philosophers to the revival of ontology in the work of Strawson, Barcan-Marcus and Kripke.

In Russell's early work, we saw how logic serves as a means to organize ontological investigation while at the same time (according to Russell) logic requires support, in some sense, from ontology. Thus, abstract entities are invoked in order to support the possibility of logic, and logical techniques like the theory of descriptions while methods like logical construction also serve to inform us with respect to our ontological commitments. Russell was sensitive to both the corrigibility of common sense and the limitations of formal reasoning. In this sense, his work sets the tone for much of the best work in ontology which followed.

Like Frege, Russell regarded the developments in modern logic as centrally important to progress in philosophy. At the same time, Russell's early work is shaped by his rejection of Idealism and by the influence of Moore's account of the nature of judgment.[24] The rejection of Idealism and his adoption of some of Moore's central doctrines are both motivated by his common sense ontological commitments.

The connection between logic and ontology is obvious in his *Principles of Mathematics* from 1903. As Peter Hylton has described in detail, Russell's most important early achievements, and especially his work in the *Principles* were influenced by Moore's arguments against Idealism (Hylton 1990). Both Moore and Russell reject the Idealist doctrine of internal relations, the notion that propositions can have degrees of truth, and what they saw as the psychologistic features of the transcendental method. The reaction to Idealism generated a diverse and complicated range of positions, but its motivation was simple. Russell and Moore saw their work as a straightforward turn away from what they saw as Idealism's denial of the reality of familiar objects and towards what these philosophers saw as a commonsensical form of realism.

Reflecting on his concern with the ontological implications of Idealism in *Our Knowledge of the External World,* Russell asserts that this view 'condemns almost all that makes up our everyday world: things and qualities, relations, space, time, change, causation, activity, the self. All these things, though in some sense facts which qualify reality, are not real as they appear. What is real is one, single indivisible, timeless whole called the Absolute' (1914, p. 16). Russell's concern with the ontological inadequacies of Idealism led him to attempt to develop a form of realism which he believed would save us from having to reject the truthfulness of virtually all our judgments and which would allow us to avoid rejecting the reality of the objects of ordinary experience.

In his *Principles of Mathematics*, he presents in his bluntest and most extreme form, the realistic approach to metaphysics and logic which marks much of his most important work. He famously states, for instance, that discoveries in mathematics have the same character as Columbus' discovery of the West Indies. '[W]e no more create the numbers' he writes 'than he created the Indians' (1903, p. 427). Russell's realism undergoes significant modification in his later work. However, at this stage, his ontological commitments are clear and staggeringly direct. He writes for instance (in a passage which is quoted in Hylton 1990, p. 172): 'The number two is not purely mental, but is an entity which may be thought *of.* Whatever can be thought of has being, and its being is a pre-condition, not a result, of its being thought.' (ibid)

While this is not the place to examine Russell's arguments in detail, it is worth considering the turn to common sense in his and Moore's philosophy. Moore's work encourages us to pause before settling into a preferred set of methods or theses, and to begin instead by thinking about the place from which our investigations start, namely from ordinary experience. Moore asserts that anyone engaged

[24] Moore's break with Idealism is defended in his article 'The Nature of Judgment', (1898)

in theorizing can be assumed to hold a set of implicit beliefs along the following lines:

> There exists at present a living human body, which is *my* body. This body was born at a certain time in the past, and has existed continuously ever since, though not without undergoing changes; it was, for instance, much smaller when it was born, and for some time afterwards, than it is now. Ever since it was born, it has been either in contact with or not far from the surface of the earth; and, at every moment since it was born, there have also existed many other things, having shape and size in three dimensions (in the same familiar sense in which it has), from which it has been *at various distances* (1925, p. 107)

He goes on to claim that he knows with certainty that many people have known things concerning themselves and their bodies corresponding to propositions described in the above paragraph.

Moore reasons along the following lines: Any attempt to deny these propositions seems to involve some implicit acceptance of their truth; to actively deny these propositions is in some sense implicitly self-undermining. As Moore points out, these propositions are not necessary truths. They are conceivably false. So, while he has not directly countered the skeptic's position, he has called on the background beliefs of participants in any argument as evidence that the skeptic is likely to be either insincere or implicitly self-contradictory. Those propositions of common sense that Moore points to as implicitly at play in any argument are difficult to deny coherently, but such a denial is clearly possible.

If a theory implied that I was not born at some point in the past, it would require an extremely high degree of evidence in order for me to accept it. The readjustment in my set of beliefs demanded by this claim would be so fundamental that the evidence required would have to be extraordinarily strong. What makes denying Moore's propositions of common sense so uncomfortable is that these propositions are often precisely what we rely on when deciding between competing theories. As we shall see below, the commitment to common sense has been a central feature in analytic discussions of ontology. In later analytic ontology, the term 'intuition' comes to play the role that 'common sense' had played for Moore. There is an important difference between the role played by intuition in more recent philosophy and the realist employment of common sense in Moore and the early Russell. For more recent philosophers, intuition serves as a methodological guide which can orient our investigations without determining the conclusions of those investigations. As we shall see, methodologically conservative ontologists like David Lewis can be led to counterintuitive conclusions.

One component of inquiry that all ontologists are likely to accept is the notion that common sense or ordinary experience has an important role in our ontological deliberations. Ontologists will disagree with respect to the nature of the role which common sense should play. Some contemporary ontologists, like Mark Heller, will move from the manifest or ordinary starting point to the conclusion that that familiar objects do not really exist.[25] Heller, for example, argues only subatomic particles

[25] See for example his *The Ontology of Physical Objects* (1990),

exist. Heller's conclusion is that we can only legitimately individuate at the most basic physical level and from there the best we can do is to talk about hunks of subatomic particles. Other philosophers, e.g. Amie Thomasson and Crawford Elder contend that familiar objects are just as real as subatomic particles.[26] Thomasson and Elder begin from the recognition that there is something counterintuitive and potentially self-undermining about the denial of familiar objects for exotic theoretical reasons. The challenge for readers of debates like this is to determine the degree to which our common sense intuitions about familiar objects ought to outweigh strong arguments to the contrary. Ontology is subject to risks on both sides: Either a dogmatic attachment to familiar objects on the one hand or costly philosophically extravagances on the other.

Common sense plays an important regulative role in all forms of inquiry, but it has special importance for philosophy. Common sense helps the philosopher avoid asserting views that are unreasonable and guides her towards more plausible lines of inquiry. Its role should be especially important in ontological theorizing, where we have fewer of the guideposts that help orient inquiry in other areas of philosophy. One role that common sense has played in twentieth century philosophy is in support of a critical posture towards philosophical investigation per se.[27] Common sense informs us that a philosopher who denies the reality of familiar objects is indulging in a potentially self-undermining form of philosophical extravagance.

Philosophical extremism, according to ordinary language philosophers like John Austin, can be cured by careful attention to the way philosophical terms of art are originally used in ordinary language. So, for example, with respect to ontological questions, rather than worrying about the reality of chairs and tables, Austin argued, philosophers should look to common sense and attend to the role of terms like 'real' in ordinary language. Philosophical problems, according to Austin, lose their grip on us once we understand their origins. The basic idea of the ordinary language tradition in philosophy is that philosophical theories and more specifically the philosophical use of terms can be evaluated through a comparison with ordinary usage.

The Austinian reaction to philosophical analyses of the word 'real' assumes (in a way which I think is highly problematic) that common sense is never in conflict with itself in any philosophically interesting way. Instead, according to Austin it is philosophers who, in his words, have led us up the garden path as the result of their misunderstanding. 'Real', Austin writes 'is what we might call a *trouser-word*. . . it is the negative use that wears the trousers' (Austin 1964, p. 70).

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[26] See Amie Thomasson's 'Artifacts and Human Concepts' (forthcoming). And Crawford Elder's *Real Natures and Familiar Objects* (2004)

[27] Wittgenstein described the project this way: "When philosophers use a word – "knowledge", "being", "object", "I", "sentence", "name" – and try to grasp the *essence* of the thing, one must always ask oneself: is the word ever actually used in this way in the language-game which is its original home?

What *we* do is to bring words back from their metaphysical to their everyday use." *Philosophical Investigations* § 116

> 'A real duck' differs from the simple 'a duck' only in that it is used to exclude various ways of being not a real duck – but a dummy, a toy, a picture, a decoy and c.; and moreover I don't know *just* how to take the assertion that it's a real duck unless I know *just* what, on that particular occasion, the speaker has it in mind to exclude. This, of course, is why the attempt to find a characteristic common to all things that are of could be called 'real' is doomed to failure. (Austin 1962, p. 70)

He might be correct to claim that fakes and decoys originally cause us to notice the problem of determining what counts as real. As far as it is a genealogy of philosophical problems, his account might have some merit. However, it is worth asking whether this kind of genealogical criticism has any relevance to ontological questions in science and metaphysics. For instance, consider how a working scientist might approach questions of whether 'mental maps', the Freudian superego or genes are real. Each of these examples would involve a sense of 'real' which is not parasitic on 'fakes' in the same way as questions concerning decoy ducks and leather couches.

The ordinary language philosopher misses the point with respect to what motivates contemporary ontological investigations. For instance, as we have already seen above, one important problem for contemporary metaphysics is that familiar objects seem to be rendered epiphenomenal by the assumptions of scientifically informed common sense. Such problems are especially pressing for the ontology of the special sciences. If those objects mentioned by the special sciences are not really real then the truth value of those sciences is in jeopardy. Thereby, in psychology for instance, we would have no objective reason for preferring one ontology over another. In the case of psychology, the ontological challenge relates directly to our understanding of ourselves. Do we have ideas? Are we conscious? Are we best modeled as connectionist or classical systems? etc. All such questions are empty if our non-physical ontologies are irrelevant and illusory. Whatever its virtues as a description of the sources of philosophical problems, the Austinian or ordinary language strategy provides no response to this and most other kinds of ontological concern.

It is not enough to claim that the philosophical problem is the product of a misunderstanding, since, even if this were true, leaving the philosophical problem unresolved or worse still denying that the problem can be solved generates another problem, namely it leads to the inability to decide between theories in the special sciences. Even granting the possibility that philosophical questions have their origins in confusion, debates over individuation and reality are not *merely* artifacts of philosophical misunderstanding. They figure centrally in a range of familiar disputes in the history of science. Prominent examples include the units of selection problem in evolutionary biology, the question of the reality of atoms in late nineteenth and early twentieth century physics, the nature of mental images in psychology, etc. Debates over the ontological status of a particular scientific term can take a variety of forms. In some cases, the question is not whether the objects in question exist, but rather, whether they constitute a kind. So, for instance, we can find instances of misfolded proteins, without knowing whether these things really constitute a class of infectious agents-prions that are responsible for brain diseases. By contrast, some physicists

and philosophers doubt that there really are strings of the kind that we read about in string theory. Ontological questions arise in scientific inquiry in contexts where traditional skeptical concerns of the sort which interest philosophers are simply not in play. Furthermore, ontological challenges result from and have direct bearing on scientific practice.

We do not have to draw our examples from natural science. For instance consider the question as to whether shadows are real. It is not the case that the use of 'real' in this question parasitic on the notion of 'fake'. Instead, we may be engaged in a very different kind of reasoning. The question as to whether shadows or holes are real would not be a straightforward question of the relationship between appearance and reality. If an ontologist is deciding whether to include shadows or holes in her inventory of the real, she is not engaged in a purely skeptical inquiry and is not necessarily denying the existence of shadows or questioning their apparent reality, she is asking instead what kind of existence they have. She might ask, for instance, whether it is right to see shadows as being on an ontological par with the objects that cast shadows.

We can assume that ordinary language philosophers would not wish to take all objects as being on a par ontologically, consequently we can assume that they would permit us to inquire into degrees of existence. Is my being an uncle, more or less real than my being human? I am really a teacher, (not a fake teacher) and I am really human (not a mannequin) but could it not make sense to say that I instantiate the property of being human in some stronger sense than I instantiate the property of being a Texan? Can I instantiate the property of being an Irish citizen and also be a Texan? Ontologists can begin to make sense of such claims and questions in a variety of ways. It is certainly not the case that all questions having to do with reality are reducible to the familiar themes of appearance and skepticism.

Even if Austin were right about the origins of ontological questions, his diagnosis itself is infected with a genetic fallacy. Just because the philosophical problem was born out of some original confusion, does not mean that it should not be taken seriously in its current form.

Ordinary language philosophy was a relatively short-lived movement. However, it has had deep influences on some of the most important philosophers who followed. One of the more interesting followers of the ordinary language tradition was Strawson. Unlike the ordinary language philosophers who preceded him, Strawson actively engaged in what we would recognize as ontological investigation. Strawson described metaphysics as the finding of reasons for what we believe on instinct. Rather than stopping at ordinary language, Strawson's goal was to provide an explanation for some of its more prominent and philosophically significant features. In his 1959 book *Individuals* he undertakes an analysis of the fundamental categories which he believes underlying human reasoning. It provides an argument for the fundamentality of space and time and suggests that bodies in space and time should be considered the basic particulars of our ontological framework.

Strawson provides a fascinating criticism of process-based ontologies arguing that demonstrates the priority the notion of object over process in our thinking. Strawson's approach has a pronounced Kantian flavor. He presents it as a

scheme-dependant ontology, meaning that the philosopher's task is to uncover the ontological categories presupposed by the conceptual scheme in question. It is our ordinary way of talking and thinking that serves as the basis for this analysis. Thus, like the ordinary language philosophers Strawson rests the authority of his claims on the authority of everyday experience, language, and thought. The categorial approach to ontology which we find in contemporary ontologists like E.J. Lowe can be traced directly to Strawson's methodological exam example in works like *Individuals.*

The Strawsonian project of descriptive metaphysics shares important characteristics in common with both ordinary language philosophy and the realism of the early Russell and Moore. As we saw above, Moore saw the Common Sense view of the world as embodied in a set of propositions whose denial (while not flatly contradictory) leads to absurdity. The attempt to deny these propositions, he claimed, seems self-undermining since claiming and arguing for anything seems to involve some implicit acceptance of the truth of a whole range of Common Sense propositions. So, according to Moore, to actively deny these propositions is in some sense implicitly self-undermining. Rather than directly confronting skeptical arguments he provided a description of the background beliefs of participants in an argument. As an antidote to what he saw as the speculative excesses of his British Idealist predecessors, Moore's arguments are intended to support a view of philosophical practice in which speculative exuberance is restrained by the modesty of Common Sense. Strawson takes this Moorean starting point and develops a categorial account of its ontology.

16.7 Common Sense Conservatives and Their Counterintuitive Conclusions

While there is still broad acknowledgment of the importance of commonsense in philosophy, intuition often figures in support of metaphysical theses which do not seem consonant with the kind of modesty that Moore advocated. It is common for contemporary metaphysical arguments to deduce counterintuitive conclusions from some relatively plausible set of intuitions or platitudes. Consider David Lewis' famous arguments for modal realism. While Moore might have joined philosophers who stare incredulously at the strangeness of modal realism, Lewis' arguments consistently make appeal to commonsense and he follows Moore in his emphasis on theoretical conservatism as a methodological principle for philosophers.

Lewis was perhaps the most influential philosophical ontologist of recent decades. He argues for a position which has come to be known as Humean supervenience. While Lewis's views concerning modality have gained notoriety, and contrast in significant ways with Quine's, his overall approach to philosophy shares some common features with Quinean naturalism. Lewis regarded scientific inquiry, and specifically physical science, as the most promising path to truth. Given this picture of scientific inquiry Lewis regards it has virtually inevitable that physics will eventually provide an account of the fundamental constituents of the natural

world. If we know the basic constituents of the natural world then on Lewis's view all other facts will follow as supervenient on the physical facts. The claim that the physical facts; the spatio temporal account of the natural world, suffice to account for all the truths is known as Humean supervenience. A great deal of contemporary ontology involves the development of objections to Lewis's view or the extension and refinement of his position.

In spite of its occasionally extravagant and exotic appearance Lewis's philosophy is organized around the principle of frugality and methodological conservatism. However Lewis' attitude towards the propositions of commonsense themselves stands in contrast with Moore's. In *On the Plurality of Worlds*, for example, Lewis's argument for modal realism amounts to the presentation of reasons for accepting some commonsense theses at the expense of others. For example, in his defense of modal realism, he explains his conclusion by way of showing which of three commonsense intuitions he accepts and which he rejects.[28]

Unlike Moore, Lewis distinguishes the significance of commonsense for philosophical methodology and its significance with respect to the evaluation of the results of inquiry. Commonsense has no veto power over the latter. It 'has no absolute authority in philosophy… It's just that theoretical conservatism is the only sensible policy for theorists of limited powers who are duly modest about what they could accomplish after a fresh start' (1986, p. 134). It is likely that the British Idealist targets of Moore's criticism would have agreed with Lewis' methodological point. Thus, common sense figures prominently in Lewis' work, but not in the way that Moore would have recognized.

In ontology, commonsense has taken a decidedly un-Moorean turn. For instance, Moore argued that we ought to accept truisms with respect to the existence of familiar objects. By contrast, as Crawford Elder points out, in the years that followed, ontologists have almost universally lost faith in the existence of ordinary things. Familiar objects 'have been crowded out by sleeker rivals unheard of by common sense – objects having crisper extinction conditions, or characterized by properties not susceptible to sorites arguments, or objects whose causal efficacy traces to far cleaner laws than would ever fit common-sense objects'(2004, p. x).[29] One of

[28]He writes:
"Suppose we interviewed some spokesman for common sense. I think we would find that he adheres firmly to three theses:
(1) Everything is actual
(2) Actuality consists of everything that is spatiotemporally related to us, and nothing more (give or take some 'abstract entities'). It is not vastly bigger, or less unified than we are accustomed to think.
(3) Possibilities are not parts of actuality, they are alternatives to it.
[…] I speak as party to the conventions of the community in question. […] I am within my rights in standing with common opinion about the unification and the extent of actuality, at the expense of common opinion that everything is actual, I do of course disagree with common opinion. I acknowledge that as a fair objection." (1986, 99–100)

[29]Williamson (2004, 112) makes a similar point, noting examples of philosophers (van Inwagen 1995, Horgan 1996) who deny the existence of mountains.

the reasons for Elder's complaint is that many ontologists follow Lewis in attempting to provide conditions for individuation which do not violate the restrictions of Humean supervenience and physicalism. It is striking that the kind of methodological conservatism which Lewis's philosophy encourages, has the consequence of abandoning the familiar objects of common sense ontology. As we saw above, for Moore, the truisms of common sense are thoroughly entangled with the reality of familiar objects. Figuring prominently among these are his body, his clothes, the furniture in his study, his pen, etc. It is precisely the Idealist denials of familiar objects and ordinary experience that his essay is intended to correct.

It is worth distinguishing the kind of methodological conservatism that Lewis associates with commonsense from the evaluation of conclusions. This methodological role is relatively straightforward and involves the recognition that we usually cannot make a completely fresh start in inquiry and that attempts to do so are usually not very successful. Philosophical inquiry, according to Lewis, ought to begin modestly by provisionally accepting commonsense starting points. This general principle says nothing, of course, about where inquiry might take us or how we ought to evaluate its results.

In recent philosophy, when common sense is playing the role of the methodologically conservative guide to inquiry, it has tended to morph into the slippery notion of intuition. Intuition plays a prominent role in contemporary ontology. Many philosophers, especially those working in ontology, epistemology and moral philosophy, want to claim a role for intuition in the generation or in the support of our beliefs about basic philosophical problems. Intuition is usually characterized in propositional attitude terms; agents are described as having the intuition that *p*, or as intuiting that *p*, where *p* is understood to be some proposition. While intuition is widely regarded as a source of belief, the manner in which intuition plays this role is obscure. Broadly speaking, the idea is that something akin to a faculty of intuition might support our accounts concerning basic conceptual matters insofar as it somehow serves as a guide for the agent in deciding between accepting and rejecting propositions. In addition to serving a variety of evidential roles in philosophical arguments, intuitions are sometimes thought of as hypotheses or as marks of conclusiveness. At bottom, most contemporary accounts of intuition characterize it as an especially authoritative way of *seeming that*. Contemporary accounts of intuition oscillate between the folksy and the rarefied: Intuition is sometimes understood to be a peculiarly aprioristic faculty while elsewhere it is portrayed as the most ordinary, commonsense level of thinking; accessible to all of us.

George Bealer describes intuition as a *sui generis* propositional attitude which, at the same time, serves as the source of all (non-stipulative) a priori knowledge (2002, p. 73). Elsewhere, we find 'intuition' and 'commonsense' being used interchangeably. Kripke, for example, contrasts intuitions with 'philosopher's notions' and regularly identifies intuitive content as the kind of thing to which the folk would readily agree (1980, p. 42). The connection to the traditional uses of the notion of common sense is also complicated somewhat by contemporary views which identify intuition with various kinds of competence. Ernest Sosa, for example, characterizes philosophical intuition as roughly equivalent to competence with respect to

the relevant subject matter while distinguishing intuitive insight from conceptual analysis (Sosa, 2007).

I have argued elsewhere, that conflating the content of favored propositions with the feelings which lead us to favor those propositions figures frequently in the literature and is the source of unnecessary obscurity (Symons 2008). The salutary effect of distinguishing between intuitions and propositions is that it clarifies the sources of justification in an argument. So, for instance, it would allow us to distinguish arguments which rest on the truth of propositions from those which rest on the authority of something like a faculty of commonsense or intuition. While those propositions which are favored by commonsense are true or false independently of their relation to commonsense, a proposition's having the property of being favored by commonsense or intuition might count as a reason to believe that it is true. However, we could only reasonably believe that this property is a guide to truth by virtue of some additional set of propositions concerning the reliability and nature of the faculty of intuition or commonsense. For instance, we might argue that the intuitions of a specialist in some domain can be trusted. A specialist has acquired what philosophers had once called tacit knowledge through years of training and experience such that his or her 'gut feelings' about some topics in the discipline ought to be given serious consideration. We might have reasons (which can be articulated and defended) to trust the intuitions of some specialist. Similarly, we can imagine reasons for taking a more generalized and widely distributed form of commonsense seriously.

To say that we need reasons to heed the voice of commonsense is not equivalent to an epistemic principle to the effect that we ought to have evidence in all cases for the propositions that commonsense provides. Instead, by focusing on our reasons for heeding the faculty of intuition, we would undertake a general (largely empirical) project to give an account of the faculty and its place in the philosophical enterprise.[30]

16.8 Explanatory Adequacy and Parsimony

Commonsense has played a central role in ontological reasoning. In recent years, the role of intuition or commonsense in philosophical reasoning has come under scrutiny from self-described experimental philosophers and there has been a number of attempts to provide a precise articulation of the role of intuition in argumentation.[31] However, there are a range of competing criteria according to which one can evaluate an ontological system. In addition to its degree of consonance with commonsense, one might argue that a parsimonious ontological framework is preferable

[30] For a more complete discussion of the role of intuition in contemporary philosophy, see Symons (2008)

[31] Among the first paper to make an experimental case against the assumed consensus with respect to some philosophical intuition is Jonathon Weinberg, Shaun Nichols, Steven Stich (2001) on normative intuitions. In a recent paper Swain, et al, (forthcoming) conduct experiments on epistemic intuitions to similar effect. See their blog at http://experimentalphilosophy.typepad.com

to one which adds categories or types of entities ad hoc. At the same time, it is reasonable to prefer an ontological system which is less parsimonious while providing a more adequate explanation. For some ontologists, faithfulness to common sense and scientific investigation should be the principal determinants of our ontological claims. If one adopts this third stance, ontology is relegated to a relatively secondary role in relation to the account of the world which is on offer at any particular moment from our current, best science.

One recent project provides a useful test case for some of the competing factors that contribute to our evaluation of an ontological system. E.J. Lowe, in his recent book (2006) proposes an ontology consisting of objects, kinds, attributes, and modes. According to Lowe, this four category ontology captures the fundamental features of reality in way which provides explanatory resources for other metaphysical questions. What Lowe means by calling some category fundamental in this context is '. . .that the existence and identity conditions of entities belonging to that category cannot be exhaustively specified in terms of ontological dependence relations between those entities and entities belonging to other categories' (2006, p. 8). Like the logical property of the independence of axioms in some system, Lowe sees the ontological project as being one in which we propose independent and fundamental categories. Any proposed set of fundamental categories is then evaluated in terms of its ability to provide explanations or clarifications in other areas of philosophy. So, for example, he claims that his four category ontology has the virtue of explaining natural laws and causal relations.

Lowe follows Aristotle by emphasizing two major distinctions, the distinction between universals and particulars and between terms which refer to substantial and non-substantial entities. These two pairs form the vertices of what Lowe calls an ontological square, which forms the basis of his four category ontology: Substantial particulars, non-substantial particulars, non-substantial universals, and substantial universals. Objects (substantial particulars) have modes (non-substantial particulars). A mode is simply a way that a specific object bears a property; for example, the brownness of this chestnut. Attributes (non-substantial universals) would include, for instance, brownness; brownness, over and above the particular brownness of this chestnut. Finally natural kinds, like the kind 'chestnut tree' would count as a substantial universal for Lowe. Thus, objects have modes, modes are particular instances of attributes, kinds are defined in terms of their attributes and kinds are instantiated by objects. The members of this interlocking set of categories are each, according to Lowe, fundamental, in the sense of being independent of one another. He contends that the manner in which they relate to one another is such that it constitutes an exhaustive framework for describing all of reality.

Evaluating a framework of this kind involves comparison with alternative systems and the application of criteria such as its consistency, its commonsense acceptability (does the framework lead to counterintuitive consequences), its level of parsimony, and finally its explanatory adequacy. Lowe's ontology is less parsimonious than its contenders and must therefore justify itself in terms of its explanatory strength.

Deciding whether Lowe's ontology possesses the kind of explanatory power that he claims is beyond the scope of this essay. However, the burden for ontologists like Lowe is two-fold. The first involves justifying each of his fundamental categories as well as the relations which he posits between them. The second involves showing that the explanatory payoff with respect to problems such as laws of nature or the dispositional-categorical distinction is far higher than one receives with competing ontological systems. Armstrong's ontology, for instance, provides a considerably slimmer framework for addressing many of the same problems. Ryan Wasserman's insightful review of Lowe's *The Four Category Ontology* provides an example of how one might demonstrate the pitfalls of an expanded ontology (Wasserman 2006).

Lowe claims that his ontology provides an explanation of laws and dispositions. He takes Armstrong's ontology as his principal opponent. Armstrong's work can be seen as an attempt to understand the modal features of notions like cause, law and disposition within a broadly naturalistic framework. It is worth considering the way in which Armstrong's naturalism plays a role in his ontology.

Armstrong's materialist account of mental life extended and deepened Gilbert Ryle's blend of behaviorism and ordinary language philosophy. However, Armstrong's investigations were always more directly concerned with the broader metaphysical implications of questions about the mind than Ryle's. Stephen Mumford (2007) argues that Armstrong's later interest in universals and laws of nature emerged directly from reflections on the nature of dispositions in behaviorist models of mind.

Armstrong is a realist about universals, but in the spirit of naturalism, he argues that there are no uninstantiated universals. For Armstrong universals are real, but their reality depends on the reality of their instances. So, whereas Lowe's four category ontology sees them as equally fundamental features of reality, for Armstrong, universals are revealed to us via scientific inquiry into particulars. Lewis, by contrast, takes universals or properties to be something like sets (or perhaps classes) of possibilia. Andy Egan has criticized the Lewisian approach to properties for failing to permit things to have different properties in different possible worlds (2004).

Armstrong's metaphysics is one of the most detailed attempts to provide a systematic alternative to Lewis' Humean supervenience approach. It has been criticized by Alex Bird (2007), Mumford (2007) and others as sharing many of the same basic commitments as Lewis' view with respect to basic notions like the role of dispositions and their relation to the fundamental ontological constituents of nature. Bird, Ellis and other scientific essentialists, advocate a foundational role for dispositions in ontology. While the details of these debates are beyond the scope of the present essay, the resolution of these questions involves (at least in part) competing sets of commitments to the goals and presuppositions of ontology.

16.9 Concluding Remarks

In this essay, I have tried to indicate how some of the features of analytical ontology arise from the interplay of logic, language, and commonsense. In very general

terms, it is possible to claim that throughout the history of analytic ontology we see the competition between formal insight and common sense. As we have seen, this tension persists, insofar as the ubiquity of the notion of intuition in contemporary ontology stands in sharp contrast with the frugality and precision to which Lewisian metaphysics aspires. Current debates reflect the ongoing struggle between these competing principles.

As we have seen, the revival of ontology and metaphysics after a significant wave of criticism in the mid-twentieth century has a variety of sources and causes. Centrally important are the arguments of four figures; W.V. Quine, Peter Strawson, Ruth Barcan-Marcus and Saul Kripke, all of whom were pivotal in the transition from a linguistically-oriented approach to philosophy to the realistic orientation that characterizes much of contemporary ontology. I hope that the foregoing sketch has indicated at least some of the reasons supporting the revival of ontology. While no single argument or text was uniquely responsible for bringing about the revival of ontology, it is clear that the reaction against the limitations of ordinary language philosophy, the development of modal logic, the criticisms of Carnap's attempt to separate philosophy and science, and Kripke's defense of necessary a posteriori truths all combined to clear the way for contemporary ontology.

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