British Journal for the History of Philosophy, forthcoming. doi: 10.1080/09608788.2016.1266461

Donald C. Williams's Defence of Real Metaphysics[1]

A. R. J. FISHER

Abstract: In the middle of last century metaphysics was widely criticized, ridiculed, and committed to the flames. During this period a handful of philosophers, against several anti-metaphysical trends, defended metaphysics and articulated novel metaphysical doctrines. Donald C. Williams was one of these philosophers. But while his contributions to metaphysics are well known his defence of metaphysics is not and yet it played a key part in the development and revival of metaphysics. In this paper I present his defence of metaphysics in its historical context. I also show how his defence is relevant in response to recent attacks on metaphysics.

Keywords: Williams; meaning; universals; empiricism; logical positivism

Introduction

In the mid-twentieth century metaphysics in the English-speaking world was all but out of fashion due to the rise of three anti-metaphysical trends: logical positivism, ordinary language philosophy, and the later Wittgenstein. Logical positivists rejected metaphysics as an empirical form of inquiry. They thought there was a genuine divide between metaphysics and science, and that metaphysical statements are tautologous, nonsensical, or really empirical claims to be subsumed under the sciences. Ordinary language philosophers and the later Wittgenstein thought philosophical problems arise from confusions of grammar and are dissolved by clarifying the meaning or use of words and sentences. The demise of these trends by the 1960s saw an opening for metaphysics. However, the revival of metaphysics in the late twentieth century was not due solely to the crumbling of these anti-metaphysical trends. There were many factors, related and unrelated, that played their own part in the revival of metaphysics. One factor is the defence of metaphysics by certain philosophers during the height of these anti-metaphysical trends. These philosophers were not only unconvinced by the critiques of metaphysics during this period, circa 1930-1960, they also articulated

[1] Thanks to Donald Baxter, Keith Campbell, Kendall Fisher, Peter Forrest, John Heil, and Peter Simons for comments. Thanks also to the audience at Queen's University, 4 February 2016. I am grateful to Harvard University Archives for providing access to the Donald Cary Williams Papers and to David C. Williams for kind permission to publish excerpts from Williams's unpublished papers. I thank the John Rylands Library at the University of Manchester for providing access to the Samuel Alexander Papers. I thank Steffi Lewis for providing access to David Lewis's correspondence and permission to publish from it (which is now located at the Princeton University Library). I am grateful to the British Academy for a Newton International Fellowship and to Queen's University for a Bader Postdoctoral Fellowship. Also, I gratefully acknowledge the support of the AHRC through its funding of the project *The Age of Metaphysical Revolution: David Lewis and His Place in the History of Analytic Philosophy*.

novel metaphysical doctrines and influenced philosophers of the next generation. Gustav Bergmann, for instance, took an 'ontological turn' away from positivism in the 1940s and subsequently influenced his students Herbert Hochberg in the 1950s and Reinhardt Grossmann in the 1960s. Bergmann can be understood as playing a role in the development of metaphysics in the twentieth century.

Donald C. Williams is another philosopher of the mid-twentieth century who defended metaphysics against these anti-metaphysical trends and advocated a distinctive conception of metaphysics. As professor of philosophy at Harvard University (from 1939 to 1967) Williams taught many students who went on to make an impact on metaphysics. Most notably, he taught Roderick Chisholm in the 1940s, Nicholas Wolterstorff in the 1950s, and David Lewis in the 1960s. Moreover, his writings became more influential as philosophers paid closer attention to metaphysics. In the 1960s and 1970s, most significantly, Williams's work affected many philosophers at the University of Sydney such as D.M. Armstrong, John Bacon, Keith Campbell, Peter Forrest, and D.C. Stove. Armstrong tells us that 'Sydney University was for some years the world centre of Donald Williams studies' (Armstrong 1993, 72, n. 1). Like Bergmann, Williams can be understood as playing a role in the development of metaphysics in the twentieth century.

Today Williams is mostly known for his ontology of abstract particulars or 'tropes' (1953a, 1953b) and his defence of the four-dimensional manifold theory of time (1951a, 1951b).[2] His ontology of tropes is a standard position in the metaphysics of properties and his articles on time are regarded as *loci classici* of the subject. He developed these doctrines as part of his empirical conception of metaphysics. This conception of metaphysics is partly founded on his defence of metaphysics. However, his defence of metaphysics has received little attention and the context in which his philosophy was formed is not understood properly in the history of analytic philosophy. Furthermore, despite the focus on his contributions to metaphysics, other aspects of his philosophy are underexplored and rarely seen as connected to his system. A discussion of his defence of metaphysics will go some way towards illuminating his conception of metaphysics.

In what follows, I present Williams's conception of metaphysics and explain his defence of metaphysics against logical positivism (I shall not discuss his dismissal of ordinary language philosophy and the later Wittgenstein). He rejects the positivists' theory of meaning, analyticity, the a priori, and induction by offering realist alternatives that appeal to the existence of universals. He thinks his alternatives uphold the legitimacy of metaphysics within an empiricist framework. However, his defence of metaphysics raises two problems for his system. 1) He is usually interpreted as rejecting universals and explicitly defends a one-category ontology of tropes, so his fundamental

[2] I take 'universal' to refer to properties and relations. Property-instances and relation-instances are instances of properties and relations respectively. Property-instances and relation-instances are tropes. So properties and relations are not tropes, on my terminology. I also take 'object' to refer to concrete particulars. Thus tropes are not objects, nor are universals. 'Entity' is my catch-all phrase: tropes and universals are entities, just as much as objects. For convenience I drop talk of relations. For discussion on tropes, see inter alia (Maurin 2002; Schneider 2002; Trettin 2000).

ontology seems at odds with the existence of universals. 2) His theory of analyticity and the a priori seem to commit him to a rationalism that he should reject as an empiricist. After presenting his theories of meaning, analyticity, and the a priori I address these problems. In the penultimate section I discuss his theory of induction insofar as it is relevant to his defence of metaphysics and extract a response that can be used in reply to a current attack on metaphysics. I conclude with a section on Williams's influence on later philosophers.

Empirical Metaphysics

In the 1920s, when Williams was a student at Harvard and Berkeley, metaphysics was a respectable part of philosophy. Metaphysical system-building was in fashion in the English-speaking world, with attempts carried out by Samuel Alexander (1920), J.M.E. McTaggart (1921), and A.N. Whitehead (1929). Idealism was on the decline as realism and empiricism were being reborn. It was in this intellectual environment that Williams embraced the empiricist, realist, and naturalist approach of Alexander, Bertrand Russell, and the American New Realists (especially Edwin B. Holt, William P. Montague, and Ralph Barton Perry). Williams's commitment to empiricism led him to endorse the view that all synthetic knowledge is known a posteriori and via induction. He argued for metaphysical realism and metaphysical naturalism – the view that everything that exists is part of one system of space-time – on inductive grounds (see Williams 1934, 1944). His naturalism led him to adopt the view that all that exists is actual, determinate, and of one way of being; there are no potencies, potentialities, indeterminacy, Platonic entities, occult forces, powers, or primitive essences (see e.g., Williams 1959, 203; 1966, 239).[3] He further accepted as a working hypothesis the view that the world is a four-dimensional manifold of actual qualitied contents: all else supervenes on it and sets and mereological sums of its parts. This working hypothesis entails the existence of three basic relations, spatiotemporal, mereological, and resemblance relations, that hold between actual qualitied contents. He called this 'actualism'.

Certain idealists such as Bernard Bosanquet played a role in the development of Williams's thought too. Williams says in reply to Max Black's criticisms of metaphysical naturalism that (referring to his own 'Naturalism and the Nature of Things'):

> I am not always sure what he finds objectionable in the answers there, except that they need enlargement in a total philosophical system. The latter, of course, I cannot provide at once, though anyone who will amalgamate the larger metaphysical opinions of Alexander and Bosanquet will have a pretty fair approximation to what I deem the truth about most of the topics which Mr. Black queries (Williams 1946, 580).

Further, Williams says of his early development that 'it was the objective idealist Bosanquet who broke [subjectivism's] spell and once for all made anything but

[3] If I cite articles in *Principles of Empirical Realism*, I include references to the original articles.

straightforward realism seem as perverse in technical philosophy as it is grotesque to common sense' (Williams 1966, vi).

Williams believes that metaphysics is an empirical science. An empirical science is confirmed or falsified by, what he calls, 'items of experience'. An item of experience is just some experiential or empirical fact. But metaphysics is not only an empirical science. It is 'the thoroughly empirical science' (Williams 1953a, 3; 1966, 74). Metaphysics as a thoroughly empirical science is concerned with the most general, all-encompassing subject matter of any science. Metaphysicians study all things and their most general features. Metaphysicians aim to 'explain every kind of fact by one simple principle or simple set of principles (Williams 1944, 431; 1966, 227). A metaphysical theory is 'directly relevant to and confirmable or falsifiable by every item of every experience' (Williams 1944, 431; 1966, 227). By contrast, scientists study restricted domains of reality: biologists study biological things, chemists study chemical things, and physicists study physical things. They attempt to explain a restricted set of facts. Not every item of experience is directly relevant to the confirmation or falsification of their theories. Williams found this conception of metaphysics in the work of Alexander, in addition to being inspired by the Aristotelian conception of metaphysics as the study of being *qua* being.[4]

Williams divides metaphysics into ontology and cosmology.[5] Ontology is the study of the categories of being, i.e., the categorial features of *every* existent. Cosmology is the study of particular kinds of beings, their nature, and how they are connected, i.e., the most general features of *all* existents. Williams also introduces a distinction between analytic and speculative modes of inquiry. The analytic mode concerns questions about the *nature* of something. E.g., What is a thing? What is a cause? What is meaning? The analytic mode is deductive. It provides an 'analysis' of something into that thing's component parts. The conception of analysis that Williams works with for the most part is the traditional decompositional mode of analysis (Williams 1953b, 180-82; 1966, 98-100). An analysis is deductive in that the component parts are deduced from the whole; conversely, the whole is reduced to its parts. The speculative mode of inquiry concerns questions about the *origin* of something. E.g., Why does a thing of this kind exist? Why does causation exist? Why does meaning exist? The speculative mode is inductive. It provides a speculative explanation of why something occurs in a certain way in relation to other things.

---

[4] See (Alexander 1920, 1-2). Alexander first presents this conception of metaphysics in 1889 in 'What is Philosophy? (or Philosophy and Science)'; Samuel Alexander Papers, GB 133 ALEX/A/2/2/41, John Rylands Library, University of Manchester.

[5] Williams's ontology/cosmology distinction has a number of potential sources. There were many philosophers before him who divided metaphysics along similar lines. For instance, C.I. Lewis appeals to the distinction in *Mind and the World-Order* (1929, 7-8), and Charles Hartshorne and Paul Weiss in their editorial note of *Collected Papers of C.S. Peirce* (Vol. 6) describe Peirce's distinction between general and physical metaphysics as a distinction between ontology and cosmology (Hartshorne & Weiss 1935, editorial note, v). Williams might have been influenced by Edmund Husserl's distinction between formal ontology and regional ontologies; Williams, after all, studied Husserl's phenomenology while on a Sheldon Traveling Fellowship in Germany and France in 1928-29 (Firth, Nozick, & Quine 1983, 246). The ontology/cosmology distinction can be traced back to Christian Wolff's distinction between *metaphysica generalis* and *metaphysica specialis*.

It is implicit throughout Williams's writings that the ontology/cosmology and the analytic/speculative distinction are independent of each other, but in 'The Duty of Philosophy' (circa 1965; (see Williams forthcoming, ch. 1)) he explicitly states this is the case:

> Our two transverse and independent distinctions, between the analytic and the speculative and between the ontological and the cosmological, yield a two-dimensional classification of topics which in each dimension, and of course, therefore, as a whole, would seem to exhaust the field of philosophy and of existence (p. 17).[6]

So while in 'The Elements of Being' Williams says that metaphysics has two main branches: analytic ontology and speculative cosmology (Williams 1953a, 3; 1966, 74), it is not the case that ontology is studied exclusively in an analytic mode or that cosmology is merely a speculative inquiry. Given that these two distinctions cut across one another, we have speculative ontology and analytic cosmology as well as analytic ontology and speculative cosmology. Moreover, we should not understand Williams's present use of 'empirical' to be restricted to what is inductive as that would render only speculative modes of inquiry empirical. The term 'empirical' means more loosely 'being confirmed by or relevant to experience'. Analytic ontology is empirical in the sense that 'items of experience' or 'experienced objects' confirm or falsify a candidate analytic ontology. Indeed, 'every experienced object must be an exemplar and test case for the categories of analytic ontology' (Williams 1953a, 3; 1966, 75). But this means nothing more than that analytic ontology appeals to empirical fact (derived from common sense or science) when constructing an analysis of ontological concepts in terms of a priori necessary truths.

Williams applies the empirical method to metaphysical hypotheses because he thinks metaphysics and science are on a continuum and only differ with respect to their subject matter. Every metaphysical hypothesis must be confirmed by empirical evidence in accordance with the 'canon of scientific logic' (Williams 1944, 417; 1966, 213). No metaphysical hypothesis is true a priori, except deductive claims of necessity within analytic ontology. In addition, the empirical method attains ontological truths, i.e., truths 'having to do with things in themselves, ultimate reality, antecedent reality, or the like' (Williams 1944, 419; 1966, 214). The phrase 'ontological truths' encompasses scientific statements since Williams thinks scientific statements are about the things they profess to be about. Hence, Williams is an early defender of scientific realism. The more general hypotheses of metaphysics are, similarly, 'ontological truths'. Metaphysical naturalism, for instance, is a statement about 'ultimate reality' (Williams 1944, 418; 1966, 213). It is a candidate metaphysical hypothesis: it is 'empirically meaningful' and 'empirically confirmable' (Williams 1944, 420; 1966, 215).

Empirical metaphysics allows candidate hypotheses to compete for our highest degree of credence (cf. Williams 1944, 437; 1966, 233). We compare the candidates ac-

[6] Donald Cary Williams Papers, HUG(FP) 53.45, box 12, folder: 'EB: Introduction', Harvard University Archives.

cording to their score of ontological simplicity and weigh this against each theory's explanatory power. This conception of metaphysics should be familiar since it embodies the 'inference to the best explanation'-style of argument that is common in contemporary metaphysics (for discussion, see Oliver 1996, §2). Our familiarity with this conception of metaphysics derives in part from the fact that W.V. Quine propagated a similar view as a way to domesticate ontology. But, given that Williams was an important influence on Armstrong, Campbell, Lewis and others who advocated inference to the best explanation in metaphysics, our familiarity with this conception of metaphysics also comes from Williams. Both Quine and Williams advocated the idea that metaphysics and science are continuous with each other and with common sense. Both Quine and Williams played a role in shaping the methodology of metaphysics of the late twentieth century.

While there are similarities between Quine and Williams, Williams was not influenced by Quinean ontology or Quine's naturalization of metaphysics. Williams was influenced by philosophers of the early twentieth century who defended empiricism and realism. Williams's belief in the legitimacy of metaphysics, the probable truth of realism, and the scientific power of empiricism were crystallized in his mind by the late 1920s. Thus his critique of anti-metaphysical canon in the 1930s and 1940s is based on a defence of already-accepted doctrine.

Meaning and Empiricism

One of the chief aims of the logical positivist movement was to demonstrate the meaninglessness of metaphysics. Many logical positivists thought that 'only facts concerning experience, data, sensa, operations, responses, psychophysical transactions, practical consequences, or some other aspects or elements of the cognitive processes, can be meaningfully referred to' (Williams 1944, 419; 1966, 214). They concluded that it is impossible to conceive or mention something in itself, i.e., something non-phenomenal. A metaphysical statement is an assertion about something in itself, something non-phenomenal. It is, therefore, meaningless. Ordinary physical-object statements and scientific statements are not meaningless: these sorts of statements refer to phenomena because the meaning of such statements can be translated into statements about experience or reduced to the evidence that confirms or verifies the statement in question.

This criticism of metaphysics relies on a verificationist theory of meaning, to which Williams was adamantly opposed. In 'The Realistic Interpretation of Scientific Sentences' he attacks a verificationist theory of meaning and proposes a realist alternative. He read this paper to some of the leading figures of the positivist movement such as A.J. Ayer, Philipp Frank, Carl Hempel, Otto Neurath, Paul Oppenheim, and Friedrich Waismann at their Fourth International Congress for the Unity of Science at the University of Cambridge, July 1938.

Williams begins by noting that the concept of 'meaning' in its ordinary philosophical form concerns *what* is meant by a sentence or word, or *what* we mean when we utter a sentence or word. Following an outdated tradition popularized by J.S. Mill, Williams thinks the meaning of a word or sentence is its *connotation*. The word 'con-

notes' expresses 'the relation by which any word – noun, verb, or adjective – signifies a character' (Williams 1936a, 75, n. 1). The connotation is a property, property-complex, or *kind* of fact. But Williams recognizes two ways to name (or to mean) something:[7] most words (but not (logically) proper names) *connote* properties and *denote* instances of these properties. In the sentence 'this ball is red' the word 'red' connotes redness and secondarily denotes the ball that has redness or denotes the instance of redness. In general, if the property has no instances, the word fails to denote. If the property has instances, the word denotes them.[8] For Williams, proper names should be eliminated from our regimented language using Russell's theory of descriptions and quantification (see Williams 1937/1938b, 376; 1966, 56).

Williams's theory of meaning appeals to the existence of properties and their instances. He says: 'the constituent elements of a material statement *connote* abstract kinds ("universals") sometime exhibited in experience, and the statement as a whole connotes the conjunction of these abstract kinds. If the statement is true, it *denotes* a fact which is an instance of this conjunction' (Williams 1936b, 126, his italics). The *connotata* are abstract universals, kinds, or properties. The *denotata* are mind-independent facts or pluralities of property-instances. Insofar as he speaks substantivally of universals his view is incompatible with nominalism – the view that there are only concrete particulars.

To be clear, the meaningfulness of sentences and words involves properties and not their instances. 'A is F' is not meaningful because there are F-tropes or an F-trope is part of A or an F-trope is a member of the set of F-tropes. It is meaningful because the sentence signifies a certain property, property-complex, or *kind* of fact. Trope theory is divorced from the meaning of sentences and words in the sense that tropes are not, as Campbell says, the 'ontic counterparts' of every predicate (1990, 25). However, Williams cannot adopt a sparse theory of tropes. There need to be enough properties to account for the meaningfulness of every sentence and word in our language(s). These properties must be instanced somewhere because Williams does not believe in uninstantiated universals. So he is committed to an abundant theory of tropes, not because tropes serve as the semantic values of terms, but because they serve as the ontological ground for the entities that are the semantic values.

A sentence or word gets its meaning based on experience as follows. Sentences and words have the connotation they do in virtue of our experiencing property-instances. So the connotation or meaning is a derivative of property-instances. However, its reference or meaning in the strict sense (Williams does not distinguish explicitly between reference and meaning) involves two phases: the sentence or word first connotes a property or property-complex and second denotes the instance of the property or property-complex that is connoted. On this view, the connotation is separate from the

[7] He uses the phrases 'to mean' and 'to name' interchangeably.

[8] The connotation/denotation distinction is also part of the Millian 'tradition' that Williams is roughly associated with. It is in most logic textbooks of the late nineteenth century – e.g., (Jones 1890; Keynes 1884). W.E. Johnson (1921) and H.W.B Joseph (1916) continued the tradition and influenced Williams's philosophy not only with respect to philosophy of language but also metaphysics.

denotation of the sentence or word. We see this separation in sentences about unobservables such as protons and electrons. Consider the sentence 'there are very small bodies moving in concentric orbits'. The phrase 'concentric orbit' gets its connotation from property-instances we find in ordinary experience, concrete cases of balls on coiled wire, say. Its denotation is the instances of the connoted properties. Whether these properties are instanced is independent of the meaning of the sentence. We can understand such a sentence without experiencing any instance of its connotation. The denotation has to do with its truth, not its meaning. Williams writes:

> If there is no denotatum, the sentence is false, and has only connotative meaning. But if there is a denotatum, it is denoted in just the same direct and "ontological" way, whether it is an immediately experienced datum of the speaker, another person's pleasure or pain, pre-historic dinosaurs, the heat-death of the universe, the thing-in-itself, the wisdom of God, or the position and velocity of an electron (1937/1938a, 174; 1966, 52).

Whether there is a denotatum for any given sentence concerns the instantiation of properties in the actual world. This fact is independent of our experiencing the denotatum or the possibility of our experiencing it. Any requirement concerning the experience of an instance of a property is a requirement concerning the verification of the given sentence and not its meaning. The 'verificatory experience', or the direct or indirect verification, of a sentence is, likewise, independent of its meaning. Furthermore, the meaning of each (synthetic) sentence is independent of the meaning of every other (synthetic) sentence. The possibility of inferring statements from 'there are small bodies moving in concentric orbits' or finding laws that we could use to infer other statements is an issue about verification, not meaning. The meaning of 'there are small bodies moving in concentric orbits' is 'guaranteed by familiar type-instances as if we had ascribed position and velocity to a race-horse' as opposed to an electron (Williams 1937/1938a, 175; 1966, 53). Given this theory of meaning, metaphysical statements can be meaningful. If they are absurd, it is because they are improbable, not because they are meaningless.

Analyticity and the A Priori

The positivistic critique against the meaningfulness of metaphysics does not depend solely on a verificationist theory of meaning. Part of their critique hinges on their theory of analyticity and the a priori. Positivists argue that a priori necessary truths are conventional, tautologous, and/or analytic. Such truths are uninformative, say nothing about the world, and are compatible with any arrangement of contingent states of affairs. If metaphysical statements are a priori and necessary, they are analytic, conventional, tautologous, and say nothing about the world (proponents of the view include Ayer 1946; Carnap 1937; Reichenbach 1938). Their theory of the a priori consists of the claim that necessary analytic statements *wholly* depend on convention, or at least their truth does, whereas contingent synthetic statements partly depend on convention

and partly depend on matters of fact. It is motivated by and sometimes equated with the idea that in order to know the truth of a synthetic sentence we must know both the meaning of its words and something about an empirical fact, while to know the truth of an analytic sentence we need only know the meaning of the given words. Williams rejects this conception of analyticity and the a priori and offers an alternative based not on convention but on ontology. As with his rejection of a verificationist theory of meaning, Williams's starting points here are empiricism, realism, and naturalism. He thinks these doctrines are sensible, well-motivated starting points. If you are sympathetic to empiricism, realism, and naturalism, you should be attracted to Williams's theory.

In laying out his theory of analyticity and the a priori Williams focuses on sentences that have the form: 'all S is P'. On his theory of meaning, the subject 'S' has a certain bundle of properties as its semantic value. He thinks 'All squares are rectangular' (call this 'N') is a priori, necessary, and analytic, and 'All books are rectangular' (call this 'C') is a posteriori, contingent, and synthetic. N is analytic because the connoted property squareness contains the connoted property rectangularity. An intrinsic connection or internal relation holds between these properties. He writes: 'A sentence whose subject-phrase connotes a complex character or conjunction of characters, $\varphi\psi$, and whose predicate-phrase connotes a constituent or factor of that conjunction, ψ, is an *analytic* sentence, that is, a sentence which expresses an analytic proposition' (Williams 1936a, 75). By contrast, C is synthetic because the property bookiness does not stand in an intrinsic connection to rectangularity. There is only a regular association among the instances of rectangularity and bookiness. Impossible statements are also meaningful but necessarily false. 'Some squares are not rectangular' connotes a property-complex that cannot be instanced.

Williams conjoins the Leibnizean doctrine that all a priori necessary truths are analytic with Russell's logical realism of a priori knowledge (Russell 1912, 103-5) and Locke's view that knowledge of necessary statements involves apprehending immutable relations between ideas, concepts, or universals (Locke 1979, bk. iv, ch. 1, sec. 9). Indeed, Williams takes himself as following in this lineage of philosophers (see e.g.,Williams 1963, 622-23), but he also improves upon the theory. Russell says little about the relation between the properties in question and Locke uses the vague notion of ideas 'agreeing' and 'co-existing' with one another. To be sure, Russell and Locke have some kind of entailment relation in mind, but Williams offers an explanation of the relation by invoking the mereology of properties. The intrinsic (dis)connections or internal relations between properties are part-whole relations and related connections such as strict identity, partial identity, and partial distinctness. Applying mereology to properties provides an analysis of the nature of property-complexes and avoids psychologistic connotations that obscure competing explanations of analyticity.

Williams objects that the positivists' conventionalist doctrine conflates how we *know* analytic and synthetic sentences with what they, as analytic and synthetic sentences, are *grounded* in. According to Williams, we know the meanings of the words

of a sentence by contemplating the 'essences' or properties these words connote. However:

> Since bookiness and rectangularity are connected only extrinsically, we can know the truth of C only by inspecting their instances as well as contemplating the essences [or properties]. But squareness and rectangularity are connected intrinsically, and in contemplating them we can hardly miss their connection, and so can learn the truth of N without recourse to instances. In either case, however, the truth of the statement depends primarily on a connection among what is meant, and only incidentally on the convention which determines the mode of expression of this connection (Williams 1938, 87; 1966, 14).

The truth of synthetic sentences is known *partly* by inspecting the variable instantiation of properties. The truth of analytic sentences is known solely by understanding the relevant relation(s) between the relevant properties. However, his empiricism suggests that our knowing some analytic sentences for what they are involve observations concerning property-instances as well as observations of the intrinsic connections between the relevant properties. He writes:

> When we say that it is an analytic truth that Middlesex County is part of Massachusetts or that discs are round, we mean this too: Massachusetts contains Middlesex County and a diskiness actually contains a roundness. To know what "disc" means, and to be acquainted with one disky trope, is to know that it has a round trope as a proper component and that every other disky trope, and its including concretum, will contain a round trope too (1953b, 189; 1966, 106).

If we hope to maintain a consistent empiricism, Williams argues, we should conclude that synthetic sentences are not partly grounded in convention and that analytic sentences are not wholly grounded in convention. Conventionalism does not follow from our knowing analytic truths solely in virtue of their meanings.

Some of Williams's claims suggest he is a rationalist of some kind. He says 'we can know the truth of C by inspecting their instances as well as contemplating the essences' (1938, 87; 1966, 14). He is committed to saying that we 'contemplate' essences or universals in knowing the meaning of sentences and that in some cases, such as most analytic sentences, we do not need to experience or be acquainted with the instances of the properties connoted. However, he is aware of the epistemic limitations of a priori necessary truths. He repudiates the rationalist procedure of deducing the nature of things from self-evident truths because 1) analytic statements only entail analytic statements and 2) they are universal (and hence not existential) and general (and hence not singular). In addition, his empiricism guarantees that knowledge of the intrinsic (dis)connections between properties is based ultimately on experience, and the contemplating of universals is not done by some *sui generis* faculty of Reason. The properties we are acquainted with, according to Williams, are immanent. They are not Platonic or subsistent. The only way we would admit a distinct way of knowing is if there

were distinct ways of being. So Williams is not committed to a distinct way of knowing. Hence he is not a rationalist.

Universals and their Nature

Williams's theories of meaning, analyticity, and the a priori entail an immanent realism according to which universals are wholly present in their instances and can stand in intrinsic or internal relations to one another. However, he endorses a one-category ontology of tropes and is usually interpreted as adopting the view that universals are sets or classes of similar tropes (see e.g., Forrest 1993, 47; Oliver 1996, 34). So his system appears inconsistent.[9]

Contrary to this interpretation, Williams does not identify universals with sets or classes. Williams argues that universals as sets or classes cannot explain 'the historically and scientifically important difference between analytic and synthetic truths' (Williams [1960]1986, 7). He further argues that the set or class of similar tropes is not *what* we mean when we use general terms. What we mean by 'Humanness' is the universal *Humanness*, the entity wholly present in you and me. If we call my humanity-trope 'Hetin', we can say 'this is Hetin', using the 'is' of identity, but we can equally say 'this is Humanness'. The latter expression denotes Humanness in me. What this means is that we can denote Hetin in a special way when it is considered as an immanent universal. In general, we can talk of 'qualities' as if they are either particulars or universals. The criteria are as follows:

> Entities determined and named in the first principle, by definition not subject to the identity of indiscernibles, are cases or particulars; entities determined in the second way, by definition subject to the identity of indiscernibles, are 'general' entities, that is, kinds or universals (Williams [1960]1986, 8); cf. (1963, 615).

'This entity' refers to things in the first way when the referent can be perfectly similar and yet distinct. Hetin is acknowledged as a particular because it is perfectly similar to but distinct from other humanity-tropes. But, if we uphold the identity of indiscernibles such that $a = b$ if a and b perfectly resemble each other, 'the entity' refers to things that cannot be perfectly similar but distinct. So Humanness is a general entity inhering in me because it cannot be perfectly similar and distinct. Using this sense of identity to recognize universals involves a relaxation of the 'identity conditions' of applying prop-

[9] Another problem concerns the meaning of sentences about nonexistents and uninstantiated simples. Given Williams's immanentism, there are no uninstantiated universals to be the meaning of such sentences. So either these kinds of sentences are meaningless (which they are not) or there must exist uninstantiated universals (which is incompatible with Williams's immanentism). His solution, in the first case, is to supply a (quasi-)connotation for the meaning of non-existent truths. E.g., 'The noun phrase 'flying horse' connotes Flyingness-Concurrent-with-Horseness' (Williams 1962, 760-61). But, since these universals are not co-instantiated, the connotation is the disjoint mereological sum of these universals. This solution is not as straightforward in the second case because the putative connotations of such truths, e.g., Hume's missing shade of blue, are not mereological constructions of simpler universals. Williams's answer is to 'locate' the unperceived but conceivable shade of blue in a stretch of the spectrum of resembling shades of blue (Williams [1960]1986, 14). The meaning of a truth about an uninstantiated simple is, then, a property-cum-relation-complex of instantiated universals.

er names, common nouns, and pronouns in a language. We employ this relaxation elsewhere. To illustrate, on Williams's theory of persistence, things are four-dimensional objects composed of temporal parts. The cup before me, say, is a temporal part of a four-dimensional object. If we individuate the world using the sense of identity that is not subject to the identity of indiscernibles, 'this cup' refers to the temporal part. But we do talk as if the cup is all there. When I say 'would you please get me another cup of tea' I refer to the cup as the thing wholly present on my desk and in the kitchen and not to some temporal part of the cup. *What* I mean is *the cup*, just as *what* I mean by 'Humanness' is the general entity, *Humanness*.

Admittedly, Williams's explanation is partly linguistic because it concerns how we use words, how we refer to things, and how we mean different things in order to perceive or conceive abstract universals in particulars. But Williams's goal is not to reduce universals to linguistic facts, and we should not conflate the psychological process of recognizing universals with their ontological status. We are *applying* the strengthening or the weakening of identity conditions to the world. We can do this *because* the world contains distinct tropes that ground similarity sets or resemblance classes. It is absurd, Williams says, 'to suggest that the difference either between expressions or between particulars and universals is made by language; language is made by it, that is, by the fact that there *are* identities and distinctnesses both of case and of kind' ([1960]1986, 9, his italics). Universals are not beings of reason, objects in our understanding, or mental images. Universals are real and do not have an inferior or diluted reality. As Williams writes, 'That universals are determined by a 'weaker' identity condition than particulars does not even mean that they have an inferior or diluted reality' (Williams [1960]1986, 9). Instead, the universal *is* the trope; it is just that the universal is counted according to the rule if x and y are perfectly similar they are identical. We can count the world one way or count it the other way, but the two lists do not entail a doubling up of entities. The difference, Campbell writes, between Humanness and a humanity-trope is 'not a difference of *category* but a difference in *rule for counting*' (Campbell 1990, 44, his italics).[10] Williams's theory is similar to Donald L.M. Baxter's account of universals in this respect (see in particular Baxter 2001, 461, n. 26). Baxter assures us, like Williams, that the reality of universals is not thereby diminished on his view. Baxter says: 'Universals are still real. They are as real as particulars. In fact, they *are* particulars, strictly identical in a different count' (2001, 456, his italics).

Nonetheless, Williams thinks tropes are ontically privileged. Trope-talk carves reality at the joints better than universal-talk. He says: 'A tabulation of universals is just one way of counting, as it were, the same world which is counted, in a legitimately different and more discriminating way, in a tabulation of particulars' (Williams [1960]1986, 9). In 'Universal Concepts and Particular Processes' (Williams forthcoming, ch. 4),[11] he adds that a kind or universal is not an entity 'in the final ac-

[10] For an interpretation of Williams's theory of universals that uses the concept of truthmaking, see (Heil 2012, 100-4).
[11] Read to the Philosophy Club of Boston University, 4 April 1962.

counting' (p. 19); universals do not compose a fundamental category in addition to tropes:

> Thus, although the fundamental fact is a plurality of white things, all with their respective similar particular whitings, abstract cases of the same kind, we give a sort of brevet rank to the 'kind' as if it were an extra supernal and eternal sort of 'case' with the magical ability of the mythical Irish bird to be in many places at once (pp. 19-20).[12]

However, Williams regards his theory of universals as a unique variety of immanent realism. It is an attempt to reconcile the Aristotelian immanent realism defended by Armstrong with an objective resemblance trope-nominalism. On such a view, tropes are the primitive elements of being. Resemblance facts are grounded in basic facts about tropes, and similarity of tropes determines what kinds there are (similarity can involve just one trope since similarity is reflexive). But it is a mistake to think that universals cannot be real if they do not compose a fundamental category of being. Universals are real in the sense that they are mind-independent. Their reality is determined by mind-independent facts about tropes. Tropes manifest universals in the sense that universals are nothing over and above property-instances as tropes are by their nature of kinds. More importantly, Williams must say universals are real and immanent in the sense described above because he needs them to be that way to underpin his theories of meaning, analyticity, and the a priori.

Induction and Confirmation

Our exposition of Williams's defence of metaphysics has been directed at the empirical meaningfulness of metaphysical statements. To vindicate metaphysics fully Williams must defend the further claim that metaphysical statements are empirically confirmable. There are contrasting opinions about induction, probability, and confirmation among members of the positivist movement, but most of them argue that no metaphysical thesis is empirically confirmable because induction is not a genuine logical process. They arrive at this conclusion in a variety of ways. Following the early Wittgenstein many positivists motivate this conclusion via a specific conception of scientific inquiry. Science is 'a schematism by means of which singular propositions are constructed for the sake of verification' (Weinberg 1936, 65). General propositions are truth-functions constructed from elementary and singular propositions. Logic is restricted to analysing elementary propositions and these truth-functions. Insofar as there is 'inductive logic' it is founded on probability. Hans Reichenbach (1938) was well-known for his attempts to construct a probability logic that provides a way to calculate general probability statements in scientific theories. Positivists thus diverted the standard interpretation of the problem of induction. They thought science progresses by decreasing the number of its inductive inferences. A complete science only contains individual statements, records, and formulae. Probability logics need not say anything about the logic

[12] Donald Cary Williams Papers, HUG(FP) 53.45, box 3, folder: 'B.U. Philosophy Club', Harvard University Archives.

of induction or be required to solve the classic problem of induction. In so doing, positivists side-step the classic problem and explain away any other aspects of induction psychologically: 'induction is a kind of activity which consists in the search for the simplest arrangement of experience' (Weinberg 1936, 138).

In reply Williams argues that induction *is* a genuine logical process, just like deduction 'in its logical necessity and objectivity' (Williams 1947, 31). He uses logico-mathematical reasoning, along with probability and statistics, to ground the validity of induction. The difference between deduction and induction, according to Williams, is one of quantity, not quality. If p entails q, q is made completely credible by p, but the credibility relations that are derived from entailment relations admit of degree. A conclusion of an inductive argument, then, is 'almost completely credible, or nearly credible' (Williams 1947, 32). In standard cases we begin with a statistical premise, say, 1/6 of M is P. We then introduce the fact that a is M and logically infer that there is a probability of 1/6 that a is P.

There is no space to evaluate Williams's theory of induction (for discussion, see Stove 1986). The mere fact that induction is valid suffices for Williams's defence of the empirical confirmability of metaphysical statements. Other theories of induction that uphold the validity of induction should be entitled to Williams's defence of metaphysics, but I will not explore this here. Williams argues that if induction is valid, metaphysical statements are confirmable because all inductive statements can be confirmed. If metaphysical knowledge is unable to be confirmed (because, say, induction is insoluble), all (synthetic) knowledge is unable to be confirmed. But, since Williams thinks metaphysical and scientific statements are on a par, if scientific knowledge is confirmable and can be inferred, so can metaphysical knowledge (Williams 1944, 430; 1966, 225-26).

In Williams's day there was a standard reply that attempted to undermine the premise that all inductive statements can be confirmed. Metaphysical statements are different in an important sense from scientific statements because they are known through reason, or intuited by some *sui generis* faculty of the mind. As such they cannot be inferred using induction; they can only be deduced a priori. This path of vindicating ontology through reason is unscientific and this chasm, the reply concludes, between science and metaphysics undermines the claim that metaphysical hypotheses can be confirmed, even if induction is valid. So positivists can accept that induction is valid but restrict it to the domain of scientific inquiry. They need only reject its ontological reach into the nature of things in themselves.

The core of this reply exists today in a recent attack on metaphysics. James Ladyman and Don Ross think that contemporary metaphysicians engage in 'neo-Scholastic' theorizing based solely on a priori reasoning. A priori statements do not get at objective facts about the world. They merely fall under culturally relative 'intuitions' of the particular metaphysician who conjures up possible worlds that obey formal laws of logic. This sort of metaphysics is hopelessly disconnected from the contingent facts that are discovered by science (see Ladyman & Ross 2007, ch. 1). Craig Callender seconds this line of attack. He argues that contemporary metaphysicians are concerned

with metaphysical possibility and necessity, whereas scientists are concerned with what is actual. Metaphysics is the rational study of 'the modal structure of reality', 'based largely on reflection and intuition' about what is possible and what is necessary (Callender 2011, 37). Metaphysics and science quickly drift apart because the former studies a wider domain of things (*all* worlds) than the latter (*our* world). These recent attacks, to be clear, are not directed against metaphysics per se. Ladyman and Ross, after all, argue that relations are more primary than individuals – this is a metaphysical claim. These recent attacks are directed against a certain kind of methodology of metaphysics that ignores the content of science and what we, qua philosophers, can learn from science as a whole.

Williams has a reply to the old and new manifestations of this objection. He points out that this kind of objection involves a caricature of empirical metaphysics in two respects. First, metaphysics is not 'vindicated' by reason or intuition. Williams does not think we justify metaphysical statements in this way. The charge of trafficking in 'rationalistic' metaphysics is off-target. Some metaphysicians may fit the caricature, but not Williams. Second, Williams rejects any robust notions of metaphysical modality that sit above science and drive ontological inquiry at the outset. His conception of analytic ontology concerns the 'categorial' features of reality, features that are had by *every* entity: e.g., existence, identity, distinctness, universality, particularity, relation, quantity, causation, part-whole, number, and class. It is true that metaphysics encompasses a wider domain of study than science, but it does not follow that metaphysics is disconnected from science or above it. For Williams, it is quite the opposite: metaphysics 'is the lowest and grubbiest inquiry round the roots of things, and when it answers real questions about the world it is and can only be an inductive science' (Williams 1934, 195; 1966, 147). He is not concerned with distant possible worlds or possibilities beyond the laws of nature. 'Not metaphysics, but bad metaphysics, is the enemy of science, and as long as scientists avoid metaphysics, none of our metaphysics is likely to be scientific' (Williams 1937/1938b, 377; 1966, 72). Empirical metaphysics, therefore, leaves room for science to discover the contents of our ontology and cosmology. (There is some similarity between Williams's conception of metaphysics and Ladyman and Ross's. They all agree that metaphysics is to be naturalized and that the discoveries of science matter.)

Interestingly, for Williams, ordinary experience can provide evidence for first philosophy: 'every experienced object must be an exemplar and test case for the categories of analytic ontology' (Williams 1953a, 3; 1966, 75). That is partly because empirical facts derived from common sense or ordinary experience are just as relevant as empirical facts derived from science, according to Williams.[13] Again, this is motivated in part by the idea that science, common sense, and metaphysics are on the same continuum. We can consider two lollipops (say) as a test case in the metaphysics of properties and

[13] Ladyman and Ross might disagree with Williams on this point. However, this dispute about common sense is not directly relevant to Williams's reply to the main objection.

infer from our description of them that other things are like them on the assumption of categorial uniformity. As Williams says:

> I am with those who believe that the mind is capable of the analytic attention by which a clear understanding of certain sorts of propositions, like some of arithmetic and ontology, eked out perhaps by an example or two, suffices to verify them far better than a great deal of sampling and hypothesizing. Thus I am content with the rudiments of the theory of tropes as instanced by the lollipops (1953b, 184; 1966, 102).

According to this procedure, we are not starting with a claim of metaphysical necessity. We are not divining the modal structure of reality through rational intuition. Of course, Williams asserts a priori claims when doing analytic ontology, but recall that these claims are general, hypothetical, and follow from principles of logic. We do not deduce the existence of any entities from such claims. We are logically and analytically investigating candidate hypotheses. Any existence claims are inductive. If they are part of ontology they fall under the purview of speculative ontology. If the anti-metaphysician objects that a priori knowledge is non-factual and non-empirical, Williams has an adequate response that follows from his realist account of analyticity and the a priori. His theories entail that our conceptions of analyticity and the a priori need not involve a *sui generis* faculty of the mind. A priori necessary truths do not float free from reality since property-instances ensure the existence of certain properties that stand in parthood relations to each other. The anti-metaphysicians of this era, like the positivists of Williams's time, must provide a competitive account of the a priori and of the principles of logic for their critique to have any force.

Conclusion

Williams defended metaphysics at the height of its unpopularity in the middle of the twentieth century. His defence of metaphysics against positivism involves his theories of meaning, analyticity, the a priori, and induction. These theories are part and parcel of his attempts to forward the cause of empiricism, realism, and naturalism. His importance as a figure in the analytic tradition derives not merely from the fact that he defended metaphysics. His distinctive conception of metaphysics and his novel ontological and cosmological doctrines affected a number of philosophers who would go on to revive metaphysics in the late twentieth century.

For example, Williams's work was carefully studied at the University of Sydney in the 1960s and 1970s. His ontology of tropes was taken up by Bacon (1995) and Campbell (1990). His empirical metaphysics led Armstrong to the use of inference to the best explanation in metaphysics. Armstrong also developed the doctrine of *a posteriori realism* from Williams's idea that metaphysics leaves room for science to discover the contents of our ontology and cosmology (Williams 1944, 426-27; 1966, 222).[14]

[14] Indeed, in Armstrong's copy of *Principles of Empirical Realism* (which he purchased in 1967) he marked page 222 in the margins. This is some evidence for the claim that the passage on that page of

Finally, Williams's distinction between analytic ontology and speculative cosmology gained some currency as part of Armstrong and Campbell's approach to metaphysics (Armstrong 1978, 126-27; 1993, 66; 1997, 138; Campbell 1976, 21-22, parts 2 and 3; 1990). Armstrong, for instance, constructs his theory of states of affairs within analytic ontology and assigns questions about space and time to speculative cosmology. Similarly, Frank Jackson appeals to this distinction in order to separate ontological debates about 'the supervenience of predication on nature' from physicalism, a cosmological doctrine (Jackson 1998, 15-16).

Williams's influence came not only from his work but also his instruction. For instance, he had a major impact on David Lewis in the mid-1960s. As a student at Harvard Lewis enrolled in or audited several classes in ontology and cosmology by Williams. In these lectures Williams laid out his ontology of tropes, his actualism, naturalism, materialism, and four-dimensionalist metaphysics of time and time travel. Lewis adopted this four-dimensionalist metaphysics of time, the possibility of time travel, and his Humean supervenience in part because of Williams (see (Fisher 2015) for discussion). And although Lewis never officially endorsed tropes, he often said that Williams's ontology of tropes was a leading candidate, especially when used to ground a theory of naturalness (D. Lewis 1986, x, n. 1). In many of Lewis's letters to his contemporaries he speaks of the influence Williams had on him. In a letter to Jack Smart Lewis writes of Williams that:

> Studying with him was one reason why I think there's more to metaphysics than can be read in *Word and Object* – I hope you'll agree that he was a good influence. My present views can be traced partly to his question how Leibniz knew that he himself was not an unactualized monad – I fear you'll doubt whether *that* was a good influence, but I think it was (Letter from David Lewis to J.J.C. Smart, 31 March 1983, p. 1, his italics).[15]

One of Lewis's metaphysical doctrines is the view that there exists a plurality of concrete worlds, of which ours is just one among many. Our world is the actual world and the rest are not, but this is only because 'actual' is indexical, like the term 'present'. 'Actual' refers to the world in which it is uttered or used in a sentence (D. Lewis 1970, 184-85). As Lewis says in the quotation above, part of his motivation for adopting the indexical account of 'actual' comes from Williams and from Williams's argument that if we posit an absolute distinction between essence and existence we are unable to explain how we know that we are existents and not beings of essence (Williams 1962, 752). The upshot is that an absolute distinction between existence/essence or actual/possible is to be rejected. Lewis and Williams discussed this issue in the late 1960s when Lewis was working at UCLA and Williams had retired to California. As Lewis says to Paul Fitzgerald (another student of Williams) in 1969: 'Donald Williams

---

Principles of Empirical Realism stood out for Armstrong and was of some import. Thanks to Peter Anstey and Jenny Armstrong for providing access to D.M. Armstrong's library, July 2014.

[15] David Lewis Papers, C1520, 'Smart, J.J.C.', Box B-000675 Folder 2, Princeton University Library.

says the token-reflexive analysis of "actual" occurs in E.B. Holt; I couldn't find it there, but couldn't stand to search for very long' (Letter from David Lewis to Paul Fitzgerald, 30 June 1969, p. 2).[16] So Williams contributed to at least this aspect of Lewis's development of genuine modal realism.

The other revelation in Lewis's letter to Smart is that Williams showed Lewis that 'there's more to metaphysics than can be read in *Word and Object*'. While Lewis adopted a Quinean criterion of ontological commitment, he speculated about time travel and engaged in fundamental ontology – like Williams. What is more, Lewis took both Quine and Williams as doing systematic metaphysics. As Lewis says in a letter to Armstrong:

> I don't see Quine as part of a climate altogether hostile to systematic metaphysics. In fact, I see Quine as himself being, among other things, a systematic metaphysician – with a system in some respects allied, in some respects opposed, to Williams'. This goes better for 1953 than for later: I'm thinking, above all, of the Quine of some of the less-known papers in *From a Logical Point of View*, and not of the Quine of the parts of *Word and Object* that argue for indeterminacy of translation and inscrutability of reference (Letter from David Lewis to D.M. Armstrong, 28 October 1994).[17]

Given that it was the metaphysical Quine that stood out prominently for Lewis and given that Williams taught Lewis about metaphysics beyond *Word and Object*, we can infer that it was this combination that played a major role in shaping the metaphysical outlook of Lewis and his belief that metaphysics is a legitimate enterprise.

The final legacy of Williams stems from his unique position in the history of analytic philosophy. As stated in the Introduction, Williams was not the only philosopher who kept metaphysics alive in the mid-twentieth century. Bergmann was instrumental in carrying metaphysics forward, so was Quine in certain respects. But what makes Williams unique (or at least different) is that his conception of metaphysics was not derived from a reaction to positivism or linguisticism. He inherited a belief in the substance of metaphysics from philosophers of the previous era who similarly thought metaphysics was a respectable part of philosophy. So it is no surprise that a key component of Williams's attack against all three anti-metaphysical trends is a wholesale rejection of doing philosophy through language. In a critical discussion of Bergmann's *The Metaphysics of Logical Positivism*, Williams argues thus:

> Language is an interesting fact in its own right, like asthma, but its study is no spell to open the treasure house of truth. No important philosophy can be corrected by verbalisms, because important philosophy, right or wrong, is not done with words but by vast imaginative excursions, as an artist envisages a picture or an inventor a machine. Linguism was the latest of the transcendentalisms by which philosophers have sought a backdoor access to the universe, away from the stare of the sciences, in our own intel-

[16] David Lewis Papers, C1520, 'F', Box B-000664 Folder 20-21, Princeton University Library.
[17] David Lewis Papers, C1520, 'Armstrong, D.M.', Box B-000660 Folder 1, Princeton University Library.

> lectual apparatus. But the convolutions of language are less reliable auspices than, say, the entrails of birds except as it may already have been wrought to fit the facts (Williams 1955, 650-51).

According to Williams, even Bergmann (at this point) had not learnt the lesson that we cannot read ontology off language. Language is simply one part of the world. Why, Williams reasons, would we privilege it over everything else? Why would we think it and any inferences from it reveal some deeper fact about the nature of reality? Real metaphysics is not about investigating features of our language. Real metaphysics is about the nature of things in themselves. This is the true insight of the ontological turn. Contemporary metaphysics, through Armstrong, Lewis, and others, has grown in several directions based on this insight. In current debates about truthmaking, grounding, and fundamentality we can detect the presence of this approach to metaphysics. In sum, although Williams was not the only force that pushed metaphysics forward, he certainly played an important part in its development and revival over the course of the twentieth century.

References

Alexander, Samuel. 1920. *Space, Time, and Deity: The Gifford Lectures at Glasgow 1916-1918*. Vol. 1. London: Macmillan.

Armstrong, D.M. 1978. *Nominalism and Realism*. Cambridge: Cambridge University Press.

Armstrong, D.M. 1993. Reply to Forrest. In *Ontology, Causality and Mind*, ed. J. Bacon, K. Campbell and L. Reinhardt. Cambridge: Cambridge University Press.

Armstrong, D.M. 1997. *A World of States of Affairs*. Cambridge: Cambridge University Press.

Ayer, A.J. 1946. *Language, Truth, and Logic*. 2 ed. London: Penguin Books.

Bacon, John. 1995. *Universals and Property Instances: The Alphabet of Being*. Oxford: Blackwell.

Baxter, Donald L. M. 2001. Instantiation as Partial Identity. *Australasian Journal of Philosophy* 79(4): 449-64.

Callender, Craig. 2011. Philosophy of Science and Metaphysics. In *Continuum Companion to the Philosophy of Science*, ed. S. French and J. Saatsi. London: Continuum.

Campbell, Keith. 1976. *Metaphysics: An Introduction*. Encino, CA: Dickenson.

Campbell, Keith. 1990. *Abstract Particulars*. Oxford: Blackwell.

Carnap, Rudolf. 1937. *The Logical Syntax of Language*. London: Kegan Paul.

Firth, Roderick, Robert Nozick, and W.V. Quine. 1983. Donald Cary Williams 1899-1983. *Proceedings and Addresses of the American Philosophical Association* 57(2): 245-48.

Fisher, A.R.J. 2015. David Lewis, Donald C. Williams, and the History of Metaphysics in the Twentieth Century. *Journal of the American Philosophical Association* 1(1): 3-22.

Forrest, Peter. 1993. Just Like Quarks? The Status of Repeatables. In *Ontology, Causality and Mind*, ed. J. Bacon, K. Campbell and L. Reinhardt. Cambridge: Cambridge University Press.

Hartshorne, Charles, and Paul Weiss, eds. 1935. *Collected Papers of Charles Sanders Peirce*. Vol. 6. Cambridge, MA: Harvard University Press.

Heil, John. 2012. *The Universe As We Find It*. Oxford: Clarendon Press.

Jackson, Frank. 1998. *From Metaphysics to Ethics: A Defence of Conceptual Analysis*. Oxford: Clarendon Press.

Johnson, W.E. 1921. *Logic, Part I*. Cambridge: Cambridge University Press.

Jones, E.E. Constance. 1890. *Elements of Logic as a Science of Propositions*. Edinburgh: T & T Clark.

Joseph, H.W.B. 1916. *An Introduction to Logic*. 2 ed. Oxford: Clarendon Press.

Keynes, John Neville. 1884. *Studies and Exercises in Formal Logic*. London: Macmillan.

Ladyman, James, and Don Ross. 2007. *Every Thing Must Go: Metaphysics Naturalized*. Oxford: Oxford University Press.

Lewis, Clarence Irving. 1929. *Mind and the World-Order: Outline of a Theory of Knowledge*. New York: C. Scribner's Sons.

Lewis, David. 1970. Anselm and Actuality. *Noûs* 4(2): 175-88.

Lewis, David. 1986. *Philosophical Papers*. Vol. 2. Oxford: Oxford University Press.

Locke, John. 1979. *An Essay Concerning Human Understanding*. Nidditch ed. Oxford: Clarendon Press.

Maurin, Anna-Sofia. 2002. *If Tropes*. Dordrecht: Kluwer.

McTaggart, John McTaggart Ellis. 1921. *The Nature of Existence I*. Cambridge: Cambridge University Press.

Oliver, Alex. 1996. The Metaphysics of Properties. *Mind* 105(417): 1-80.

Reichenbach, Hans. 1938. *Experience and Prediction*. Chicago: University of Chicago Press.

Russell, Bertrand. 1912. *Problems of Philosophy*. Oxford: Oxford University Press.

Schneider, Christina. 2002. Relational Tropes: A Holistic Definition. *Metaphysica* 3(2): 97-112.

Stove, D.C. 1986. *The Rationality of Induction*. Oxford: Oxford University Press.

Trettin, Kathe. 2000. Tropes and Things. In *Things, Facts and Events*, ed. J. Faye, U. Scheffler and M. Urchs. Amsterdam: Rodopi.

Weinberg, Julius R. 1936. *An Examination of Logical Positivism*. London: Kegan Paul.

Whitehead, A.N. 1929. *Process and Reality: An Essay in Cosmology*. New York: Macmillan.

Williams, Donald C. 1934. The Argument for Realism. *The Monist* 44(2): 186-209.

Williams, Donald C. 1936a. Analysis, Analytic Propositions, and Real Definitions. *Analysis* 3(5): 75-80.

Williams, Donald C. 1936b. The Realistic Analysis of Meaning (Abstracts Read at the Pacific APA). *Journal of Philosophy* 33(5): 126-27.

Williams, Donald C. 1937/1938a. The Realistic Interpretation of Scientific Sentences. *Erkenntnis* 7(1): 169-78.

Williams, Donald C. 1937/1938b. The Realistic Interpretation of Scientific Sentences II. *Erkenntnis* 7(1): 375-82.

Williams, Donald C. 1938. The Nature and Variety of the A Priori. *Analysis* 5(6): 85-94.

Williams, Donald C. 1944. Naturalism and the Nature of Things. *Philosophical Review* 53(5): 417-43.

Williams, Donald C. 1946. Scientific Evidence and Action Patterns: Rejoinder to Professor Black. *Philosophical Review* 55(5): 580-86.

Williams, Donald C. 1947. *The Ground of Induction*. Cambridge, MA: Harvard University Press.

Williams, Donald C. 1951a. The Myth of Passage. *Journal of Philosophy* 48(15): 457-71.

Williams, Donald C. 1951b. The Sea Fight Tomorrow. In *Structure, Method and Meaning*, ed. P. Henle, H. M. Kallen and S. K. Langer. New York: Liberal Arts Press.

Williams, Donald C. 1953a. On the Elements of Being: I. *Review of Metaphysics* 7(1): 3-18.
Williams, Donald C. 1953b. On the Elements of Being: II. *Review of Metaphysics* 7(2): 171-92.
Williams, Donald C. 1955. Review of The Metaphysics of Logical Positivism by Gustav Bergmann. *Philosophical Review* 64(4): 646-51.
Williams, Donald C. 1959. Mind as a Matter of Fact. *Review of Metaphysics* 13(2): 203-25.
Williams, Donald C. 1962. Dispensing with Existence. *Journal of Philosophy* 59(23): 748-63.
Williams, Donald C. 1963. Necessary Facts. *Review of Metaphysics* 16(4): 601-26.
Williams, Donald C. 1966. *Principles of Empirical Realism: Philosophical Essays*. Springfield, IL: Charles C. Thomas.
Williams, Donald C. [1960]1986. Universals and Existents. *Australasian Journal of Philosophy* 64(1): 1-14.
Williams, Donald C. forthcoming. *The Elements and Patterns of Being: Essays in Metaphysics*. Edited by A.R.J. Fisher. Oxford: Oxford University Press.