

The Two Davids and Australian Materialism

A. R. J. Fisher

1. Introduction

The rise of the identity theory in the 1950s and 1960s was due in part to a new version of materialism that came out of Australia—aptly called ‘Australian materialism’. It shifted the debate from dated criticism concerning meaning and knowledge to an appreciation for the metaphysical concepts that underpin philosophical theorizing about the mind. At the same time it gave science a direct role in telling us what the mind is. Australian materialists offered an account of the *nature* of mind. Their version of the identity theory was an ontological thesis. It flew in the face of evolving positivist doctrine and ordinary language dismissals of the mind-body problem. In this respect, Australian materialism was one of the first theories in mid-twentieth-century analytic philosophy that was overtly metaphysical. On top of that, it encapsulated a certain tendency, as S. A. Grave puts it (1976, 23), that helped to define Australian philosophy: philosophy concerns what there is; it is not purely about conceptual matters; and it should put forth a world-view, i.e., a systematic account of reality, and one that is continuous with science.

The main figures in the Australian materialist tradition are U. T. Place, J. J. C. Smart, D. M. Armstrong, and David Lewis. Place (1956) set things in motion by arguing that the statement ‘consciousness is a brain process’ is an empirically reasonable hypothesis. Smart (1959) defended the identity theory against then current objections and proposed a topic-neutral account of sensation-reports. In *A Materialist Theory of the Mind* (hereafter *MTM*), Armstrong completes the argument thus: a general conceptual analysis of *mind* can be systematized and rendered compatible with the identity theory. In America, Lewis argued for the identity theory—first, by generalizing Smart’s topic-neutral account of sensation-reports (Lewis 1966), and, second, by exploiting Frank Ramsey’s method of eliminating theoretical terms in the case of folk psychology (Lewis 1972). Both Armstrong and Lewis (independently and almost simultaneously) proposed that the concept of a mental state is functionally defined in terms of certain

input and output clauses and pointed out that science has discovered what satisfies these functional definitions. Thus, pain is whatever fills the pain-role; science tells us that C-fibres firing fills the pain-role; hence pain = C-fibres firing.

According to standard histories of analytic philosophy of mind, the identity theory burst onto the scene in reaction to logical behaviourism. In this story,¹ logical behaviourism is the view that the meanings of mental terms or sentences are translatable into the meanings of physical terms or sentences about behaviour or behavioural dispositions. This view is a semantic thesis and the analyses offered are conceptual and knowable a priori. Rudolf Carnap, Carl Hempel, and Gilbert Ryle, so the story goes, held this position. Then the identity theorists came along in the 1950s and 1960s, namely, Herbert Feigl, Place, and Smart, and proposed that the purported identity between the mental and the physical is factual, not conceptual, and knowable a posteriori. Our theory of mind should not be fashioned after linguistic definitions of terms but after ‘empirical discoveries of identities in science’, as John Searle claims when telling the story (Searle 2004, 55). Thus, logical behaviourism was supplanted by the identity theory (see Kim 1998, 2).

Sean Crawford (2013) has recently shown that this story has many holes. He argues that logical behaviourism in the positivist tradition has been misunderstood. Carnap’s behaviourism, in particular, is not the view that translations between mental and physical statements are analytic. Rather, they are *synthetic*; more precisely, they are material, extensional equivalences between mental and physical statements (these statements are P-equivalent, to use Carnap’s terminology). Crawford further argues that Feigl’s (1958) identity theory stems from the pre-positivistic stage of Moritz Schlick, who was the first twentieth-century identity theorist (Crawford 2013, 643–5). Crawford explains that the real change in the 1950s and 1960s as regards the mind-body problem ‘was simply the rejection of the earlier view, shared by both logical positivists and ordinary language philosophers, that it was a pseudo-problem’ (Crawford 2013, 639). However, Australian materialism and its distinctive history should be looked at more closely.

For one thing, Feigl’s identity theory is quite different from Place’s and Smart’s. Feigl formulates the view within a critical realism that regards the data of immediate

¹ I borrow this characterization of the standard story from Crawford (2013, 621–2).

experience as the ‘ultimate testing ground’ (Feigl 1975, 22). The buck stops with the phenomenally given, so to speak. What is more, Feigl embraces Schlick’s epistemological parallelism, thus placing himself within the psychophysical parallelist tradition (Heidelberger 2001; Stubenberg 1997). On this view, there is one reality designated by concepts of two wholly distinct conceptual systems: a physical (intersubjective) conceptual system that consists of physical concepts and a psychological (subjective) conceptual system that consists of psychological concepts. When it comes to qualia, Feigl thinks they are structural (i.e., complex) properties that we know by acquaintance in virtue of having them. In our introspective description of phenomenal properties ‘we deal with their *structural* features’ (Feigl 1975, 28, his italics). Crucially, in specifying what is identical with what, Feigl says: ‘[t]he identity is that of the *structure* of the phenomenally given with the *structure* of certain global aspects (Gestalten) of the processes in the cerebral cortex’ (1975, 31, his italics). Because Feigl places more importance on the phenomenal side of the mind-brain identity, some philosophers have labelled his view the ‘qualitative identity theory’ (Pepper 1975, 37) and a ‘mentalistic form of the identity theory’ (Crawford 2013, 646).

Smart, on the other hand, advocates a physicalistic form of the identity theory founded on an unabashed scientific realism, an uncompromising reductionism, and Ockham’s razor. He in effect makes the opposite moves to Feigl. He prioritizes the physical over the mental, rejects nomological danglers, closes every door to emergentism, and puts epistemology second. He also denies that there are any qualia, let alone assigns them a fundamental epistemic role in his theory. Furthermore, there are differences of tradition and historical context. Australian materialism does not develop out of logical positivism or logical empiricism. Place’s ‘Is Consciousness a Brain Process?’ is actually a continuation of an earlier paper wherein he accepts Ryle’s behaviourism (Place 1954). Although Ryle is misinterpreted on this point, he does not believe that *all* mental concepts are subject to a behaviourist treatment. He thought that his behaviourist treatment did not apply to the concept of having a sensation, and he recognized this as a shortcoming (Ryle 1949, Chapter 7, Section 1). Some philosophers did read Ryle correctly. In addition to Place, Iris Murdoch and Julia Tanney interpret Ryle in this way (Murdoch 1956, 37; Tanney 2009, xxviii).

Place’s disagreement with Ryle was specifically about ‘heed’ concepts (such as attending to, observing, being conscious of something). Place thought they had to refer

to some internal state (Place 1954, 254). He thus restricted the scope of behaviourism: the recalcitrant sensory concepts gave way to an identification of sensations with brain processes. In one respect he can be seen as improving Ryle's position. In a more radical vein, Smart initially held a full-blown (unrestricted) behaviourism about *all* mental concepts, convinced that Ryle's position could be extended to cover sensory concepts. In a largely forgotten article he explicitly states that he prefers the Wittgensteinian expressivist account of sensation-reports to dualism and the identity theory (Smart 1957, 76). But due to three-way discussions with Charlie Martin and Place, Smart came around to Place's restricted behaviourism (Smart 1959) and then the identity theory (Smart 1967).²

The conceptual breakthrough for Place and Smart was the realization that the identity theory is not a translation thesis between sensation statements and brain-process statements. It is an ontic thesis. At the time, translation theses were popular. Phenomenalism was typically formulated as the view that statements about material objects are translatable into statements about sense-data (as this was the most viable way to make sense of the proposal that material objects are logical constructions out of sense-data) (see Ayer 1936, Chapter 3). It was eventually recognized that phenomenalism as formulated is false, because it is impossible to translate material-object statements into sense-data statements in the relevant sense (Wisdom 1953, 139).³ Even Smart acknowledged (using the then typical example of some nation and the people of that nation) that it was commonplace that 'no translation from nation statements to person statements is possible' (Smart 1955, 51). Some philosophers took the failure of translatability to imply the irreducible existence of the entities of which the irreducible statements are about (e.g., Mandelbaum 1955, 310). But Place and Smart (and probably Martin) realized that even though it is impossible to translate X-statements in terms of Y-statements, it does not follow that the Xs are not identical with the Ys. Why think that statements and facts about translation possess such ontic power? Phenomenalism is about material objects, not about translations of statements concerning

² C. F. Presley says: 'Smart, who describes himself as having previously been "very Rylean", became converted to Place's view when, as visiting Professor at Princeton in 1957, he was conducting a graduate class on Wittgenstein and Ryle. In November of that year, he read a paper at Cornell in which he defended Place's view' (Presley 1967, xi). No doubt that paper was 'Sensations and Brain Processes'. It should be noted that Smart had not read Feigl until 1957 (Presley 1967, xiii). In these discussions, Martin held some version of property dualism.

³ The relevant sense was probably a conceptual kind of necessity.

them. Analogously, the identity theory concerns the mind, not statements about it. Thus began one ontological turn away from understanding things in linguistic form.⁴

Place and Smart arrived at their formulation of the identity theory by working through problems with phenomenalism and drawing analogies with the identity theory. As such, their theory of mind develops out of ordinary language philosophy and British analytic philosophy, not positivist behaviourism. Therefore, there is no single origin of the identity theory in analytic philosophy of mind.⁵ There are separate lines of influence running through differing versions of the identity theory and distinct reactions to logical behaviourism, which in turn afford separate explanations of the transition from logical behaviourism to the identity theory. The transition from logical behaviourism to the identity theory in the positivist tradition might plausibly be interpreted as a change from pseudo-problem (Carnap, positivistic Feigl) to genuine problem (post-positivistic Feigl). But the transition for Australian materialists is slightly more subtle than this. They always regarded the mind-body problem as genuine and either from *their own* occupation of a behaviourist standpoint—stemming from the ordinary language philosophy tradition—ended up as identity theorists (as in the case of Place, Smart, and Lewis) or from a serious consideration of behaviourism as a form of materialism rejected it in favour of the identity theory (as in the case of Armstrong).

Armstrong and Lewis (the two Davids) went on to become highly influential philosophers in late analytic philosophy. Their version of materialism came to be known as analytical or common-sense functionalism and it contributed to the rise of functionalism in analytic philosophy of mind. There is no in-depth account of their path from behaviourism to materialism in the literature. Such an account is warranted and required to understand the origins and development of Australian materialism. Moreover, their respective theories of mind shaped their philosophical method and other views in philosophy. Thus, an account of their early thought on the philosophy of mind would assist in understanding how it relates to other aspects of their philosophy.

⁴ For a historical overview of Place's and Smart's theory, see Grave (1984, Chapter 6).

⁵ Charles Wolfe implies that the genesis of Australian materialism is found in the Vienna Circle (and their criticism of vitalism) (Wolfe 2015, Chapter 7, esp. 93). Such an interpretation relates distinct traditions in the wrong way. Unfortunately, it is common for Place, Smart, and Feigl to be grouped together when philosophers present the identity theory of the 1950s, as if temporal proximity implies some intellectual connection or influence in doctrine. For a recent example, see McLaughlin and Planer (2014).

In what follows, I give an account of Armstrong's thought leading up to and including *MTM*, identifying aspects of *MTM* that are continuous with his earlier thought and that shape his later philosophy and philosophical method (§2). I analyse the origins and development of Lewis's identity theory along similar lines (§3). I conclude by reflecting on where we should locate Australian materialism in the history of philosophy, broadly speaking (§4).⁶

2. Armstrong and *MTM*

Armstrong began his philosophical training at the University of Sydney in 1947. By then, John Anderson had been the Challis Professor for two decades, exerting a powerful influence not just on Philosophy but also on Psychology, English, the university, and the wider Sydney community (see Franklin 2003). Anderson was a staunch defender of metaphysics, metaphysical realism, metaphysical naturalism, and direct realism about perception. Central aspects of Anderson's metaphysics and philosophy of mind are developed in reaction to Samuel Alexander's realist metaphysical system (Alexander 1920; for discussion, see Fisher 2015). Throughout his career Anderson delivered many lectures on improvements to Alexander's metaphysics (e.g., Anderson 2005).⁷ As an undergraduate, Armstrong attended Anderson's 1949–50 lectures (Anderson 2007).⁸ As noted by Armstrong (e.g., 1993b, 169) and others (Bacon, Campbell, and Reinhardt 1993, vii), Anderson was crucial in the early formation of Armstrong's thought. He set Armstrong on the path of realism and metaphysical naturalism, instilled in Armstrong the belief that metaphysics is not a fruitless or fraudulent enterprise, and imparted an interest in the history of philosophy.

In 1952, Armstrong was awarded a Sydney University travelling fellowship. He left for Oxford to complete a BPhil at Exeter College. Despite being surrounded by the often narrow focus on words and on what one might 'say', Armstrong found books

⁶ Although I draw heavily from Lewis's letters in §3, I do not take his correspondence with Armstrong into account. It falls outside the scope of this chapter because both of them had adopted the identity theory by the time their correspondence began in 1968.

⁷ Anderson lectured on Alexander as early as October 1924—at the University of Edinburgh (John Anderson Papers, P.42, Series 1, box 2, item 025. Sydney University Archive).

⁸ Armstrong's copy of Alexander's *Space, Time, and Deity* is dated '1949'. Thanks to Peter Anstey for allowing me to browse Armstrong's library.

that aligned with and reinforced his extant interests and realist tendencies. Luckily, he had to look no further than his supervisor Henry H. Price, who was a product of the Cook Wilson brand of early analytic philosophy that flourished at Oxford before the Second World War. In this period Price wrote two books relevant to Armstrong's early development: *Perception* (Price 1932), in which Price defends a form of the sense-datum theory, and *Hume's Theory of the External World* (Price 1940), which is an account of Hume's theory of perception based on a textual analysis of the *Treatise*.

It is clear that Armstrong was affected by Price's interests and his work. The influence, to be precise, is due more to Armstrong's reading of Price's work than philosophical conversations they might have had while Armstrong was at Oxford for his BPhil. As Armstrong later reports, the two of them 'never seemed to get around much to discussing philosophy' (Armstrong 1984, 11). Armstrong's first book, *Berkeley's Theory of Vision* (Armstrong 1960) is a critical commentary on Berkeley's *New Theory of Vision*, very much in line with Price's method in *History of Philosophy* (Price 1940, 3) and his treatment of Hume. Price even gave Armstrong substantial comments on a draft typescript of the book (Armstrong 1984, 11), and as one reviewer remarks, it is 'pleasantly reminiscent of Professor Price's classic on Hume's theory of perception' (O'Connor 1963, 472). In this book, after a careful exposition of Berkeley's theory of perception, Armstrong argues that Berkeley is wrong to maintain that distance is not immediately seen. A crucial part of his criticism is a key premise he adopts from Price—the claim that visual sense-data are not two-dimensional; visual sense-data have depth (Price 1932, 245). Armstrong further argues: 'the whole situation, "colour-change preceded by temperature-change", is perceived by both sight and touch, and it makes no sense to ask which part of this relational situation is perceived by sight and which part by touch' (Armstrong 1960, 84). So, against Berkeley, visible and tangible extension are one and the same. Similarly, Price thought that visual and tactual sense-data can be spatially related to each other (Price 1932, 244–6).

Despite the obvious effect of Price, Anderson's influence was stronger with respect to first-order doctrine. Armstrong never accepted the sense-datum theory. Following Anderson, he endorsed direct realism. We see sympathies towards direct realism in his book on Berkeley (Armstrong 1960, 8–9, 92–3), not to mention two earlier articles that defend the view (Armstrong 1954; 1955). His second book, *Perception and the*

Physical World (Armstrong 1961) carries the argument for direct realism forward.⁹ His criticism of competing views is informed by his reading of Berkeley just as much as contemporaneous literature on phenomenalism. And his criticisms go to the metaphysical heart of the view under scrutiny. For instance, one of his objections against phenomenalism is that it cannot individuate two distinct minds existing at the same time without positing some ad hoc principle beyond our direct acquaintance (Armstrong 1961, 69–70).

During this same period Armstrong continued his research into philosophical psychology. Having taken an interest in Ryle's discussion on feelings (Ryle 1949, 84, 104; 1951) Armstrong wrote his third book, *Bodily Sensations* (Armstrong 1962). Such sensations as itches, tickles, pains, aches, etc. as well as sensations of heat and cold, are cases of bodily sensations. Ryle hints at the view that feeling-words designate bodily sensations but his remarks are somewhat evasive and boil down to linguistic recommendations about how uses of 'feel' are related. In contrast, Armstrong gives an account of the *nature* of bodily sensations.

Armstrong's thesis is that bodily sensations are sense-impressions of a certain sort.¹⁰ Bodily sensations are not sensible qualities of parts of one's body. To illustrate, suppose I have a bodily sensation of heat. For Armstrong, it is an impression of heat. If I have a bodily sensation of pain, it is an impression of pain. So the sentence 'my hand feels sore' is akin to 'my hand feels hot' (Armstrong 1962, 59). While Armstrong is concerned with the nature of bodily sensations, it is part of his model of conceptual analysis that we give faithful accounts of how ordinary language ascribes certain features to bodily sensations. This is not ordinary language philosophy but serious conceptual analysis about the world. As Armstrong focuses more directly on ontological issues in his later work he moves away from couching the main issues in terms of con-

⁹ In the Preface of both books, he acknowledges his debt to Anderson's teaching (Armstrong 1960, Preface; Armstrong 1961, ix). In his later work on the metaphysics of properties, he dedicates *Universals and Scientific Realism* (1978) to Anderson and notes the influence of Anderson's ontology of facts (Armstrong 1997, 3–4). The force of the influence by the late 1970s is not as strong as his avowals make out. As A. J. Baker notes, despite the dedication in *Universals and Scientific Realism*, Armstrong does not discuss Anderson's theory of universals at length (Baker 1986, 62, n. 1). His recognition of any influence is distant and more of a tribute than a close reading and engagement with Anderson's work. But this does not make the connection any less significant. The tribute is to the first philosopher that showed him how to do metaphysics at a crucial developmental stage of his thought.

¹⁰ Whatever sense-impressions turn out to be on one's preferred account of sense-impressions; his view is that sense-impressions are conscious acquisitions of beliefs (Armstrong 1961, 128–32).

ceptual analysis and translations among sentences. But at this point he remains close to Oxford (see Armstrong 1993a, the Preface to *MTM*).

His first book contains important remarks about his conception of philosophy from his early period. When discussing the relevance of experimental evidence in theories of perception, he considers the objection that philosophy should butt out of such inquiries. So the objection goes: ‘philosophy, ... moves in the sphere of logical necessity: it is concerned with, or can only profitably be concerned with, conceptual, or at any rate non-empirical, inquiries. For the philosopher to seek to discover the nature of reality is a presumptuous encroachment on the domain of science’ (Armstrong 1960, 61). Such an objection would have rolled off the tongue of a logical positivist or an ‘analytical’ philosopher who thought that philosophy’s objective is to clarify the meaning of already known statements.

Armstrong’s response is that experimental evidence, specifically evidence from experiments of cataract patients blind from birth and newly born animals, is indeterminate in the dispute about whether distance is immediately seen and whether the object seen is identical with the object touched. Both Berkeley and his opponent can explain away troublesome evidence against their view. Any scientific observation resides within a body of background assumptions, such that any meaningful results are anchored in that context. The domain of science and empirical facts in this domain will not decide the issue. Part of the reason for this, Armstrong says, is that the kind of question Berkeley is raising is a ‘border-question’ (Armstrong 1960, 65). It lies on the border between philosophy and science. The empirical observations that are relevant to such a border-line inquiry are the observations that are ‘available to everybody’ (Armstrong 1960). One defining feature of philosophical inquiry is ‘the scrutiny of the obvious’ (Armstrong 1960). This is not to say that scientific considerations are left out of philosophical inquiry. Given that the inquiry is on the border, both philosophy and science share in the pursuit of uncovering the truth about perception.

By the time Armstrong wrote *MTM*, his understanding of the connection between philosophy and science had changed. The change, in fact, occurred a couple of years earlier in ‘The Nature of Mind’ (Armstrong 1966), wherein he first defined the scientism that put him on the path to his materialist theory of mind. In *MTM*, science plays a much more central role in philosophical debate than in his book on Berkeley. In *MTM*, he puts forth ‘the argument from the supremacy of physics’ (*MTM*, 51). This

argument suggests that scientific results give us inductive reasons to suppose that psychology will be reduced to physics. In defence of this argument, he considers a similar objection to the one he entertained in his book on Berkeley: philosophy is concerned with conceptual truths to the exclusion of scientific truths. His first reaction is to say that: ‘philosophy is not solely conceptual analysis’ (*MTM*, 51). His second response is that even if philosophy is solely concerned with conceptual analysis, the correct analysis of some concepts cannot be supported solely by a priori propositions. Ordinary experience and science can help with showing where the truth lies in conceptual analysis. He adds that scientific considerations should be given epistemic weight and points to the scientific success that came out of the early modern period. These successes advanced our philosophical understanding of the world as well. As a result, a major premise for materialism is that science has discovered that the central nervous system is the mediator between stimulus and response (*MTM*, 79). This directly informs our philosophical analysis of the concept of a mental state.

Smart’s reductionism and scientific realism are one factor in Armstrong’s shift towards a further privileging of science. This marks an important turning point in Armstrong’s philosophy because it is here that we can locate the seeds of his a posteriori realism. On this approach, metaphysics answers questions about abstract, general concepts, such as property, object, ontological category, etc., while science discovers what there is in the sense that it discovers the specific contents of our given ontology. A priori metaphysics and a priori arguments derived from language do not determine what there is. Given Armstrong’s ontology of immanent universals, science—not a priori or linguistic reasoning—discovers what universals there are. (Even here, the influence of Price can be detected. In *Thinking and Experience*, Price rejects the argument from meaning (for the existence of universals), asserting that what matters most in ontic reflections is what there is (Price 1953, 11).)

Armstrong’s second and third books are important for understanding the development of his materialism too. In both works he appeals to causation in giving philosophical analyses of perception and bodily sensations respectively. In both cases he owes this insight to Martin, with whom he discussed these topics from 1956 to about 1962. According to Armstrong’s theory of perception, sense-impressions are conscious acquisitions of belief or dispositions to believe something is the case. Veridical perception is a case of acquiring knowledge; sensory illusion is a case of acquiring false belief.

Martin pointed out to Armstrong that the fact that a sense-impression corresponds to reality is not enough for veridical perception. The missing ingredient is a causal relation that holds between the object in the external world and the sense-impression (Armstrong 1961, 125). This causal component is part of the concept of veridical perception (see also Armstrong 1989, 11–12).¹¹

According to Armstrong's theory of bodily sensations, the bodily sensation of pain is a bodily sense-impression, as mentioned above. But it is a sense-impression that leads to attitudes in the individual (Armstrong 1962, 106–7). This suggests that the concept of pain involves two things: (1) having a bodily sense-impression; and (2) having an attitude to that sense-impression. The sentence 'my hand feels sore' is translated as 'I have a bodily sense-impression that invokes an attitude in me towards it'. If this sense-impression corresponds to reality, it is an instance of veridical perception. So the damage to the body is the cause of the sense-impression (Armstrong 1962, 110). It follows that the 'place' of the pain is the place where the pain is felt and is the cause of the bodily feeling/sensation.

This emphasis on causation had a lasting impact on Armstrong since the idea of applying causation to philosophical analyses of concepts led him in part to his analysis of the concept of a mental state—that which (primarily) is apt to cause behaviour of a certain kind (*MTM*, 82). This, he suggests, is backed by physiological psychology, which gives an account of persons as objects that are 'continually acted upon by certain physical stimuli. These stimuli elicit from [some person] certain behaviour, that is to say, a certain physical response. In the causal chain between the stimulus and the response, falls the mind. The mind is that which causally mediates our response to stimuli' (*MTM*, 78). As we saw above, this is one place where science aids conceptual analysis.

When it comes to behaviourism, he thinks one of its advantages is that it does *not* provide translations of mental statements in terms of behavioural statements (*MTM*, 67). Clearly, he is not thinking of positivist behaviourism because that view proposes such translations, whether analytic or synthetic. Armstrong is reacting to the sort of Rylean behaviourist who proposes a genuine theory of the nature of mind. It might be true that Ryle understood his position as non-metaphysical, that he took himself to be

¹¹ Martin had already put forth his causal theory of perception in *Religious Belief* (Martin 1959) and went on to articulate a causal theory of remembering; see Martin and Deutscher (1966).

working on a cure for the disease of Cartesian thinking (Ryle 1949, 9). But Armstrong was always against the idea that ‘philosophy does not issue in any theories at all about the nature of reality’ (*MTM*, 14). So any form of behaviourism worth entertaining is a version that offers a theory about the nature of mind. Thus, behaviourism is one form of materialism. Given Armstrong’s conception of philosophy (*MTM*, 85), the behaviourist provides a genuine account of mental phenomena in terms of a system of behavioural concepts. We must remember that Armstrong is honestly considering the prospect of adopting behaviourism (although he was never a behaviourist at any point, unlike his fellow Australian materialists). Behaviourism is not a foil he used in the service of his preferred theory.

In the end, Armstrong argues that ‘genuine Rylean behaviourism’ is not a candidate theory because it does not fit the correct analysis of a mental state. Ordinary experience tells us that mental states are causes of behaviour, something that the behaviourist denies. Conceptually speaking, the behaviourist only gives us part of the story of our concept of mind, namely, the part that says behavioural outputs are intimately connected with mental states (*MTM*, 68). The real problem for behaviourists is that they do not conceive of dispositional properties as events or causes, because for them a disposition is not a state had by some object. On Armstrong’s realist theory of dispositions, dispositions are reduced to some actual categorical basis of the given object.¹² What would be a disposition and so a non-cause for Ryle is a cause for Armstrong. Sometimes Armstrong argues from ontic premises for this view, such as his appeal to truthmaking (Armstrong 1969, 23), but at other times he alludes to linguistic considerations. He writes: ‘The Realist view gains some support from ordinary language, where we often seem to identify a disposition and its “categorical basis”’ (*MTM*, 86), and that ‘It is linguistically proper, ... to say that brittleness *is* a certain sort of bonding of the molecules of the brittle object’ (Armstrong 1969, 26, his italics). However, appeals to what is linguistically proper are out of place for someone like Armstrong.

Armstrong’s stronger case for central state materialism, I argue, rests on his use of methodological principles. One candidate view he must consider is Place’s view/Smart’s initial identity theory. The difference between Place/Smart and Arm-

¹² According to other realist theories of dispositions (such as D. H. Mellor’s), natural properties just are dispositions without any need for a categorical base. For Mellor’s reflections on how *MTM* shaped his views about dispositions, the mind, and beliefs and desires, see Mellor (2015).

strong is that Armstrong gives a materialist reduction of *all* mental concepts, whereas Place and Smart adopt a materialist reduction of sensory concepts only. It is agreed, then, that *some* mental concepts receive a reductive analysis in terms of brain states. So we have the kind *inner mental state* in our ontology, which we are entitled to use in explaining facts about the mind. However, Smart's original motivation to restrict the number of inner mental states entails an incorrect application of Ockham's razor. The correct application seeks to limit the number of *kinds* of entities, not the number of *instances* of kinds. So, Place's and Smart's half-way behaviourist-identity theory is not better off, economically speaking (*MTM*, 81).¹³

The over-arching argument for central state materialism is what I call a serviceability argument. Start with Armstrong's argument from the supremacy of physics for materialism. It is technically neutral between genuine Rylean behaviourism and central state materialism. If Place and Smart are right, we must admit inner mental states. Armstrong's criticism that quantitative parsimony makes no difference to the economy of Place's and Smart's ontology puts central state materialism forward as the more suitable theory of the two to systematically explain mental phenomena. In addition, any suitable candidate must satisfy certain desiderata. Think of these desiderata as facts that must be explained: every theory must explain (1) the fact that minds are individuated; (2) the fact that certain mental states (and not others) are unified; and (3) the fact that mental states are ontically dependent on substances, etc. Central state materialism is more probable than its rivals because it explains the facts expressed in the desiderata using fewer primitives. He argues that competing theories do not explain all the facts that need to be explained. If they do, they do so with a greater number of primitives or basic principles. In short, central state materialism is an economical and serviceable (fruitful) hypothesis, which is a reason to believe it is true. Armstrong employs this inference to the best explanation-style of argument when he argues for a fac-

¹³ Armstrong is drawing a distinction between qualitative and quantitative parsimony (although he does not use these labels). His criticism presupposes that quantitative parsimony is not to be taken seriously. This distinction was popularized by Lewis, who also recognized 'no presumption whatever in favor of quantitative parsimony' (Lewis 1973, 87). The distinction dates back to Donald C. Williams. He called quantitative parsimony the 'gross tonnage conception of logical parsimony' and argued that it is 'no true logical economy, or is a vanishingly unimportant kind' (Williams 1934, 89). Armstrong studied Williams's *Principles of Empirical Realism* by 1967, so he may have found the distinction there. A favourable reference later on to Williams' discussion suggests that Armstrong was affected by it (Armstrong 2007, 99).

tualist ontology (Armstrong 1997). His reductive materialism is really an early exercise in metaphysics. It shapes the philosophical method that he appeals to in later work.

3. Lewis and Australian Materialism

Lewis was an undergraduate at Swarthmore College from 1957 to 1962. He enrolled in his first philosophy course, taught by Jerome Shaffer, in Fall, 1958. With a preliminary taste for philosophy and an awareness of his philosophic talent he joined his parents on a one-year visit to Oxford in 1959–60. Under the tutorship of Iris Murdoch he studied Hume, Kant, Leibniz, and Moore, and read contemporary works by Ryle, H. L. A. Hart, P. F. Strawson, Ayer, J. L. Austin, Wittgenstein, and Wisdom. His sojourn at Oxford had an immediate effect. In various undergraduate essays he endorsed logical behaviourism as found (according to some interpretations) in Ryle and Wittgenstein, e.g., ‘Logical Behaviourism and the Problem of Other Minds’ (David Lewis Papers, C1520, ‘St. Catherine’s Society, Oxford, Papers’, Box B–000696 Folder 5, Princeton University Library).¹⁴ He even stated in his applications for graduate school that Ryle’s *Concept of Mind*, Wittgenstein’s *Philosophical Investigations*, and Wisdom’s *Philosophy and Psycho-Analysis* taught him the most thus far in his philosophical development (Beebee and Fisher 2020a, 6–10).

In early 1963, after his first semester at graduate school at Harvard University, he corresponded with Shaffer about the identity theory. It is at this point that Lewis encountered Smart’s identity theory, not when Lewis and Smart first met at Harvard in Fall, 1963. Shaffer posed a number of problems for Smart’s identity theory. One problem is that brain processes are locatable whereas mental states are not. If the identification of mental states with brain processes requires spatio-temporal coincidence, mental states are not identical (contingently) with brain processes (Shaffer 1961, 815–16). In a letter to Shaffer dated 12 March 1963, Lewis argues that Shaffer’s objection shows us that the identity theory should not be formulated as asserting an identity between mental states and brain processes but rather between mental *states* and brain *states*. Each state is of something that has location. This something, a person, is the bearer of both

¹⁴ Hereafter, references to material in the Lewis Papers are shortened to folder name, box, and folder number.

mental and physical states (Beebe and Fisher 2020b, 3–4). (For Lewis, the word ‘state’ is a neutral term that covers universals, kinds of events, general attributes, types, not particulars, particular events, tokens, etc.)

It is clear from his correspondence with Shaffer that Lewis was attracted to the identity theory and less interested in saving behaviourism. Lewis brings this initial attraction and his materialist tendencies to Smart’s seminar at Harvard in the Fall semester of 1963. After this semester Smart and Lewis discuss the identity theory in correspondence. Lewis modified Smart’s topic-neutral account of sensation-reports as early as October 1964 (Letter from J. J. C. Smart to David Lewis, 8 October 1964, ‘Smart, J. J. C.’, Box B–000675 Folder 1). His proposal, as he says in his 1966 article, is that the topic-neutral account ‘must specify typical causes or effects of the experience, not mere accompaniments’ (Lewis 1966, 20). When I say ‘the thing going on in me is like what goes on when ___’, the blank must describe some cause or effect; whereas, for Smart, causation enters into the picture in order to determine which brain processes are mental states and which are not. This is not the same thing as analytically defining experience-ascriptions in terms of causal roles. Indeed, Smart shied away from claiming that the topic-neutral account is a *translation* of sensation statements in terms of physical statements (Smart 1967, 91–2).

The motivation for the identity theory rested largely on Ockham’s razor. For many, it is too crude a device to wield in philosophy of mind. It cannot decide which theory wins. It can only screen off unworthy candidates. At the time, Michael C. Bradley criticized Smart’s use of Ockham’s razor, arguing that it is ‘powerless in the kind of philosophical inquiry that Smart is engaging in’ (Bradley 1964, 282). Lewis sought to undermine the need to appeal to parsimony by showing that the identity theory is implied by our best physiological theory. All we need to do is specify that some mental state M is that which plays some causal role C, allow science to discover that some brain state P plays role C, and conclude that mental state M is identical with brain state P.

Lewis’s first premise is a generalization of Smart’s topic-neutral analysis of sensation-reports. But Lewis remarks that the principle is behaviourist in origin; ‘it inherits the behaviorist discovery that the (ostensibly) causal connections between an experience and its typical occasions and manifestations somehow contain a component of analytic necessity’ (Lewis 1966, 21). Lewis’s second premise is based on the working

hypothesis that our best scientific theories are unified in such a way that physics and its laws entail and explain higher-order sciences and any laws of higher-order sciences. Here he leans heavily on (Oppenheim and Putnam 1958). It is interesting to note that later on, in reflecting on this paper, he remains more or less committed to the unity of science programme. He says to Philip Kitcher, on 2 January 1998, ‘I don’t disagree outright with theses that Oppenheim and Putnam assert, but some of the presuppositions in the background strike me as alien’ (Beebe and Fisher 2020b, 189).¹⁵

While developing his view, Lewis reports to Smart that he is aware of the objection that the identity theory is false because if it is true, it is necessarily true, which contradicts their assertion that it is contingently true. Lewis says the objection rests on an unfair principle of individuation of states (or attributes)—namely, state F and G are identical iff necessarily F iff G. This sort of individuation principle might work for objects such as the evening star and morning star, but not for certain definite descriptions of states. To see this consider the property identity statement:

The colour of the sky is identical with the property of being blue.

As Neil L. Wilson argued, if blue is the meaning of ‘the property of being blue’, it is the meaning of ‘the colour of the sky’. If that is the case, this property identity statement is necessarily true. But it is contingent that the colour of the sky is the property of being blue. So blue is not the meaning of ‘the colour of the sky’ and blue is not the meaning of ‘the property of being blue’. Of course, we might say that both descriptions refer to the same property but the corresponding sentences do not mean the same thing (Wilson 1964, 53).

This example shows us that certain identity statements that involve definite descriptions of states are contingent. For Lewis, the statement:

the state that is usually caused by stimulus S and that usually causes P-behaviour

is a definite description of some brain state, but we identify this brain state via a definite description of its contingent features. If the definite description is essential, states can be individuated in terms of necessary coextensiveness. If not, not. For example, the

¹⁵ For recent criticism of this part of Lewis’s argument, see Michael (2012).

definite description ‘being the state in which C-fibres firing is occurring’ is an essential definite description of C-fibres firing (Beebee and Fisher 2020b, 8–11).

Lewis had come to realize that he needed a distinction between mental states and the havings of mental states. Mental states are identical with brain states but the havings of mental states are not. This was driven by the fact that ‘the colour of the sky’ contingently refers to the property of being blue but ‘having the colour of the sky’ necessarily refers to whatever colour the sky has (in every world that contains the sky). Lewis says of his term paper for Williams’s metaphysics course (Spring, 1965), which became his 1966 article, that:

The highly intensional stuff in the second half of the first part gives me a pain. I think it’s unavoidable, however, if we’re to avoid letting the I.T. become indistinguishable from the kind of epiphenomenalism that says that neural states are perfectly correlated with experiences. I do end up tolerating a purely logical sort of dualism, namely the dualism of experiences=neural states vs. havings of experiences. Notice that the same logical dualism turns up elsewhere in purely physical contexts; it’s just one of the obnoxious features of attribute theory. When I first came upon the argument for it, however, I thought I’d have to abandon the I.T. At that point I just had the neural states vs. the havings of experiences (attributes expressed by experience-ascriptions) and hadn’t thought to distinguish the experiences from the havings of them, as I later did. By the time I finished the first part of the paper I felt like turning nominalist for life! (Beebee and Fisher 2020b, 14–15).

After the 1966 article, there was a development of Lewis’s theory that proved to be an important factor in shaping his philosophy. This was the realization that Smart’s topic-neutral account of sensation-reports can be interpreted as a Ramsey sentence. In a letter to Smart on 16 May 1967, Lewis asks: ‘Had you noticed that our topic-neutral translations of mental sentences are Ramsey sentences?’ (Beebee and Fisher 2020b, 17). Folk psychology embodies claims such that ‘I am in pain’ is translated as ‘I am in a specific state S_i such that there is a unique set or tuple of states $S_1 \dots S_i$ such that these states satisfy the trivial claims of folk psychology.’ (One difference between Lewis and Armstrong is that Armstrong appeals to physiological psychology to help support

his causal analysis of the *general* concept of a mental state, whereas Lewis is happy to find the allusion to causal connections in the meanings of folk psychological terms. This is not to say that Armstrong was an empirical functionalist; Lewis and Armstrong were both analytical or common-sense functionalists.) This allowed Lewis in ‘Psychophysical and Theoretical Identifications’ to identify mental states with brain states using a ‘general hypothesis about the meanings of theoretical terms: that they are definable functionally, by reference to causal roles’ (Lewis 1972, 249), which he laid out in ‘How to Define Theoretical Terms’ (Lewis 1970).

Lewis’s doctrine of theoretical terms derives from Ramsey’s work on theoretical terms and the then commonplace distinction between theoretical and observational terms. For Lewis, the relevant distinction is between new or newly introduced terms by some theory T and old terms (not observational terms) of T. ‘Pain’ and other mental terms are newly introduced by specifying a certain role and associating it with the appropriate word, in this case, ‘pain’. Pain is said to be whatever occupies that role. It just so happens that a certain brain state, say, C-fibres firing realizes a portion of folk psychology by filling the pain-role. The term ‘pain’ is a non-rigid designator that denotes the kind or universal pain (not token states). By contrast, the property of having pain is a rigid designator; the property of having pain non-contingently names the property in some world *w* belonging to whatever entities have pain in *w*.

If central state materialism is true, ‘pain’ will turn out non-rigid. It is no objection to argue that central state materialism is somehow wrong because ‘pain’ is in fact rigid. For there is no clear intuition independent of theory that supports this linguistic thesis. Such linguistic data does not sit pre-theoretically outside competing theories about the mind (see Lewis 1980, 218). Furthermore, Lewis thinks mental terms semantically resemble newly introduced terms, not that mental terms are theoretical *simpliciter*. Their semantic feature is such that it is as if they were newly introduced terms. Hence the empirical claim that in natural language the ordinary proper name ‘pain’ is rigid has no force. This issue, in short, is downstream from what ultimately determines the correct theory of mind.

Now, ‘Psychophysical and Theoretical Identifications’ was written before ‘How to Define Theoretical Terms’.¹⁶ This indicates that although his theory of mind is an instance of his doctrine of theoretical terms, Lewis arrived at the general doctrine by working through his theory of mind. This makes his philosophy of mind important for understanding the origins of his philosophical thought. For his doctrine of theoretical terms underpins his philosophical theorizing. He often begins his theorizing about some philosophical topic by claiming that the use of some term is unsettled and that it can be associated with many theoretical roles in our thought and philosophical theories. Something should earn its name by filling some specified role associated with the name. Something should not be given a name by saying that it should be so called, as Lewis once said jokingly you cannot have ‘mighty biceps just by being called “Armstrong”’ (Lewis 1983, 366). He tacitly operates with these methodological rules throughout his work—from ontology to value theory (for a discussion, see Fisher 2018).

According to my interpretation, Lewis was originally a Rylean behaviourist who modified and generalized certain aspects of Smart’s identity theory and applied Ramsey’s method of defining theoretical terms to mental terms. Positivist behaviourism does little work in Lewis’s theory. However, later developments of positivist behaviourism, found, for instance, in Carnap’s work in the 1950s, also appealed in some way to Ramsey’s method, although of course within a logical positivist framework and in accordance with their conception of a scientific theory. On this view, behaviourism remains an application of the positivist’s Physicalism to psychology, but mental terms such as ‘pain’ are now theoretical terms, partially defined in terms of observational terms of a certain scientific theory (Carnap 1956, 69–75). Incidentally, it was this sort of positivist behaviourism that Putnam sought to reject (not its earlier manifestation from the 1930s), arguing that the meaning of ‘pain’ does not involve analytic connections between pain and pain-behaviour; ‘pain’ is not merely defined in this way; for one thing, it has a reporting use that is not implicitly defined by some theory (Putnam 1975, 449–50). Is Carnap’s later behaviourism a source for and influence on Lewis?

¹⁶ The former was read in March 1968, despite appearing in 1972 (and in Cheng 1975). Lewis writes to Smart on 20 April 1968: ‘Cheng has not yet sent me the tape of my talk. I’d like to have that in the book [Cheng 1975] with as little change as possible; then write the stuff up as a paper called “How to Define Theoretical Terms” with some new material, and only a passing mention of mental states’ (Beebe and Fisher 2020b, 22).

After all, Lewis's doctrine of theoretical terms is informed by Carnap's work on theoretical terms. If this were the case, it might be a connection between positivist behaviourism and Lewis's identity theory that should not be overlooked.¹⁷

But I do not think there is a strong connection in the right place. First, as I explained, Lewis's general doctrine of theoretical terms develops out of his theory of mind, not vice versa. So, if the suggestion is that Carnap's influence on Lewis's doctrine of theoretical terms informs Lewis's theory of mind, it has the interpretation of the development of Lewis's theory of mind backwards. Second, Lewis had already signed on to Rylean behaviourism and from this position reasoned his way to the identity theory. So it is false that he began with some overt form of positivist behaviourism. Third, there are crucial differences between Lewis's theory of mind and Carnap's (later) view. For instance, it is part of Lewis's formulation of the Ramsey sentence in folk psychology that the functional definitions of mental terms are derived from common sense, whereas Carnap would hand the functional specification of mental terms over to empirical psychology (Crawford 2013, 638). Fourth, Lewis's first encounter with Ramsey comes not from Carnap but rather from Israel Scheffler in early 1964 in Scheffler's philosophy of science course. Certain elements of Lewis's interpretation actually stem from a reaction to Scheffler's reading of Ramsey. Since this has not been canvassed elsewhere, it is instructive to look at it in a bit more detail.

In that course Scheffler assigned his book *The Anatomy of Inquiry*, wherein he presents Ramsey's theory (Scheffler 1963, 203–22). Scheffler thinks Ramsey's method offers a way to eliminate theoretical terms in a fictional manner; he labels it 'eliminative fictionalism'. On this reading, Ramsey's method says that certain terms of a theory, say, a scientific theory, are meaningless or false. This is one traditional interpretation of Ramsey's method in the service of one form of behaviourism: the view that says there are no minds or mental events and thereby eliminates mental terms.

While this might have been one, perhaps common, understanding of Ramsey's method, it was not Lewis's.¹⁸ Lewis draws a distinction between eliminating terms

¹⁷ It is beyond the scope of this chapter to explain how Lewis's doctrine of theoretical terms is informed by Carnap. But, briefly, what Lewis developed were certain aspects of the theoretical machinery of Carnap's work on theoretical terms. The question I am presently considering concerns the potential connection between positivist behaviourism (the version that says 'pain' is a theoretical term) and Lewis's identity theory.

¹⁸ It was probably not Carnap's either. He admits criteria of signification for theoretical terms of psychology (Carnap 1956, 49–52).

from the set of *primitive* terms in the theory and eliminating the ontic commitments found in those terms. In the case of mental vocabulary, Lewis Ramseyfies out mental terms, and as a result, mental terms are eliminated from the primitive vocabulary. But they remain available in the sense that we still have such expressions in our theory and they denote mental states. The expression ‘that which fills the pain-role’ denotes pain. Ramsey’s method is meant to be a ‘vindication’ of theoretical terms (Lewis 1970, 427). Lewis did not think of Ramsey’s method as supporting the view that eliminated terms are false or meaningless.

Interestingly, Lewis’s interpretation of Ramsey’s method not only motivates his reductive materialism but also his rejection of eliminativist theories in general. An entity can deserve a name imperfectly so long as it is good enough to fill the corresponding role (and so deserves that name). To be sure, this depends on what the role-filler is but for there to be some sort of flexibility in role-filling and an imperfection in name-deserving, there has to be a rejection of what Lewis calls ‘semantic perfectionism’.¹⁹ Thus, the choice is between rejecting ‘semantic perfectionism’ and accepting eliminativism. Lewis chooses the first option (i.e. rejects semantic perfectionism). Language betrays a harmless and uncontroversial semantic indeterminacy and our definitions should reflect this vagueness and indeterminacy. In the case of mind, brain states occupy the role of mental states well enough such that they deserve the name of the mental state. *If* brain states are not good enough in filling the pain-role and so not good enough to deserve the name ‘pain’, Lewis would accept that, *strictly speaking*, there are no pains. Loosely speaking, there are pains if in the loose sense brain states are good enough to deserve the name ‘pain’. Semantic indecision and ontology thus meet halfway.

In sum, from Lewis’s perspective, he is reacting in part to Scheffler’s treatment of Ramsey. Carnap’s work on theoretical terms does inform Lewis’s doctrine of theoretical terms (especially its theoretical machinery), but it does not assist Lewis on his path from behaviourism to the identity theory. Lewis’s starting point is his own Rylean behaviourism. Hence Lewis is more appropriately located alongside Place, Smart, and Armstrong in the Australian materialist tradition. Finally, like Armstrong, Lewis’s phi-

¹⁹ In a letter to Christopher Jones, 10 November 1992; ‘J’, Box B-000667 Folder 12 (which has not been recently published).

osophy of mind is the initial project from which he extracts general tools and methodological rules that he applies elsewhere in his philosophy.

4. Conclusion

Australian materialism is a distinctive movement in the history of analytic philosophy of mind. It is separate from Feigl's identity theory and distinct from the evolution of positivism. It has its origins in a certain interpretation of Rylean behaviourism, namely the interpretation that behaviourism offers a genuine account of the nature of mind in terms of behaviour and behavioural concepts. There are separate lines of influence and distinct origins of the identity theory in analytic philosophy. Also, there are different explanations of the transition from behaviourism to the identity theory. Australian materialists never understood the issue as a clash between pseudo-problem and genuine problem (nor did they set it up in these terms). From the outset they considered the mind-body problem as genuine and interpreted logical behaviourism as offering a genuine view of the nature of mind. From this position, as I have explained, they travelled some distance to the identity theory. The more significant move was drawing a distinction between conceptual and factual truths and realizing that what was worth saving from logical behaviourism was its conceptual truths about mental states and its contributions to the conceptual part of folk psychology. Australian materialism is also significant because it shaped Armstrong's and Lewis's philosophy and philosophical method. Armstrong's metaphysics and metaphysical method date back to his arguments in *MTM*. Lewis's philosophical method and his systematic use of his Ramseyan method of defining theoretical terms stem from his identity theory. Lastly, since Australian materialism was one of the first metaphysical theses in the mid-twentieth century, it can be seen as an early contribution to the revival of metaphysics.

Where should we locate Australian materialism in the history of philosophy, broadly speaking? Armstrong, along with Brian Medlin (1967, 95), dubbed the view 'central state materialism' for a reason. To be sure, it was inspired by Feigl's label 'central state theory', but it was intended to capture the fact that the view is a variety of *materialism*—a view that was scoffed at in the early twentieth century (e.g., Fullerton 1904, 247–57) and ridiculed by logical positivists for being unscientific, metaphysical speculation. Australian materialism is not to be associated with so-called 'identity'

theories or ‘mind-body monistic’ world-views, some of which, in Armstrong’s eyes, should be called double-aspect accounts of the mind. I submit that we should place Australian materialism within the larger materialist tradition that dates back to Hobbes and further to Lucretius, broadly speaking, and consider it as the latest episode in the long history of materialism cut using tools sharpened by the kind of analytic philosopher who proposes a genuine and systematic theory of the nature of things.²⁰

References

Alexander, Samuel (1920) *Space, Time, and Deity: The Gifford Lectures at Glasgow 1916–1918*, London: Macmillan.

Anderson, John (2005) *Space-Time and the Proposition: The 1944 Lectures on Samuel Alexander’s Space, Time and Deity*, Sydney: Sydney University Press.

Anderson, John (2007) *Space, Time and the Categories: Lectures on Metaphysics 1949–50*, Sydney: Sydney University Press.

Armstrong, D. M. (1954) ‘Berkeley’s Puzzle about the Water That Seems Both Hot and Cold’, *Analysis*, 15(2): 44–6.

Armstrong, D. M. (1955) ‘Illusions of Sense’, *Australasian Journal of Philosophy*, 33(2): 88–106.

Armstrong, D. M. (1960) *Berkeley’s Theory of Vision: A Critical Examination of Bishop Berkeley’s Essay Towards a New Theory of Vision*, Melbourne: Melbourne University Press.

Armstrong, D. M. (1961) *Perception and the Physical World*, London: Routledge & Kegan Paul.

Armstrong, D. M. (1962) *Bodily Sensations*, London: Routledge & Kegan Paul.

Armstrong, D. M. (1966) ‘The Nature of Mind’, *Arts (Proceedings of the Sydney University Arts Association)*, 3: 37–48.

²⁰ Thanks to the audience at the *A Materialist Theory of the Mind: 50 Years On* conference, University of Sydney, 10 August 2018. I also thank Peter Anstey, Keith Campbell, Sean Crawford, John Heil, and the late Hugh Mellor for comments and discussion. I am grateful to the late Steffi Lewis for permission to publish excerpts of letters from David Lewis, courtesy of Princeton University Library. This research was supported by the AHRC through its funding of *The Age of Metaphysical Revolution: David Lewis and His Place in the History of Analytic Philosophy* [grant number AH/N004000/1].

- Armstrong, D. M. (1968) *A Materialist Theory of the Mind*, London: Routledge & Kegan Paul.
- Armstrong, D. M. (1969) 'Dispositions Are Causes', *Analysis*, 30(1): 23–6.
- Armstrong, D. M. (1978) *Universals and Scientific Realism*, 2 vols, Cambridge: Cambridge University Press.
- Armstrong, D. M. (1984) 'Self-Profile', in D. M. Armstrong, *Profiles*, vol. 4, edited by Radu J. Bogdan, Dordrecht: D. Reidel, 3–51.
- Armstrong, D. M. (1989) 'C. B. Martin, Counterfactuals, Causality, and Conditionals', in *Cause, Mind, and Reality: Essays Honoring C.B. Martin*, edited by John Heil, Dordrecht: Kluwer, 7–15.
- Armstrong, D. M. (1993a) 'Preface', in *A Materialist Theory of the Mind*, 2nd edition, London: Routledge, xiii–xxiii.
- Armstrong, D. M. (1993b) 'Reply to Smart', in *Ontology, Causality and Mind*, edited by John Bacon, Keith Campbell, and Lloyd Reinhardt, Cambridge: Cambridge University Press, 169–74.
- Armstrong, D. M. (1997) *A World of States of Affairs*, Cambridge: Cambridge University Press.
- Armstrong, D. M. (2007) 'Truthmakers for Negative Truths and for Truths of Mere Possibility', in *Metaphysics and Truthmakers*, edited by J.-M. Monnoyer, Heusenstamm, Germany: Ontos Verlag, 99–104.
- Ayer, A. J. (1936) *Language, Truth, and Logic*, London: Penguin Books.
- Bacon, John, Keith Campbell, and Lloyd Reinhardt, eds (1993) 'Preface', in *Ontology, Causality and Mind*, edited by John Bacon, Keith Campbell, and Lloyd Reinhardt, Cambridge: Cambridge University Press, vii–xi.
- Baker, A. J. (1986) *Australian Realism: The Systematic Philosophy of John Anderson*, Cambridge: Cambridge University Press.
- Beebe, Helen and A. R. J. Fisher, eds (2020a) *Philosophical Letters of David K. Lewis: Vol. 1: Causation, Modality, Ontology*, Oxford: Oxford University Press.
- Beebe, Helen and A. R. J. Fisher, eds (2020b) *Philosophical Letters of David K. Lewis: Vol. 2: Mind, Language, Epistemology*, Oxford: Oxford University Press.
- Bradley, M. C. (1964) 'Critical Notice of Philosophy and Scientific Realism', *Australasian Journal of Philosophy*, 42(2): 262–83.

- Carnap, Rudolf (1956) 'The Methodological Character of Theoretical Concepts', *Minnesota Studies in the Philosophy of Science*, 1(1): 38–76.
- Cheng, Chung-ying, ed. (1975) *Philosophical Aspects of the Mind-Body Problem*, Honolulu: University Press of Hawaii.
- Crawford, Sean (2013) 'The Myth of Logical Behaviourism and the Origins of the Identity Theory', in *The Oxford Handbook of the History of Analytic Philosophy*, edited by M. Beaney, Oxford: Oxford University Press, 621–55.
- Feigl, Herbert (1958) 'The "Mental" and the "Physical"', *Minnesota Studies in the Philosophy of Science* 2: 370–497.
- Feigl, Herbert (1975) 'Some Crucial Issues of Mind-Body Monism', in *Philosophical Aspects of the Mind-Body Problem*, edited by C. Cheng, Honolulu: University Press of Hawaii, 20–34.
- Fisher, A. R. J. (2015) 'Samuel Alexander's Theory of Categories', *The Monist*, 98(3): 246–67.
- Fisher, A. R. J. (2018) 'On Lewis Against Magic: A Study of Method in Metaphysics', *Synthese*, 195(5): 2335–53.
- Franklin, James (2003) *Corrupting the Youth: A History of Philosophy in Australia*, Paddington, NSW: Macleay Press.
- Fullerton, G. S. (1904) *A System of Metaphysics*, New York: Macmillan.
- Grave, S. A. (1976) *Philosophy in Australia since 1958*, Sydney: Sydney University Press.
- Grave, S. A. (1984) *A History of Philosophy in Australia*, St Lucia: University of Queensland Press.
- Heidelberger, Michael (2001) 'The Mind-body Problem in the Origin of Logical Empiricism: Herbert Feigl and Psychophysical Parallelism', in *Logical Empiricism: Historical and Contemporary Perspectives*, edited by Paolo Parrini, Wesley C. Salmon, and Merrilee H. Salmon, Pittsburgh, PA: Pittsburgh University Press, 233–62.
- Kim, Jaegwon (1998) *Mind in a Physical World*, Cambridge, MA: MIT Press.
- Lewis, David (1966) 'An Argument for the Identity Theory', *Journal of Philosophy*, 63(1): 17–25.
- Lewis, David (1970) 'How to Define Theoretical Terms', *Journal of Philosophy*, 67(13): 427–46.

- Lewis, David (1972) 'Psychophysical and Theoretical Identifications', *Australasian Journal of Philosophy*, 50(3): 249–58.
- Lewis, David (1973) *Counterfactuals*, Cambridge, MA: Harvard University Press.
- Lewis, David (1980) 'Mad Pain and Martian Pain', in *Readings in Philosophy of Psychology*, edited by Ned Block, Cambridge, MA: Harvard University Press, 216–32.
- Lewis, David (1983) 'New Work for a Theory of Universals', *Australasian Journal of Philosophy*, 61(4): 343–77.
- Mandelbaum, Maurice (1955) 'Societal Facts', *British Journal of Sociology*, 6(4): 305–17.
- Martin, C. B. (1959) *Religious Belief*, Ithaca, NY: Cornell University Press.
- Martin, C. B. and Max Deutscher (1966) 'Remembering', *The Philosophical Review*, 75(2): 161–96.
- McLaughlin, Brian P. and Ronald Planer (2014) 'The Contributions of U. T. Place, H. Feigl and J. J. C. Smart to the Identity Theory of Consciousness', in *Philosophy of Mind: The Key Thinkers*, edited by A. Bailey, London: Bloomsbury, 103–28.
- Medlin, Brian (1967) 'Ryle and the Mechanical Hypothesis', in *The Identity Theory of Mind*, edited by C. F. Presley, St Lucia: University of Queensland Press, 94–150.
- Mellor, D. H. (2015) 'From Translations to Truthmakers', in *Metaphysics and Scientific Realism: Essays in Honour of David Malet Armstrong*, edited by F. F. Calemi, Berlin: De Gruyter, 219–31.
- Michael, Michaelis (2012) 'Problems with Lewis' Argument for the Identity Theory', *Ratio*, 26(1): 51–61.
- Murdoch, Iris (1956) 'Vision and Choice in Morality', *Aristotelian Society Supplementary Volume*, 30(1): 32–58.
- O'Connor, D. J. (1963) 'Review of Berkeley's Theory of Vision', *Journal of Philosophy*, 60(16): 472–3.
- Oppenheim, Paul and Hilary Putnam (1958) 'Unity of Science as a Working Hypothesis', *Minnesota Studies in the Philosophy of Science*, 2: 3–36.
- Pepper, Stephen C. (1975) 'A Split in the Identity Theory', in *Philosophical Aspects of the Mind-Body Problem*, edited by C. Cheng, Honolulu: University Press of Hawaii, 35–42.
- Place, U. T. (1954) 'The Concept of Heed', *British Journal of Psychology*, 45(4): 243–55.

- Place, U. T. (1956) 'Is Consciousness a Brain Process?', *British Journal of Psychology*, 47(1): 44–50.
- Presley, C. F. (1967) 'Introduction', in *The Identity Theory of Mind*, edited by C. F. Presley, St Lucia: University of Queensland Press, xi–xix.
- Price, H. H. (1932) *Perception*, London: Methuen and Co.
- Price, H. H. (1940) *Hume's Theory of the External World*, Oxford: Oxford University Press.
- Price, H. H. (1953) *Thinking and Experience*, Cambridge, MA: Harvard University Press.
- Putnam, Hilary (1975) 'Logical Positivism and the Philosophy of Mind', in *Mind, Language and Reality*, edited by H. Putnam, Cambridge: Cambridge University Press, 441–51.
- Ryle, Gilbert (1949) *The Concept of Mind*, London: Hutchinson.
- Ryle, Gilbert (1951) 'Feelings', *Philosophical Quarterly*, 1(3): 193–205.
- Scheffler, Israel (1963) *The Anatomy of Inquiry: Philosophical Studies in the Theory of Science*, London: Routledge.
- Searle, John (2004) *Mind: A Brief Introduction*, Oxford: Oxford University Press.
- Shaffer, Jerome A. (1961) 'Could Mental States Be Brain Processes?', *Journal of Philosophy*, 58(26): 813–22.
- Smart, J. J. C. (1955) 'Critical Notice of From a Logical Point of View', *Australasian Journal of Philosophy*, 33(1): 45–56.
- Smart, J. J. C. (1957) 'Plausible Reasoning in Philosophy', *Mind*, 66: 75–8.
- Smart, J. J. C. (1959) 'Sensations and Brain Processes', *The Philosophical Review*, 68(2): 141–56.
- Smart, J. J. C. (1967) 'Comments on the Papers', in *The Identity Theory of Mind*, edited by C. F. Presley, St Lucia: University of Queensland Press, 84–93.
- Stubenberg, Leopold (1997) 'Austria vs. Australia: Two Versions of the Identity Theory', in *Austrian Philosophy, Past and Present: Essays in Honour of Rudolf Haller*, edited by Keith Lehrer and Johann Christian Marek, Dordrecht: Kluwer, 125–46.
- Tanney, Julia (2009) 'Rethinking Ryle: A Critical Discussion of The Concept of Mind', in *The Concept of Mind: 60th Anniversary Edition*, edited by Julia Tanney, London: Routledge, ix–lvii.

Williams, Donald C. (1934) 'The Inductive Argument for Subjectivism', *The Monist*, 44(1): 80–107.

Wilson, N. L. (1964) 'The Trouble with Meanings', *Dialogue*, 3(1): 52–64.

Wisdom, John (1953) *Philosophy and Psycho-Analysis*, Oxford: Basil Blackwell.

Wolfe, Charles T. (2015) *Materialism: A Historico-Philosophical Introduction*, Cham: Springer.