Modal Rationalism and the Demonstrative Reply to the Scrutability Argument Against Physicalism *

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Abstract: According to the *Scrutability Argument Against Physicalism*, an a priori gap between the physical and conscious experience entails a lack of necessitation and the falsity of physicalism. This paper investigates the crucial premise of the scrutability argument: the inference from an a priori gap to a lack of necessitation. This premise gets its support from *modal rationalism*, according to which there are important, potentially constitutive, connections between a priori justification and metaphysical modality. I argue against the strong form of modal rationalism that underwrites the scrutability argument and suggest a more moderate rationalist view. I offer a novel *demonstrative reply* to the scrutability argument, according to which demonstratives play a vital role in the generation of meaning for our representations of conscious experience. This connection between conscious experience and demonstratives, rather than a metaphysical gap generated by the truth of dualism, is the source of the epistemic gap between consciousness and the physical.

1 Introduction

I believe that our world is, at its most fundamental level, purely physical. Call this thesis *fundamentality physicalism* (to which I often refer using the simpler 'physicalism'). The entire world is how it is in virtue of the way the world is microphysically. All the cameras, cantaloupes, coffees, and koalas are the way they are in virtue of how the leptons, bosons, and weak nuclear forces are. The basic building blocks of our world are purely physical. The rest, including the cameras, cantaloupes, and koalas, is generated from, and metaphysically depends on, the arrangement of the fundamental microphysical stuff.[1]

This paper addresses a particular contemporary challenge to physicalism: *the scrutability argument against physicalism*. The scrutability argument starts from an epistemic a priori gap between the physical

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[1]Two points deserve clarification. First, physicalism defined in terms of fundamentality does not require a maximally fundamental level. In a situation of "infinite descent", physicalism requires only that, after a certain "depth", everything is physical. Second, physicalism does not require physical fundamentalia to be microscopic. Physicalism is compatible with fundamental particles the size of bowling balls. However, if physicalism is true about the actual world, the most likely form is microphysicalism. For ease of exposition I treat the two as equivalent. For more on this conception of physicalism, which makes essential use of the notion of fundamentality, cf. Rabin [2013, MS].

truths and the truths about phenomenally conscious experience. It links these facts about the a priori to claims about metaphysical modality, and finishes with the startling claim that physicalism is false. Many contemporary arguments against physicalism share the basic form of the scrutability argument. These arguments include the knowledge argument of Jackson [1982, 1986], the conceivability, zombie, and two-dimensional arguments of Chalmers [1996, 2003a, 2010], the modal arguments of Kripke [1972], and explanatory gap considerations against physicalism (Levine [1983]). One can view all these arguments as variations on a theme: The Scrutability Argument.[2] One might instead call it the "master" or "core" argument. The word 'scrutability' highlights the role that a priori entailment plays. A priori entailment is a species of *scrutability relation*. One set of truths is *scrutable* from another if "there is a connection in the realm of knowledge between" the two. "Given the basic truths, the rest of the truths can be determined." (Chalmers [2012]: xiii).[3]

In this paper, my goal will be to present the scrutability argument and investigate, more deeply than has been done before, the rationale behind it. In particular, *modal rationalism* motivates the key move from an epistemic to a metaphysical gap. *Modal rationalism*, in its most general form, is the view that there are important, potentially constitutive, connections between metaphysical modality and a priori justification. The scrutability argument relies on ambitious theses in the philosophy of modality, including a strong form of modal rationalism.

I have sympathies with modal rationalism but deny the strong rationalism that underwrites the scrutability argument. I deny partly because I am a physicalist. But thankfully, I have a diagnosis of where strong modal rationalism goes wrong. It relies on an overly optimistic view of meaning determination. After arguing against strong rationalism, I'll use the meta-semantic lessons learned to offer a suggestion for how to fix the rationalist agenda. A central idea will be there is an important link between demonstratives and our access to and representations of conscious experience. This connection, and not a metaphysical gap stemming from the truth of dualism, is the source of the epistemic gap between the physical and conscious experience.

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[2]Each argument latches onto its own particular features of the mind/body problem, some of which the scrutability argument ignores. I believe that examination of the kernel of similarity between these arguments is fruitful.

[3]The popularization of the term 'scrutability' post-dates the emergence of the scrutability argument in contemporary philosphical literature, but the term remains apt. For more on the philosophy of scrutability, cf. Chalmers [2012].

2 The Scrutability Argument Against Physicalism

2.1 The Scrutability Argument

The Scrutability Argument starts with the premise that there is no a priori route from a complete microphysical description of the world to a complete description of the world. This is so partly because there is no a priori route from the facts about microphysics to the facts about conscious experience. The second premise is that if there is no such a priori route there is no metaphysical necessitation from the microphysical state of the world to the complete state of the world. The third premise is that if there is no such necessitation, physicalism is false. Conclusion: physicalism is false.

Let $\mathcal{P}$ express the complete fundamental physical state of the world.[4] (If physicalism is true, $\mathcal{P}$ expresses the complete fundamental state.) Let $\mathcal{I}$ be an indexical truth. The indexical truth identifies a specific individual, location, and time as I/me, here, and now. $\mathcal{I}$ turns the physical description $\mathcal{P}$ into a centered description. I leave discussion of $\mathcal{I}$ to section 3.4. Let $\mathcal{Q}$ be a conjunction of all the truths about phenomenally conscious experience. $\mathcal{Q}$ states who had what type of experience and when. 'AP(ϕ)' says that ϕ is knowable a priori. '$\Box(\phi)$' says that ϕ is metaphysically necessary. '$\phi \longrightarrow \psi$' expresses the material conditional "If ϕ then ψ". With this notation, we express the scrutability argument as follows.

(P1) not-AP$(\mathcal{P}\mathcal{I} \longrightarrow \mathcal{Q})$

(P2) $\Box(\mathcal{P} \longrightarrow \mathcal{Q}) \longrightarrow$ AP$(\mathcal{P}\mathcal{I} \longrightarrow \mathcal{Q})$

(P3) If fundamentality physicalism is true, then $\Box(\mathcal{P} \longrightarrow \mathcal{Q})$.

(C) Fundamentality physicalism is false.

The argument is valid. We investigate each premise.

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[4]$\mathcal{P}$ should be understood to contain what Chalmers & Jackson [2001] call a "that's all" clause, which effectively states that $\mathcal{P}$ is a complete description of the fundamental state of the world. Without a "that's all" clause, a descripton of the fundamental level won't put one in a position to rule out certain possibilities for how the world is, and thus won't permit a priori reasoning to all truths. For example, a fundamental physical description without a "that's all" clause won't enable one to rule out the existence of ghostly non-physical angels.

There are interesting questions about whether the "that's all" clause expresses a fundamental feature of the world, or whether it is merely an enabling condition that allows the genuine fundamentalia to make everything the case (including the non-existence of angels). Similar questions arise about whether the "that's all" clause should be counted as a "physical". At the least, it seems like a topic-neutral truth whose occurrence in a description of the world's fundamental level should not thereby jeopardize physicalism. (In the same way, the need to use mathematics and logic, which are not strictly "physical", in a description of the world's fundamental level, does not jeapordize physicalism.) For more on this cf. Rabin [2013, MS]. From here, I'll suppress issues about the "that's all" clause. They do not alter the dialectic.

2.2 Premise (P3): From Fundamentality to Modality

I take it as a datum that our world has more and less fundamental features. Quarks, leptons, and the weak nuclear force are likely fundamental. Cantaloupes, coffees, and koalas are not. The cantaloupes, coffees and koalas are the way they are in virtue of the way the quarks, leptons, and weak nuclear forces are. Non-fundamentalia are grounded in, and metaphysically depend on, fundamentalia. I use 'fundamental' as a label for the basic building blocks of the world and 'ground' as a label for the "making so" relation between those fundamental building blocks and the fundamentalia on which they metaphysically depend. (For more on the notions of fundamentality, ground, and their use in defining physicalism cf. Rabin [2013, MS]).

The fundamental constituents of reality must, taken together, ground all of reality. Everything is either fundamental or grounded in the fundamental.[5] There are modal constraints on the fundamental. No two possible worlds can differ without differing fundamentally.[6] Modality thus provides a useful tool for testing theories of the fundamental. (P3) is not controversial. Part of what it means to say that our world is, at the most fundamental level, purely physical, is to say that fixing how the world is at the purely physical level fixes (i.e. necessitates) how the entire world is, including how the conscious states are.

2.3 Premise (P1): The Epistemic Gap

Premise (P1), not-AP($\mathcal{PI} \longrightarrow \mathcal{Q}$), says that there is no a priori entailment from the physical truths (supplemented with an indexical truth) to the truths about consciousness. A proposition P *a priori entails* a proposition Q iff the material conditional "If P then Q" is knowable a priori. (We define a priori entailment between sets of propositions in the obvious way, using a priori entailment between the propositions that conjoin the elements). (P1) says that you can know all you like about the physical, but this won't tell you what it's like to see red, or whether some creature is experiencing blue, green, pain, or nothing at all. Many sources support (P1). I discuss three: (i) the explanatory gap between the physical and consciousness (ii) the knowledge argument of Jackson [1982, 1986] and (iii) the conceivability of inverted qualia and philosophical zombies.

If there is an explanatory gap between the physical and consciousness (cf. Levine [1983], Chalmers [2003a]) then there is, *ipso facto*, an a priori explanatory gap. Jackson [1982, 1986]'s Mary, a brilliant color-

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[5]Elsewhere (Rabin [2013, MS]), I've called this requirement on fundamentality "the covering constraint". Schaffer [2010]: 38-9 calls it the "tiling constraint".

[6]The modal commitments of fundamentality do not require the "necessitation principle" for ground, which says that if P grounds Q, then P necessitates Q. For our purposes here, all that is required is the much weaker thesis of global supervenience on the fundamental: no two worlds can differ without differing in their fundamentalia. Cf. Leuenberger [2014] for more.

deprived neuroscientist who has never experienced color, knows all the physical truths in $\mathcal{P}$. But she can't know certain truths about conscious experience. If so, there's no epistemic route from $\mathcal{P}$ to consciousness. If there's no epistemic route, there's no a priori route. (P1) follows.

Conceivability arguments also support (P1). The first premise of the zombie argument (Chalmers [1996]) is that a zombie world is conceivable. A zombie world is a physical duplicate of the actual world that contains no conscious experience. On many precisifications of conceivability (Chalmers [1996, 2010]), if such a scenario is conceivable, there is no a priori contradiction in the conjunction of $\mathcal{P}$ and "there's no consciousness". If so, there is no a priori entailment from $\mathcal{P}$ to $\mathcal{Q}$, because $\mathcal{Q}$ a priori entails that something is conscious. The conceivability of an inverted qualia world, in which experiences are "swapped" (red for blue, pains for tickles), entails (P1) in an analogous manner.

2.4 Premise (P2): From an epistemic to a metaphysical gap

Premise (P2) is the most controversial. It will be our primary concern. (P2) connects a priori justification and metaphysical modality. More precisely, it claims that if all the facts cannot be known a priori on the basis of the physical facts, the physical facts do not necessitate all the facts.

(P2) embodies a litmus test for fundamentality. Consider some alleged story, X-ism, about the fundamental nature of the world: physicalism, dualism, idealism, deism, koala-ism, whatever. If X-ism is true, then the X-ical truths tell the complete story of the fundamental structure of the world. The X-ical truths necessitate all truths. If so, they should also a priori entail all truths (or so the schema maintains). The Scrutability Argument maintains that physicalism fails the test.

This litmus test for fundamentality relies on a particular connection between necessitation and a priori entailment. It brings forth the obvious question: "Why should metaphysical claims about necessitation, modality, or fundamentality follow from epistemic claims about what can be known a priori on the basis of what?" Answering this question requires exploration of deep waters in the philosophy of modality. We spend most of the paper voyaging those seas.

3 Supplementation

3.1 Covering Your Bases

Let a *fact* be a true Fregean proposition. Fregean propositions are structured composites of concepts.[7] For example, the proposition KOALAS EAT EUCALYPTUS contains the concepts KOALAS, EAT, and EUCALYPTUS. (Small capitals to denote items at the conceptual level: concepts or propositions.) A *necessitates* B if and only if the material conditional A $\longrightarrow$ B is necessarily true. Alternatively: we write '$\Box$(A $\longrightarrow$ B)'. KOALAS EAT EUCALYPTUS necessitates KOALAS EAT SOMETHING. A *a priori entails* B if and only if the material conditional A $\longrightarrow$ B is knowable a priori. KOALAS EAT EUCALYPTUS a priori entails KOALAS EAT EUCALYPTUS. Facts can necessitate without a priori entailing: SOME WATER IS WET necessitates, but does not a priori entail, SOME H_2O IS WET.

With these definitions in tow we define three more notions: (i) necessitation base (ii) a priori entailment base, and (iii) fundamentality base. A set of propositions S is a *necessitation base* if and only if the conjunction of all propositions in S necessitates every true proposition. A necessitation base leaves the truth-value of no proposition undecided. Some examples of candidate necessitation bases include the set of all microphysical truths (if microphysicalism is true), the set of all microphysical truths plus mental truths (if some type of dualism is true), and the set of all truths believed by God (if God is omniscient). Trivially, the set of all truths (if there is such a thing) is a necessitation base, because every truth necessitates itself.

A set of truths S is an *a priori entailment base* if and only if the conjunction of all truths in S a priori entails every truth. Here's a useful heuristic for thinking about a priori entailment: If one knew all the truths in an a priori entailment base, one could, in principle, reason a priori to all truths.[8] Candidate a

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[7]Throughout this paper I use a Fregean approach to propositions, according to which propositions are structured composites of concepts. This contrasts with a Russellian approach, according to which propositions contain objects or properties themselves. This move is controversial, but harmless. Our target phenomenon, the relations between necessity and the a priori, provide the main motivation for choosing a Fregean approach. Russellian propositions are not well suited to such an investigation. To start, I'm unsure how to describe the phenomenon of a priori knowability on a Russellian approach. For the Russellian, the sentences 'Hesperus is Hesperus' and 'Hesperus is Phosphorous' express the same proposition: $\langle \odot = \odot \rangle$ (where $\odot$ is Venus itself (a.k.a. Hesperus, a.k.a. Phosphorous)). But one can know a priori that Hesperus is Hesperus, whereas that Hesperus is Phosphorous is a paradigm of knowability only a posteriori. (Perhaps the Russellian will deny this?) On the Russellian approach, it looks like propositions are not the bearers of a priori / a posteriori knowability. (At the least, they're not the complete bearers). To account for the differences between the a priority knowability of "Hesperus is Hesperus" and "Hesperus is Phosphorous", the Russellian must appeal to additional tools. Following the suggestions of Salmon [1986], one might appeal to Russellian-propositions-under-guises. Proposition P could be knowable under one guise but not under another. I hypothesize that in the end, the Russellian account, appropriately supplemented to deal with the a priori (perhaps via guises), will behave much like a Fregean account of propositions. I don't care much which of the available entities we dub 'propositions'.

[8]This heuristic may be only a heuristic, because of problems related to unknowable truths (Fitch [1963]). If a truth T is unknowable, then no amount of a priori reasoning will allow a reasoner to know T. However, T's unknowability does not conflict with the ability of a base of propositions B to a priori entail T. Even if T is unknowable, the conditional B $\longrightarrow$ T might still be knowable a priori. Cf. Chalmers [2012], chapter 2.

priori entailment bases include the set of microphysical truths (if a priori physicalism is true) and the set of microphysical plus phenomenal truths.

A set of truths is a *fundamentality base* if it fully describes the fundamental state of the world. If physicalism is true, then some set of physical truths provides a fundamentality base. If dualism is true, then some conjunction of physical and mental truths provides a fundamentality base. Any fundamentality base must also be a necessitation base. This claim is partly constitutive of the notion of the fundamentality.

3.2 The Supplementation Question

Once we've introduced the three types of bases we can ask some obvious questions. What is the smallest possible base (of any type)? What connections are there between the types of bases? Here, our primary interest in a priori entailment bases will be in their role as guides to necessitation, which in turn are guides to fundamentality. Consider the supplementation question:

> **The Supplementation Question:** "What must be done to a necessitation base to create an a priori entailment base?"

Modal rationalists, who believe in important connections between metaphysical modality and the a priori, are likely to think that there are interesting answers to the supplementation question. Anti-rationalists, on the other hand, will think that there are no interesting answers. We can use the supplementation question to measure the strength of a rationalist view. Stronger forms of rationalism posit a tighter connection between necessitation and a priori entailment. Stronger rationalisms claim that a necessitation base needs less help, i.e. supplementation, to become an a priori entailment base.

3.3 Naive Modal Rationalism

According to *naive modal rationalism*, every necessitation base is already an a priori entailment base. No supplementation is required. This view cannot be sustained; not all necessitation is a priori. Truths containing Hesperus necessitate but don't a priori entail truths containing Phosphorous. There are trivial necessitation bases that a priori entail very little. Everything is just as it actually is is a necessitation base (call this proposition '@').[9] @ trivially necessitates every necessary truth (because any proposition necessitates the necessary truths). So it remains to be shown only that @ necessitates the contingent truths. @ necessitates every contingent truth iff, for every contingent truth C, every possible world at which @ is true is a world at which C is true. Assume that @ is true at arbitrary world w. Suppose, for reductio, that C is false at

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[9]I owe this example to Schwarz [2007].

w. Because C is false at w and true at the actual world, at w everything is not just as it actually is. @ is false at w, which contradicts our assumption. We reject the supposition that C is false at w. Therefore, @ necessitates the contingent truths in addition to the necessary. @ is a trivial necessitation base that a priori entails little to nothing. Not all necessitation bases are a priori entailment bases. Naive modal rationalism is false.

Indexical truths provide another reason to reject naive modal rationalism. A third-personal necessitation base can explicitly declare that Gabriel Oak Rabin loves playing the kazoo, and thereby necessitate that I love playing the kazoo. But such a set of truths will fail to a priori entail that I love playing the kazoo (I assume that I AM GABRIEL OAK RABIN is not knowable a priori).

Failure to include indexicals in the base will also result in failure to a priori entail non-indexical truths. Suppose one has an indexical-less necessitation base describing a universe containing two doppelganger planets. The first planet's lakes, rivers, and streams contain H_2Ol the second planet's XYZ. A priori reflection will not reveal which planet contains water and which twin-water. To determine whether one's concept WATER refers to H_2O or XYZ, one first needs to know which planet one inhabits. One needs, in the a priori entailment base, a truth that locates oneself on one planet or the other.[10] The basic point of the example is that indexical truths are required for a priori entailment even of non-indexical truths.

In sum, there are many reasons to reject the naive rationalist answer to the supplementation question. Modality and the a priori do not have a tight enough link to support the naive reply. However, the failures of naive rationalism offer lessons for how to improve one's answer to the supplementation question.

3.4   Strong Modal Rationalism

The lesson of @ is that some propositions are epistemically opaque. They necessitate much but a priori entail little. The lesson of I LOVE PLAYING THE KAZOO and WATER IS H_2O is that any a priori entailment base must include some indexical truths. Strong modal rationalism heeds these two lessons in its answer to the supplementation question. Strong modal rationalists think that, in order to become an a priori entailment base, a necessitation base must (i) be expressed in a canonical vocabulary and (ii) be supplemented with an indexical truth ℐ.

The strong modal rationalist answer to the supplementation question yields the following principle:

- **(Strong Modal Rationalist Link):** A canonically expressed semantically neutral necessitation base, supplemented with an indexical truth, a priori entails every proposition it necessitates.

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[10]The locating must be done in a first-person way. GABRIEL IS ON THE H_2O PLANET will not suffice.

An *indexical truth* is a truth that selects a privileged location, time, and person as here, now, and I, respectively. A necessitation base is semantically neutral when it is expressed in a vocabulary consisting only of semantically neutral expressions.

Semantic neutrality is first and foremost a property of concepts (or terms). I won't go into much depth regarding semantic neutrality (cf. Chalmers [2006b] and Rabin [n.d.] for further discussion), but I will give the reader the flavor of the notion. Intuitively, a concept is semantically neutral iff it is not "twin-earthable".[11] Famously, 'water' is twin-earthable. You can refer to H_2O while your twin-earth duplicate refers to XYZ. Paradigms of twin-earthable terms include 'water', 'gold', 'Hesperus', 'actual', and almost any proper name or natural kind term. Plausibly neutral terms include 'nineteen', 'and', 'friend', 'justice', 'morally right', and 'cause'. We define neutrality of propositions and of sets thereof in the obvious way, in terms of the neutrality of constituents. Semantically non-neutral representations are epistemically opaque; they tend to necessitate much that they do not a priori entail. This is why lack of neutrality impedes a necessitation base's aspirations for a career as an a priori entailment base.

The strong modal rationalist's answer to the supplementation question, embodied in the strong modal rationalist link, offers a test for necessitation bases. First step: check whether the alleged necessitation base is expressed in a canonical semantically neutral vocabulary. If it is not, express it in a semantically neutral way. Second step: check whether the base contains an indexical truth $\mathcal{I}$. If it does not, add one. Third step: check whether the result of the first two steps is an a priori entailment base. If it is not, the set of truths from which we began is not a necessitation base.[12] The scrutability argument applies this test to argue that fundamentality physicalism is false.

Two issues remain. First, is the strong modal rationalist's answer to the supplementation question correct? I.e. is the strong modal rationalist's test for necessitation bases a good one? In section 5 ("Against Strong Modal Rationalism"), I argue that it is not. Second, are the physical truths $\mathcal{P}$ semantically neutral or neutralizable? If it is not, then the strong modal rationalist's test does not apply. The next section discusses this issue.

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[11]For our purposes here, terms for which one can run a twin-earth thought experiment in the vein of Burge [1979] do not count as "twin-earthable". Any term is twin-earthable in that sense. Cf. Rabin [n.d.] for details.

[12]This test will not always yield a verdict. If the set of truths cannot be molded into a semantically neutral form, then the strong modal rationalist test yields no verdict on whether they form a necessitation base.

3.5 Semantic Neutrality and the Physical

Modal rationalists, as I have characterized them, use a priori entailment (or lack thereof) as a guide to necessitation and necessitation as a guide to fundamentality. Anyone who endorses such a strategy should insist that the truths tested be expressed in a canonical fashion. Allowing any mode of expression immediately robs the project of philosophical interest. Trivial necessitation bases like EVERYTHING IS JUST AS IT ACTUALLY IS a priori entail very little and reveal nothing about the nature of the fundamental. It is useless in adjudicating disputes between the physicalist and the dualist.

The modal rationalist's test for necessitation requires that the set of physical truths $\mathcal{P}$ be canonically expressible in a semantically neutral vocabulary. One could resist the scrutability argument by rejecting that it is possible to express the physical truths in a semantically neutral way. I wish to set this move aside. One of my goals is to find a form of physicalism, and a reply to the scrutability argument, that respects and meshes with rationalist intuitions. Rejecting semantic neutrality, an important cog in the philosophical system of existing modal rationalists (including Chalmers [1996, 2010], Jackson [1998], and Chalmers & Jackson [2001]) is a poor way to meet this goal. From here, we assume that the physical truths can be expressed in a semantically neutral fashion, either because they are semantically neutral from the start or can be re-expressed using semantically neutral vocabulary.

4 Motivations for Modal Rationalism

According to modal rationalism, there are important, potentially constitutive, connections between metaphysical modality and a priori justification. This paper attempts to resolve the tension between modal rationalism and the explanatory gap without abandoning physicalism. The reader may be wondering why I go through all the trouble. Why believe any form of modal rationalism in the first place? There is insufficient space to fully address the issue here. But I would be remiss if I did not at least outline, in broad strokes, some motivations.

4.1 The View From Above

One idea that buttresses the strong modal rationalist picture goes as follows. Imagine an incredibly intelligent and wildly imaginative idealized reasoner. Using her powers of a priori reasoning alone, the reasoner could figure out the entire configuration of modal space. She could describe every possible world down to the finest detail. I find this idea appealing.

There is a significant lacuna here. Purely a priori reasoning will not reveal to the thinker whether water

is H_2O or XYZ, or whether her concept WATER refers to H_2O or XYZ. To know that, she needs to learn how her token 'water'-representations are related to her environment - are they causally or otherwise linked to H_2O, to XYZ, or to something else? So, in a certain sense, she cannot describe it all. However, this thinker clearly knows a great deal about our world (far more than we ever will). She can, using her own vocabulary, describe the finest details of each possible world.[13] In this sense, all of modality is available to a priori reflection.

Call the general idea that a priori reflection offers access to all of metaphysical possibility *the view from above*. The view from above deflects the significance of the Kripkean necessary a posteriori and contingent a priori. Kripke is sometimes thought to have severed the Kantian rationalist connection between metaphysical modality and the a priori. But according to modal rationalists, the import of *Naming and Necessity* is more semantic than metaphysical. Kripke does not teach us that portions of modal space are blocked to a priori reflection. Instead, he demonstrates that sometimes we need a posteriori information to know what vocabulary is appropriate to describe a possibility to which a priori reason already provides access.

4.2 Other Motivations

I briefly catalog some other motivations. First, modal rationalism supports and gets support from connections between conceivability and possibility, as long one caches out the notion of conceivability, at least partly, via the a priori. Second, modal rationalism has a long and classic tradition. A host of philosophical giants, including Kant, Leibniz, and Descartes, believed in connections between metaphysical necessity and the a priori. Of course, Kripke [1972] taught us to be more careful about separating the necessary from the a priori. But we should not throw out the baby with the bathwater by severing all such connections. Third, modal rationalism vindicates the "factorization view" of the necessary a priori, according to which every necessary a priori truth can be seen as derived from a necessary a priori truth and a contingent a posteriori truth (Kripke [1972]: 109). Fourth, modal rationalism bans "brute/strong necessities", i.e. necessities for which there is no explanation. Brute necessities are very unpopular. Chalmers [2002]: section 12, Dorr [2004, 2007], Levine & Trogdon [2009], and Schwarz [2007] all deny that they exist. (Whittle [2010] disagrees.) Fifth, Chalmers [2002] argues for modal rationalism on the basis of its theoretical virtues. Modal rationalism offers a tidy picture of metaphysical and conceptual space, and allows a reduction of modality

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[13]If there are inexpressible states of the world, then the idealized thinker might not be able to describe those states. But she might be aware of, or know, those states nonetheless.

to the a priori. Whatever its warts, modal rationalism clearly has virtues.

5 Against Strong Modal Rationalism

5.1 The Recipe View

Strong modal rationalism posits a tight connection between a priori knowledge and metaphysical modality. This connection yields the Strong Modal Rationalist Link, which says that any canonically expressed semantically neutral necessitation base, appropriately supplemented with an indexical truth, is also an a priori entailment base. Why does the strong modal rationalist answer the supplementation question in this way, i.e. by positing the strong rationalist link? This section argues that the strong modal rationalist's answer to the supplementation question is based on a certain meta-semantic view: the recipe view.

According to the recipe view, each term or concept is associated with an a priori "recipe" that determines the reference of the term. For example, the a priori recipe associated with 'water' is something like "the clear wet liquid that flows in the lakes, rivers, and streams and falls from the sky as rain". If H_2O is this clear wet liquid, then water is all and only the H_2O.

The recipe view is not committed to the claim that the a priori referential recipes are captureable via pithy descriptions such as 'the clear wet liquid that flows in the lakes, rivers, and streams and falls from the sky as rain' or 'the teacher of Alexander'. We can model a term's a priori recipe as an infinite set of conditionals. The antecedent of each conditional expresses some possibility for how the world might turn out. The consequent states what 'water' refers to should reality turn out as the antecedent describes.

- If H_2O is the clear wet liquid that falls from the sky as rain and fills the lakes, rivers, and streams, then water is H_2O.

- If XYZ is the clear wet liquid that falls from the sky as rain and fills the lakes, rivers, and streams, then water is XYZ.

- If H_2O is the clear wet liquid that falls from the sky as rain, emerges from faucets, fills the oceans, lakes, and aquifers, and ..., but XYZ and not a drop of H_2O flows in the streams, then water is all and only the H_2O. (In such a case, we'd mistakenly believe, until corrected by chemists, that streams contain water.)

- et cetera...

According to *descriptivism* about proper names, each name is associated with a description that determines extension. The recipe view's a priori recipes determine reference in the same way. These a priori connections provide a type of conceptual role, or Fregean sense, for the term (Frege [1952/1892]). From here, I refer to this conceptual role, understood as the concept or term's a priori connections, which can be modeled as an infinite set of conditionals, as the concept or term's *sense*. Of course, no description or recipe can determine extension all by itself; the world determines what fits the description or recipe. But there is a clear sense in which the recipe determines reference. The recipe view preserves the spirit of descriptivism in a more sophisticated package, without being obviously susceptible to the anti-descriptivist arguments of Kripke [1972]. The two-dimensional semantic theories of Chalmers [1996, 2006a] and Jackson [1998] offer paradigms of the recipe view. Unsurprisingly, Chalmers and Jackson are rationalists.

5.2   The Embedded View

I prefer an alternative meta-semantic theory, the *embedded view*, according to which sense, understood as a priori conceptual role, does not determine reference. In the next two sections, I'll use this theory to argue against the strong modal rationalist link (5.3) and suggest an alternative picture (6.6).

On the alternative meta-semantic picture, *the embedded view*, the determination of meaning is a much messier affair than the recipe view supposes. According to the embedded view, there's no neat and clean purely a priori reference-determining function. Instead, our terms and concepts are inextricably bound up in the world. They get their meaning in large part through a practice of using those terms, and particularly by demonstratively applying those terms to items in the world. A *demonstrative application* of a term (or concept) occurs when a representational agent demonstrates some object in the world and applies the term (or concept) to that object. "*That* is water." The demonstration and/or application can occur in explicit language (written or spoken), in thought, or in perception.

One can highlight the difference between the recipe view and the embedded view using the procedure of "considering worlds as actual". Normally, when we ask what a word refers to at some imagined possible world, we consider that world *as counterfactual*. For example, we ask what 'water' refers to at the possible world containing Putnam [1975]'s twin-earth, in which XYZ, not H_2O, fills the lakes, rivers, and streams. When we consider twin-earth as counterfactual, we declare that 'water' picks out all and only the H_2O at twin-earth. But we can also consider what 'water' would have referred to, had twin-earth been actual. Here, we consider twin-earth *as counteractual*. If the actual world had turned out to be like twin-earth, then 'water' would have referred to all and only the XYZ.

A key difference between the recipe and embedded view emerges when we consider counteractuals containing no representational agents. According the recipe view, a term such as 'water' or a concept WATER can have a determinate counteractual extension in worlds where no one has ever used the term 'water' or thought with the concept WATER. To determine 'water's extension, look in that world for the clear wet liquid that flows in the lakes, rivers, and streams near the center. That liquid is the water. The world might contain no language users at all.[14]

In contrast, the embedded view denies that, when we consider worlds as counteractual, 'water' (or WATER) has any reference at all if 'water' has never been used by an agent. Schroeter [2005] agrees: "The problem is that our best interpretive methods require us to take into account how a particular token word (or thought) is causally and historically hooked up with the subject's own past representational practices and, ultimately, with the subject's environment. If this thesis is true, then we cannot come to any determinate interpretation of token expressions like 'water' or 'language' for worlds considered as actual in which those very tokens do not exist." (336) The embedded view maintains that the reference of 'water' and of WATER is highly driven by token uses of linguistic and mental representational items. If no representations exist at a world, there is no use of representation to give 'water' a referent. On this picture, the reference of 'water' is not determined by some complicated recipe a priori associated with 'water'. Instead, the fact that language users have labeled H_2O and not XYZ as 'water' makes 'water' refer to H_2O rather than XYZ. Of course, how an agent demonstratively applies their terms is partly determined by the a priori associations that the term has. But it's also determined by the agent's (potentially false) beliefs about the object of demonstration and about the term. Often an agent's demonstrative application is not guided by a strictly a priori recipe. But the demonstration plays a role in securing reference nonetheless.

Demonstrative applications provide a sort of meta-semantic "glue" that ties the term to the demonstratum. When an agent labels some object as a 'cat', that very act functions to make it more likely that the 'cat' representation type refers to objects of the demonstrated category. This is so even if the labeled entity is not, given the current extension of 'cat', a cat. Each act of demonstrative application has some meta-semantic force, however small, that pushes the reference of the term toward the demonstratum. One mislabeling will almost never alter the extension of 'cat'. However, massive mislabeling could shift the reference of the term.[15]

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[14]Chalmers [2006a]: 107-108 is quite clear that primary intensions (which are a form of referential recipe) remain defined, and have determinate extensions, at counteractually considered worlds with no language users.

[15]Evans [1973] discusses two cases that seem to demonstrate the phenomenon of continued demonstrative application functioning to meta-semantically glue a term onto an object to which the term did not originally refer. Evans (195-6) notes that the term

The embedded view needn't deny that something like an a priori recipe, conceptual role, sense, or even description plays a role in determining reference. But it denies that each term is associated a priori with a sense or recipe rich enough to determine reference. Furthermore, the meta-semantic glue that demonstrative applications provide can't be reduced to, or replaced by, a priori recipes, dispositions to apply, or beliefs.

I'd like to offer two "just so stories" about reference determination. The stories represents the two meta-semantic approaches already described. The stories admittedly caricature their targets in certain respects. But I think the stories illustrate quite effectively the differences between the two meta-semantic views.

The recipe view offers something the like the following picture of reference determination. We start in a dark room, with no contingent knowledge of the world. We come up with some term: 'water'. We then think about all the possible ways the world beyond the dark room might be, and decide what 'water' will refer to in each scenario. If the world is thus and so, water is H_2O. If the world is that and such, water is XYZ. Et cetera. Each line of the recipe corresponds to a different counteractual way the world could turn out to be. Then we leave the dark room and check how the world actually is. It turns out that H_2O is the wet clear liquid in the lakes, rivers, and streams. Voila! Water is H_2O.[16]

The embedded view offers a much messier picture of reference determination. We don't start in a dark room outside the world and decide in advance what our terms refer to, even in conditional form. Instead we start in the world, with all its pressures and demands bearing down on us. A mastodon crashes through the bushes, snorting and stomping its hooves. We point, yell, 'Danger!' and run. After making our escape, we discover a stream of cool water to slake our thirst. This substance is useful and important. We'll need to identify it again and communicate about it. We introduce a label: 'water'. "This is water," we declare. Of course, we have various beliefs about water that guide our application of the term. Perhaps we believe water to be the clear wet liquid that flows in streams. But the reference of the term is driven both by these beliefs and our dispositions to apply the term and by the history of using the term as a label for certain stuff. Importantly, our continued use of the term 'water' as a label plays a role in reference-determination that can't be reduced to any recipe, beliefs, or dispositions. And it can turn out that water is neither clear, nor wet, nor flows in the streams.

On the embedded view, demonstrative applications play a vital role in determining reference. Of course,

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'Madagascar' originally referred to a portion of mainland Africa. But Marco Polo initiated a process of misapplication - via demonstrative application - of the term to the large island we now know as 'Madagascar', eventually causing the term to genuinely refer to that large island. Evans' 'Turnip' case (206-7) involves a similar shift in reference through demonstrative (mis)application.

[16]In fairness to proponents of the recipe view, the recipes need not be completely decided in advance. The recipes can be implicit in the dispositions of language users. The main claim of the recipe view is that the reference-determining work is done cognitively, via the multi-line recipe. The job of the world is limited to determining which line of the recipe to use.

we need other representational abilities to lock our demonstrations on to objects in the world. But our ability to "lock on" to some particular in the world is a somewhat primitive ability, usually facilitated by the perceptual system. In order to demonstrate something, we don't need a description satisfied uniquely by the demonstratum. The simpler lower-level representational capacity to lock on or demonstrate items in our perceptual field facilitates the generation of the higher-level conceptual and linguistic representational capacities.

The recipe view overestimates the degree to which the generation of meaning is an intellectual or cognitive affair. The recipe view claims that users' intellects determine a conditional recipe, decided away from the world, that determines meaning. The role of the world is limited to telling us which counteractual conditional, which line of the recipe, to use. The alternative embedded view holds that the generation of meaning occurs down in the trenches. Agents use representations in their attempts to survive and thrive in the muck and helter-skelter of the world. Their assignment of meaning to representational tokens is done in a haphazard manner that fits their integration into and interaction with the world. The generation of meaning is messier and more world-bound than the recipe view or the strong rationalist suppose.

5.3   The Recipe View and the Strong Modal Rationalist Link

The recipe view fits nicely with the strong modal rationalist's answer to the supplementation question. First, the recipes are centered. Water is the clear wet liquid *around here*. The centering of the recipe fits conveniently with the strong modal rationalist's demand for an indexical element in the a priori entailment base. The indexical element indicates where "around here" is. The recipes determine intension as well as extension. They say that if H_2O is the clear wet liquid around here, then 'water' is necessarily, not just actually, H_2O. The intension of 'water' tracks the reference of 'water' across all possible worlds. It determines what is and is not metaphysically possible for water.

The basic connection between the strong modal rationalist link and the recipe goes as follows. According to the recipe view, the reference (and intension) of a term or concept can be read off the a priori recipe in combination with a centered world. The centered world tells one which line of the a priori recipe to use. The strong rationalist's semantically neutral indexically supplemented necessitation base provides the centered world.[17] The reliance on a priori entailment gives one recourse to the a priori recipe. From these ingredients,

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[17]The route from the recipe view to the strong rationalist link is not as simple as I have suggested. There is no guarantee that the a priori recipes are written in the same (likely fundamental) vocabulary as the necessitation base $\mathcal{FI}$. In other words, the centered world description $\mathcal{FI}$ might not work as input into the recipe view's a priori reference-determination function. Thus, even if the recipe view is true, the strong rationalist link might still fail. However, I wish to ignore this further problem for the strong rationalist link. Instead I focus on denying the recipe view itself, rather than the connection between it and strong modal rationalism.

one can determine the reference of all terms, and come to know all truths.

Contrast the picture of a priori entailment that flows from the recipe view with the picture that flows from the embedded view. According to the embedded view, terms might have a priori recipes, but they do not, in combination with a centered world, determine reference. A priori associations might dictate that water isn't a type of sandwich. But that leaves space for many other other reference-determining factors. According to the embedded view, the slack in the project of reference-determination is picked up by the process of world-embedded representational agents interacting (often causally) with items in their environment. In particular, language users demonstratively apply their representations to things they encounter. Thus, a semantically neutral description of the world, even supplemented with an indexical truth, will often leave one unable to determine what terms such as 'water', 'cat', and 'red' refer to. Before one can do so, one needs also to know what types of things users have demonstratively applied 'water', 'cat', and 'red' to.

5.4   Adding Demonstratives to the Recipe

Suppose that I am correct about the role that demonstrative applications play in reference-determination. It may have occurred to the reader that the recipe can fold this insight into their theory: add demonstratives to the recipe. The new and improved recipe for 'water' would be something like "the clear wet liquid to which we've applied the term 'water' continuously in the past". This objection is, I think, fundamentally correct. But it won't help strong modal rationalism.

If meta-semantics is fundamentally an a priori discipline, then, if we are liberal enough about the ingredients, the recipe view must, in some sense, be true. Once all the "on the ground" a posteriori non-semantic facts are in, it is a philosophical a priori project to determine what representations mean. One might object that meta-semantics is not a priori in this sense, but I'm willing to provisionally accept the claim. The important question then becomes, "What are the recipe's ingredients?" What types of properties, or facts, are mentioned in the antecedent of a conditional line of the recipe? The recipe view, as described above, suggested that the recipe is written in "object-level" properties such as "clear", "liquid", and "flows in the lakes, rivers, and streams". (*Object-level properties* contrast with representational properties that deal with past usage of words, concepts, or other representations.) In contrast, the embedded view suggests that, to actually determine reference, the recipe must incorporate non-object level explicitly representational facts about how agents have demonstratively applied 'water' in the past and how they are causally linked to their environment.

Let's call the view according to which referential recipes contain object-level, non-representational,

descriptions *the object-level recipe view*. In contrast, a non-object-level description explicitly mentions language, concepts, percepts, or other representations. "The stuff I've demonstratively applied 'water' to" is not object-level. When I spoke disparagingly of "the recipe view", it was the object-level recipe view against which I railed. I argue against that view in the next section. A descendant view that folds demonstrative applications into the referential recipes might succeed. But such a view won't vindicate the strong rationalist answer to the supplementation question. If demonstrative applications play a vital and irreducible role in reference-determination, then those applications must somehow be incorporated into the a priori entailment base. The strong rationalist link does not. (Section 6.6 offers an alternative weaker rationalist link that incorporates demonstratives).

5.5   Against the Recipe View

I'll continue to use 'the recipe view', leaving the "object-level" qualification implicit. Kripke [1972] argued against descriptivism about proper names, an at the time widely popular version of the recipe view. But many of Kripke's points apply when we move beyond descriptions to infinite sets of counteractual conditionals. Byrne & Pryor [2006] write that the moral of Kripke's "arguments from ignorance and error is that. . . the epistemic intension of a name like **Gödel** cannot be given by any sort of "famous deeds" description, like **the man who discovered the incompleteness of arithmetic**. Instead, the epistemic intension has to be given by something like **the person called 'Gödel' by those from whom I acquired that name**." Byrne and Pryor are claiming that an object-level recipe does not actually determine reference. A representational description ("the person called 'Godel' ") does. The problem with object-level, or "famous deeds" descriptions, is not that they are finite. Moving to infinitary conditionals with more object-level deeds, famous and mundane, does not help. The problem is that the recipe is object-level. Such a description will always fail to incorporate the vital role that the representational actions of world-embedded agents, like demonstratively applications, play in determining reference.

The failure of the recipe view with respect to proper names has been widely accepted in philosophy. Causal descriptivism, according to which a meta-linguistic recipe like 'the person called 'Godel' by those from whom I acquired the name', has replaced the descriptivist recipe view that Kripke attacked. Chalmers and Jackson maintain representational (non-object-level) recipe theories of proper names, but they hold on to the classic (object-level) recipe view about other terms, including natural kind terms. But object-level recipes do little better with respect to other terms than they do with names. A modification of an example from Hilary Putnam will illustrate the point.

Putnam [1962]'s robotic cat thought experiment illustrates that the role of demonstrative application is, in many ways, primary, and can trump the a priori object-level recipe. Putnam imagined a scenario in which the creatures we'd been calling 'cats', whom we invited to warm our laps and join our families, were robots all along. Putnam persuasively argued that if this turned out to be so 'cat' would refer to a certain type of robot, and not to any animal. If there is an a priori object-level recipe associated with 'cat', it includes features like "furry", "animal", and "purrs". We can easily modify Putnam's case so that, through demonstrative application of 'cat' to a certain type of robot, 'cat' comes to refer to something that is neither an animal (cats are robots), nor furry (cats have soft scales, not fur), nor purrs (cats are mute, but use telepathy to give humans auditory hallucinations). In this case at least, the work of reference determination appears to be done by demonstrative applications, not a priori associated object-level features. Demonstrative applications can even overcome and outweigh a recipe that pulls reference in the opposite direction (e.g. toward furry animals). A similar case can be cooked up to illustrate that 'water' need not refer to a clear wet liquid that flows in the lakes, rivers, and streams.[18]

6 The Demonstrative Reply to the Scrutability Argument

6.1 The Demonstrative Reply

According to *the demonstrative reply* to the Scrutability Argument, the failure of a priori entailment from the physical truths to the consciousness truths stems from a crucial and ineliminable meta-semantic link between phenomenal concepts and terms (such as RED_{ph}/'red_{ph}' and $PAIN_{ph}$/'$pain_{ph}$')[19] and demonstrative application of those concepts and terms to conscious experiences. The failure of a prior entailment is an expected consequence of this meta-semantic link and is not symptomatic of the presence of mentality in the fundamental bedrock of reality.

The demonstrative reply has three components.

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[18] My arguments against the recipe view are reminiscent of Goff [2017]'s claim that Chalmers [2010]'s arguments beg the question against the physicalist by adopting a semantic framework that assumes that the dominant type of physicalism (type-B physicalism) is false. That semantic framework (two-dimensional semantics (Chalmers [2006b])) does involve the idea that concepts have a priori recipes for reference. But there are a lot of difference between Goff's approach and my own. For one, Goff rejects that framework because it allegedly "begs the question", not because of any positive argument for the falsity of the view. I have offered argumentation that the recipe view is false. (Goff [2017]: 96-97)

[19] A *phenomenal concept* applies to experiences and characterizes an experience according to what it is like to be the subject of that experience. For example, RED_{ph} (the subscript 'ph' denotes 'phenomenal') is the phenomenal, experiential, concept of red. RED_{ph} applies to experiences with a certain qualitative character (you know the one). Neither light-waves nor objects can be red_{ph}. Tomatoes, fire trucks, and strawberries are red, but they cause red_{ph} sensations. Analogous comments apply to *phenomenal terms*, such as 'red_{ph}' and '$pain_{ph}$'. The English term 'red' is likely polysemous between, or a mongrel of, the red-terms that apply to light waves, to surfaces, and to sensations.

(1) Demonstratives are representationally basic.

(2) There is an essential and ineliminable connection between demonstratives and our representations for conscious experience (particularly phenomenal concepts and terms).

(3) (1) + (2) are responsible for the epistemic gap between the physical and consciousness.

I discuss these three features in further detail below.

6.2 Disagreements about Supplementation

An answer to this supplementation question, "What must be done to a necessitation base to create an a priori entailment base?", creates the framework for squeezing metaphysical juice (claims about necessitation and fundamentality) from epistemic fruit (claims about a priori entailment). The Scrutability Argument relies on the strong rationalist answer to the supplementation question, and its robust connection between modality and the a priori, embodied in the strong modal rationalist link.

We might ask why a necessitation base needs any help at all a priori entailing all truths. The basic reason is that necessitation (and fundamentality) is, first and foremost, a property of states of affairs, not a property of representations. Certain representations (BOB IS A BACHELOR) necessitate other representations (BOB IS NOT MARRIED) because of relations between the objects, properties, and wordly states of affairs those representations denote. A priori entailment, however, is solely a relation between representations. The scrutability argument seeks to use a priori entailment as a guide to necessitation and fundamentality. We must take care when we shift the locus of inquiry from the things themselves to our representations of them. The move to the representational level introduces complications. We've seen several such complications: the need to express truths in a canonical vocabulary and the need to include an indexical truth.

I argued earlier (section 3.3: "Naive Modal Rationalism") that the indexical truth must be included in any a priori entailment base in order to entail indexical truths (I LIVE IN THE WHITE HOUSE) and even certain third-personal truths (WATER IS H_2O). These are reasons associated with success. In order to *succeed* as an a priori entailment base, any such base must include an indexical truth. But let us inquire more deeply into the need for the indexical truth. A priori entailment bases must include indexical truths because indexicality, our perspective on the world, is representationally basic. A priori entailment bases must include representationally basic features. But the inclusion of a representationally basic feature in an a priori entailment base does not entail that this feature is metaphysically basic (i.e. metaphysically fundamental). The need to include I

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AM IN THE WHITE HOUSE in the a priori entailment base does not indicate that I, or the White House, lie in the bedrock of reality.

Before we can draw conclusions about fundamentality from claims about a priori entailment, we must first carefully investigate which features of a priori entailment bases are *merely* representationally basic. The indexical truth is one such feature. *The demonstrative reply* to the scrutability argument against physicalism claims that demonstratives are similarly representationally basic.[20] As a result, any a priori entailment base must include some demonstratives. Furthermore, the demonstrative reply claims a vital connection between our representations for conscious experience (phenomenal concepts and terms) and demonstratives. This connection prohibits the physical truths (even when semantically neutral and supplemented with an indexical truth), when not aided by demonstrative truths, from a priori entailing the truths about consciousness.

According to the demonstrative reply, the connection between a priori entailment and necessitation is not as tight as the strong modal rationalist alleges. The strong modal rationalist, relying on the recipe view of how our representations acquire their meanings, ignores the crucial meta-semantic role of demonstratives and underestimates how much assistance a necessitation base requires to become an a priori entailment base. Because of the vital role that demonstrative applications play in the determination of reference, the recipe view is false. As a result the strong modal rationalist link, which underlies premise (P2) of the scrutability argument, fails. Any a priori entailment base must include some demonstrative truths. The demonstrative reply denies premise (P2) of the scrutability argument.

It is easy enough to deny the strong modal rationalist link, an ambitious claim of abstruse modal meta-physics. But the demonstrative reply offers a diagnosis of where the link goes wrong. The link fails to acknowledge the vital meta-semantic role that demonstratives play. Without demonstrative truths in the a priori entailment base, we can't determine the reference of our terms (concepts) or the truth values of our sentences (propositions). This is why a priori entailment from a demonstrative-less base fails. Furthermore, the demonstrative reply provides a physicalistically respectable explanation of the epistemic gap between the physical and consciousness. The epistemic gap arises from (i) the representationally basic nature of demonstratives and (ii) the essential and ineliminable connection between demonstratives and our representations of consciousness. (More on this "essential and ineliminable connection" in section 6.4). The epistemic gap does not stem from the fact that the fundamental features of our world include consciousness itself (a form

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[20]One might worry what the difference between an indexical and a demonstrative really comes to. According to Kaplan [1989], a demonstrative requires an accompanying *demonstration*, while the reference of an indexical is resolved by other features of the context, such as the time, place, or speaker (490). I resist taking any substantive stand. The rough and ready distinction should be clear enough for purposes here. None of the argumentation depends on a specific subtle understanding of the distinction.

of dualism).

The demonstrative reply offers the tools to agree with much of the thinking behind the Scrutability Argument while resisting the final step to dualism. Proponents of the demonstrative reply can admit that the strong rationalists are correct about the failure of a priori entailment between the physical and consciousness. They can accept the conceivability of zombies and inverted qualia. Strong rationalists claim that consciousness truths (or something of their ilk) must be added to any a priori entailment base. Proponents of the demonstrative reply can agree with this claim as well. Consciousness must be included because (a) demonstratives must be included in any a priori entailment base and (b) there is a tight connection between demonstratives and consciousness.

Strong rationalists infer from the need to include consciousness in the a priori entailment base to a need to include consciousness on the roster of fundamentalia.[21] The demonstrative reply resists this final step. The need to include consciousness stems from the need to include demonstratives, which are representationally basic, and not from the metaphysically basic (i.e. fundamental) nature of consciousness itself. Lastly, the demonstrative reply, unlike other anti-rationalist replies that deny (P2), is amenable to modal rationalism. In fact, the demonstrative reply suggests a weaker view that remedies the flaws of strong rationalism (section 6.6: "Toward A More Moderate Rationalism").

6.3   Comparison to other Demonstrative Oriented Replies

Broadly speaking, the demonstrative reply is a version of *the phenomenal concept strategy*. The phenomenal concept strategy locates the explanatory gap between the physical and consciousness in special features of our representations for conscious experience (e.g. phenomenal concepts) rather than in a metaphysical gap resulting from dualism.

Many phenomenal concept strategists have noted the special or direct way in which our phenomenal concepts pick up on or even integrate experience itself (Balog [2012], Loar [1990], Papineau [1998]). Chalmers [2003b], while not a proponent of the phenomenal concept strategy, writes of an "experience... that is being attended to or taken up into the concept" (239). Others have suggested that phenomenal concepts are, in some way or other, demonstrative (Loar [1990], Hawthorne [2002]). My demonstrative reply follows in this track, but there are important differences between my demonstrative reply and existing demonstrative accounts of phenomenal concepts.

The most important difference between my demonstrative reply and existing demonstrative accounts is

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[21]Or, at least, they infer a need to include *something* more than what is described in $\mathcal{P}$.

that, on my account, the role of demonstratives is strictly meta-semantic. The difference can be expressed using the Fregean notion of *sense* (Frege [1952/1892]. Other accounts (e.g. Loar [1990]: 87) suggest that demonstratives enter into the sense of a phenomenal concept. In contrast, on my view demonstratives play a vital role in making it the case that phenomenal concepts have the sense and reference that they do, but demonstratives need not enter into the sense proper. My story about phenomenal concepts is *meta-semantically demonstrative*. In contrast, other accounts are *semantically demonstrative*.

I'll attempt to explain the difference between semantically and meta-semantically demonstrative concepts. Suppose I introduce a term by stipulating that 'whapow' is to mean *this sound* (slapping my hands against my thighs). I thereby generate a semantically demonstrative term 'whapow'. Most terms are not semantically demonstrative. 'Water', 'cat', 'koala', 'friend', and 'Africa' do not function like 'whapow'. But, according to the embedded view, many non-semantically demonstrative terms are meta-semantically demonstrative, including 'water', 'cat', and, most importantly, the phenomenal term 'red$_{ph}$'. They are meta-semantically demonstrative because demonstrative application plays a vital role in the determination of reference for those terms.[22]

Semantically demonstrative accounts of phenomenal concepts run into a familiar problem: it's just implausible that phenomenal concepts are demonstrative concepts (cf. Chalmers [2003b, 2010] for detailed criticism). RED$_{ph}$ seems quite unlike WHAPOW. The meaning of RED$_{ph}$ has more meat on its bones. As an example, consider Hawthorne [2002]'s demonstrative account of Mary's epistemic progress upon leaving the black and white room. According to Hawthorne, Mary knows before leaving the black and white room that a ripe strawberry will give her a red experience. When she actually sees the strawberry, she comes to know that a ripe strawberry will give her *this* experience. Mary's epistemic progress is constituted by her gaining of demonstrative knowledge of something she already knew. This view grossly underestimates Mary's epistemic progress. There are no rhinoceroses in the black and white room, but Mary knows all about them. Further, we can suppose that Mary has never seen a rhinoceros or been in a position to demonstrate one. When she is released from the black and white room into the Maasai Mara, she sees her first rhinoceros and comes to know that *this* is a rhinoceros. This type of epistemic progress strikes most as unimpressive and vastly different from Mary's epistemic gains with respect to phenomenal red. But according to the semantically demonstrative account, they're on a par. This strikes many, including myself, as implausible. This is the main criticism of Chalmers [2010] against these accounts: "phenomenal knowledge is not a variety

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[22]Burge [1982] agrees that kind terms in general (not just phenomenal terms) are meta-semantically demonstrative in the sense explained.

of indexical or demonstrative knowledge at all." (163) According to my demonstrative reply, phenomenal knowledge is no more indexical or demonstrative than knowledge of cats. Neither is indexical or demonstrative, but both contents, in particular the concepts CAT and RED$_{ph}$, get their meaning secured partly by reliance on demonstrative applications to cats and consciousness, respectively. This makes my view, unlike that of Hawthorne [2002], Ismael [1999], or Perry [2001], immune to Chalmers' main criticism.

Two demonstrative-oriented accounts deserve special mention. According to Perry [2001], phenomenal knowledge (which Jackon's Mary lacks) is a variety of *reflexive content*, a genus of which indexical and demonstrative content are species. This view suffers from the same flaws as Hawthorne's. In additional, Perry's solution requires commitment to a type-type mind-brain identity theory (Perry [2004]: 174). An identity-theory is certainly physicalist, but it is one of the strongest most committal varieties. I prefer a weaker physicalism on which the mind, much like koalas and quasars, is non-fundamental and arises from, or is grounded in, physical fundamentalia to which the mind is not identical. The fact that my approach is compatible with both stronger and weaker brands of physicalism, while Perry's requires the strongest form, is a point in favor of my approach.

Ismael [1999] also attempts to dissolve the metaphysical issues arising from the hard problem by focusing on our perspective on the world, in particular demonstratives. Ismael, like myself, stresses the representationally basic nature of demonstratives and their fundamental role in locking us onto the world. However, Ismael's picture comes with even more baggage than Perry's. Hers is a variation on the sense-datum theory, in which all interaction with the world occurs through a screen of conscious experience, and the only entities one can truly demonstrate ("genuinely ostensively identity", 358), and with which one is truly acquainted, are experiences. I disagree; one can demonstrate many types of entities, from experiences to cats to water.

Importantly, while many of these authors focus on demonstratives, indexicals, and/or perspectivality, none of them discuss the interplay of those views with modal rationalism and its role in anti-physicalist argumentation. One could view each of the extant demonstrative-oriented accounts as motivation for rejecting rationalism outright. In contrast, in section 6.6 I discuss how to use the embedded view to motivate a fix for the rationalist agenda. The ability of a demonstrative-oriented account to resolve the tension between the epistemic gap, modal rationalism, and physicalism, is, to my knowledge, completely unexplored.

Semantically demonstrative accounts have a nice story about the epistemic gap between the physical and consciousness. In the philosophy of a priori entailment, it is well understood that exceptions must be made for demonstratives (cf. Chalmers [2012]: 285-7). In the same way that one can't get first-person

indexical truths from third-person truths, one can't get demonstrative truths either. Demonstrative truths are representationally basic in the manner described in the previous section. If truths about consciousness employ phenomenal concepts, and phenomenal concepts are demonstrative, then truths about consciousness are demonstrative. One should not expect a priori entailment of demonstrative truths from non-demonstrative truths (including $\mathcal{PJ}$).Semantically demonstrative accounts pay a steep price for their nice story about the epistemic gap. They commit themselves to an implausible account of the content of phenomenal concepts. Phenomenal concepts seem quite unlike the concepts WHAPOW or Kaplan [1970]'s 'dthat'. Mary's epistemic progress is more substantive than the move from "tomatoes will cause a red_{ph} experience" to "tomatoes will cause this experience."

The meta-semantically demonstrative account aims for the best of both worlds. Because of the connection between phenomenal concepts and demonstratives, we should expect an epistemic gap between the phenomenal truths and the physical truths and not draw anti-physicalist conclusions from it. But because the connection to demonstratives is meta-semantic rather than semantic, my demonstrative reply avoids the unsavory and implausible claims about the content of phenomenal concepts to which semantically demonstrative accounts are committed.

To reap the benefits of semantically demonstrative accounts (i.e. a nice physicalistically respectable story about the epistemic gap), a meta-semantically demonstrative account requires legwork above and beyond that required for the semantic approach. Semantically demonstrative accounts get the simple explanation of the epistemic gap: "Phenomenal truths are demonstrative. Failure of a priori entailment stems from this fact about demonstratives, not dualism. End of story." My demonstrative reply requires explaining why the meta-semantic dependence of phenomenal concepts on demonstratives entails a failure of a priori entailment. The embedded view provides this explanation. Demonstratives play a vital role in the determination of reference. They play a particularly important role with phenomenal concepts (cf. 6.4). If you don't know what 'red_{ph}' has been applied to in the past, you can't know what 'red_{ph}' refers to, and you can't figure out the 'red_{ph}' truths. Because the demonstrative applications upon which the reference of 'red_{ph}' depends do not appear in the physical a priori entailment base, that base fails to a priori entail the truths about red_{ph}. This story about the epistemic gap between the physical and consciousness falls out of the meta-semantically demonstrative account of phenomenal concepts, and in no way supports metaphysical dualism.

6.4 The Ineliminable Connection Between Phenomenal Concepts and Demonstratives

I now explain the previously mentioned sense in which our representations of consciousness, particularly phenomenal concepts, have an "essential and ineliminable connection" to demonstrative applications. The point is best made by considering the following rejoinder to the demonstrative reply, which I've encountered many times.[23] "Perhaps the embedded view is correct as a meta-semantic theory of natural language and of the concepts limited reasoners such as ourselves employ. But questions about a priori entailment are to be decided by considering all the types of reasoners, languages, and concepts there could be. We must look beyond our cognitive limitations. The recipe view is true for some language and conceptual scheme, emloyed by beings with cognitive abilities far beyond ours. If so, then dependence on demonstrative application is irrelevant, because this dependence is a contingent feature of natural language and thought, rather than a necessary feature of representational capacities more generally."

Let's flesh out this intriguing line of thought. Call the envisioned language and conceptual scheme utilized by powerful God-like reasoners who forsake demonstrative application *the god language*. The god-language contains a term 'water^g', which refers to all and only the water. The gods are computationally unlimited, vastly imaginative, and meticulous in their creation of language. When they christen a term, they imagine every possible way their world could be, and state what the term would refer to in each counteractual scenario. The gods explicitly lay out the recipes, inscribing them in their lawbook of meaning. (Ignore complications that arise from thinking too hard about how even gods might carry out this infinite task.) The dialectic here will operate mostly at the level of language, but we could adopt a similar understanding of god-concepts.

How does the possibility of a god language, for which the recipe view seems the correct meta-semantic theory, increase the plausibility of a priori entailment from a demonstrative-less base? Because the god-language seems not to meta-semantically depend on demonstrative application, and its terms have explicitly laid out a priori referential recipes, a priori entailment of the god-language truths won't run into the demonstrative-oriented problems we saw in section 5.3 (p17). For example, the a priori recipe associated with 'water^g' has a line that explicitly says, "If $\mathcal{FJ}$, then the water is all and only the H$_2$O^g (and necessarily so)." With this a priori recipe and $\mathcal{FJ}$ in hand, one does not need to first know what one has demonstratively applied 'water^g' to in the past in order to learn the reference of 'water^g'. The demonstrative obstacle to a priori entailment of the god language truths seems to have been removed.

Let's suppose that the result of resort to the god-language is a priori entailment of a god-language description of the world. The gods will know a great deal about water, cats, and Africa. But their knowledge will not proceed via the concepts WATER, CAT, and AFRICA. Instead it will involve the concepts WATER^g, CAT^g, and AFRICA^g. In that sense, the resulting description is incomplete. It fails to include truths involving WATER. But in another sense the description is complete, or close enough. The gods can describe the world in excrutiating detail.

I have two responses. First, the god-language truths about 'cats^g', 'water^g', and 'Africa^g' are not on equal footing with the 'cat', 'water', and 'Africa' truths. 'water^g' is explicitly stipulated by the gods to exist whenever certain microphysical conditions obtain. This makes 'water^g exists' seem like a mere redescription of microphysical goings-on, rather a genuine macrophysical truth like 'water exists'. Second, and more importantly, not even gods can avoid the meta-semantic dependence of phenomenal concepts and terms on demonstrative applications to conscious experience.

Any genuinely phenomenal term (concept) will rely on past demonstrative applications, either of that term (concept) or another phenomenal term or concept. It's easy enough to create a term that refers to a type of experience without resorting to demonstratives. I hereby introduce the term 'gluub', which I stipulate refers to Robert Zimmerman's favorite type of color experience. But 'gluub' is not a genuinely phenomenal term (like red$_{ph}$ or pain$_{ph}$), because it isn't associated with conscious experience in the right way. For starters, there's no phenomenality - no redness or the like - in the term's sense. Eventually, to lock one's phenomenal term (concept) on to its referent, one must point and say, "That's the type of experience I'm talking about."

Imagine the gods attempting to create a god-language term 'red$_{ph}$^{g}', without relying at all on demonstratives. They might describe red$_{ph}$^{g} as the type of experience between orange$_{ph}$^{g} and violet$_{ph}$^{g}. This merely passes the buck. 'Orange$_{ph}$^{g}' and 'violet$_{ph}$^{g}' will either get their reference secured (at least partly) through demonstrative application ("*This* is orange$_{ph}$^{g}!") or rely on other terms whose reference was secured demonstratively. Eventually, phenomenal terms must meta-semantically track back to, and rely on, demonstrative application to a conscious experience.

To my ear, this claim about the ineliminable connection between demonstration of experience and phenomenal terms and concepts rings true. Gods who have never consciously experienced color won't have any color phenomenal concepts precisely because there are no color experiences for them to demonstrate. Without the ability to rely on demonstration of conscious experience, the gods will be in an epistemic situation

much like Jackson's Mary (Jackson [1982, 1986]). If this is correct, then even in the god-language, a priori entailment of the phenomenal truths is only possible from a base that records the demonstrative applications upon which phenomenal terms depend. One can't avoid the need for demonstratives.

The resulting picture yields a difference between representations for conscious experience and other representational capacities. Our representations for water, cats, and Africa, meta-semantically rely on demonstratives just as much as our representations for consciousness (i.e. phenomenal terms and concepts) do. But the meta-semantic link between our representations for conscious experience (i.e. phenomenal terms and concepts) and demonstratives is *ineliminable*. We, or some god-like creatures, might be able to get on to the cats, water, and Africa, without using demonstratives. But conscious experience can't be accessed in the same way. Consciousness must be demonstrated.

6.5   The Hard Problem of Cats

According to the demonstrative reply, the epistemic gap between the physical and consciousness is at least partly a result of the meta-semantic role of demonstratives in generating the reference of phenomenal concepts and terms. But I've claimed that demonstrative applications play a vital meta-semantic role for non-phenomenal terms as well, including 'cat', 'water', and 'Africa'. My story suggests a lack of a priori entailment, and an epistemic gap, between the physical truths and the cat-truths. But there's a hard problem of consciousness, and no hard problem of cats. What gives?

I make several points in response. First, "the hard problem of consciousness" is not purely an issue of a priori entailment. There are lots of a posteriori difficulties associated with placing consciousness in our scientific understanding of the natural world. All the issues associated with "the hard problem" don't ultimately trace back to a lack of a priori entailment between physics and consciousness. Second, it's not so clear that there is a priori entailment from the physical truths to the cat-truths. I think the absence of demonstratives places serious obstacles to a priori entailment of cat-truths. Third, and most importantly, the remarks of the previous section (6.4) provide the disanalogy between cats and consciousness that the objection seeks. The connection between our representations of consciousness and demonstrative application to experience is ineliminable. The connection to cats is not.

6.6   Toward A More Moderate Rationalism

I've argued that the scope of a priori reasoning is not as vast as the strong modal rationalists supposed. This might suggest that there are no interesting answers to the supplementation question; it should be abandoned.

However, I'm hesitant to give up; this section suggests an amendment to the rationalist programme.

The embedded view stresses the importance of demonstrative applications in the determination of meaning. To know what 'water' refers to, we need to know what we've applied our term 'water' to in the past. This point suggests an amendment to the strong modal rationalist's proposed answer to the supplementation question: we could add a demonstrative truth to the a priori entailment base. A *demonstrative truth* $\mathcal{D}$ is a set of pairings of representational tokens with the demonstrata to which those tokens were applied. For example, if I once called a particular stream s 'water', then the pair ⟨'water', s⟩ appears in $\mathcal{D}$. For every time an agent demonstrated some particular(s) and labeled it as an F, the pair ⟨F, the demonstrated particular(s)⟩ appears in $\mathcal{D}$. The demonstration and/or labeling can occur in language, thought, or perception.

The moderate rationalist answer to the supplementation question says that a necessitation base, in order to become an a priori entailment base, must be semantically neutral and supplemented with an indexical truth and a demonstrative truth. This base, which we might call $\mathcal{N}, \mathcal{I}, \mathcal{D}$ ($\mathcal{N}$ for necessitation, $\mathcal{I}$ for indexical, $\mathcal{D}$ for demonstrative), a priori entails all truths. Because the scope of a priori reasoning is not as vast as the strong rationalist presumes, a necessitation base needs additional help to become an a priori entailment base. $\mathcal{D}$ provides this help. We get the Moderate Modal Rationalist Link.

> **(Moderate Modal Rationalist Link):** A semantically neutral necessitation base, supplemented with an indexical truth and a demonstrative truth, a priori entails every truth.

Call any form of modal rationalism that endorses this link (and nothing stronger) *'Moderate (Modal) Rationalism'*. Moderate Rationalism satisfies many of section 4's motivations. It retains a prohibition on brute unexplained metaphysical necessity. All necessary truths can be explained, on a priori grounds, from the necessitation base combined with the indexical and demonstrative truths. Like Strong Modal Rationalism, Moderate Rationalism retains the spirit of the view from above and the factorization view of the necessary a priori. Moderate rationalists disagree with strong rationalists, claiming the idealized a priori reasoner needs a little more information (provided by the demonstrative truth) before she can figure out how to properly describe all of modal space. As result, this moderate form of modal rationalism won't sanction the anti-physicalist premise (P2) of the scrutability argument. The Moderate Modal Rationalist Link is an ambitious thesis in the philosophy of modality. It would be an interesting result and a vindication of the rationalist programme if all truths could be known on the basis of $\mathcal{N}\mathcal{I}\mathcal{D}$.

7 Conclusion

The metaphysical difficulties surrounding the hard problem of consciousness revolve around a tension between three claims.

> **(Physicalism)** All the fundamental constituents of reality are physical.

> **(Epistemic Gap)** There is an epistemic gap between the physical and conscious experience.

> **(Modal Rationalism)** There are important connections between metaphysical modality and a priori justification.

Physicalism is a purely metaphysical thesis about the nature of the fundamental constituents of reality and the structure of modal space. The Epistemic Gap, on the other hand, is soundly epistemic and representational. Modal Rationalism gives this epistemic thesis metaphysical bite.

I hope to have highlighted that the tension relies on a certain interpretation of modal rationalism and a particular answer to the supplementation question. Given the failure of naive rationalism (sect. 3.3), everyone admits that there is a gap between necessitation and a priori entailment; a necessitation base needs help to a priori entail all truths. Rationalists can then debate the size of the gap. This is, I think, an important and rarely appreciated point. It is independent of the demonstrative reply or of any account of the epistemic gap. It opens up space for a variety of forms of modal rationalism and for novel forms of a priori physicalism. Chalmers' strong rationalism is not the only game in town. That view relies on a particular view of the strength of the connection between modality and the a priori as well as a specific meta-semantic view (the recipe view). I have argued that this view is false. We should prefer a more moderate rationalism.

One can resolve the tension by denying physicalism (Chalmers [1996]) or by denying the epistemic gap (Jackson [2005], Braddon-Mitchell [2003]). But the easiest and most popular response to the scrutability argument is to give up the connection between the epistemic and the metaphysical that the rationalist posits. There are many ways to do this. One could reject inferences from conceivability to possibility or reject the search for the fundamental constituents of reality via the search for a set of truths on the basis of which all other truths can be known a priori.

However, I believe we should not be so quick to reject modal rationalism. I have already laid out my reasons. If we can, we should preserve rationalist connections between the epistemic and the metaphysical, between explanation and fundamentality, and between modality and the a priori. The Demonstrative Reply

offers an appealing and well-motivated response to the Scrutability Argument Against Physicalism and the trilemma above. It is compatible with ambitious and substantive forms of modal rationalism. The Demonstrative Reply should appeal to the rationalist physicalists, a group of which I proudly count myself a member.

References

Balog, Katalin. 2012. Acquaintance and the Mind Body Problem. *Pages 16–43 of:* Hill, Christopher, & Gozzano, Simone (eds), *New Perspectives on Type Identity: The Mental and the Physical.* Cambridge University Press.

Braddon-Mitchell, David. 2003. Qualia and Analytical Conditionals. *Journal of Philosophy*, **100**, 111–135.

Burge, Tyler. 1979. Individualism and the Mental. *Midwest Studies in Philosophy*, **IV**, 73–122.

Burge, Tyler. 1982. Other Bodies. *Pages 97–120 of:* Woodfield, A. (ed), *Thought and Object: Essays on Intentionality.* Clarendon Press.

Byrne, Alex, & Pryor, James. 2006. Bad Intensions. *In:* Garcia-Carpintero & Macia [2006].

Chalmers, David. 1996. *The Conscious Mind.* Oxford: Oxford University Press.

Chalmers, David. 2002. Does Conceivability Entail Possibility? *Pages 145–200 of:* Hawthorne, John, & Gendler, Tamar Szabo (eds), *Conceivability and Possibility.* Oxford University Press.

Chalmers, David. 2003a. Consciousness and Its Place in Nature. *Pages 102–142 of:* Stephen Stich, Ted Warfield (ed), *The Blackwell Guide to Philosophy of Mind.* Malden, MA: Blackwell.

Chalmers, David. 2003b. The Content and Epistemology of Phenomenal Belief. *Pages 220–272 of:* Smith, Q., & Jokic, A. (eds), *Consciousness: New Philosophical Perspectives.* Oxford.

Chalmers, David. 2006a. The Foundations of Two-Dimensional Semantics. *In:* Garcia-Carpintero & Macia [2006].

Chalmers, David. 2006b. Two-Dimensional Semantics. *Pages 574–606 of:* Lepore, Ernest, & Smith, Barry C. (eds), *Oxford Handbook of Philosophy of Language.* New York: Oxford University Press.

Chalmers, David. 2010. The Two-Dimensional Argument Against Materialism. *Pages 141–191 of: The Character of Consciousness.* Oxford University Press.

Chalmers, David. 2012. *Constructing the World.* Oxford: Oxford University Press.

Chalmers, David, & Jackson, Frank. 2001. Conceptual Analysis and Reductive Explanation. *Philosophical Review*, **110**, 315–61.

Dorr, Cian. 2004. Non-Symmetric Relations. *Pages 155–92 of:* Zimmerman, Dean W. (ed), *Oxford Studies in Metaphysics*, vol. 1. Oxford: Oxford University Press.

Dorr, Cian. 2007. There Are No Abstract Objects. *Pages 32–63 of:* Sider, Theodore, Hawthorne, John, & Zimmerman, Dean W. (eds), *Contemporary Debates in Metaphysics.* Oxford: Blackwell.

Evans, Gareth. 1973. The Causal Theory of Names. *Proceedings of the Aristotelian Society*, **47**, 187–208.

Fitch, Frederic. 1963. A Logical Analysis of Some Value Concepts. *The Journal of Symbolic Logic*, **28**, 135–142.

Frege, Gottlob. 1952/1892. On Sense and Reference. *In:* Geach, Peter, & Black, Max (eds), *Translations of the Philosophical Writings of Gottlob Frege*. Oxford: Blackwell.

Garcia-Carpintero, Manuel, & Macia, Josep (eds). 2006. *Two-Dimensional Semantics*. Oxford University Press.

Goff, Philip. 2017. *Consciousness and Fundamental Reality*. New York, USA: Oxford University Press USA.

Hawthorne, John. 2002. Advice for Physicalists. *Philosophical Studies*, **108**, 17–52.

Ismael, Jenann. 1999. Science and the Phenomenal. *Philosophy of Science*, **66**(3), 351–69.

Jackson, Frank. 1982. Epiphenomenal Qualia. *Philosophical Quarterly*, **32**, 127–136.

Jackson, Frank. 1986. What Mary Didn't Know. *The Journal of Philosophy*, **83**, 291–95.

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

Jackson, Frank. 2005. The Case for A Priori Physicalism. *Pages 102–42 of:* Nimtz, Christian, & Beckermann, Ansgar (eds), *Philosophy-Science-Scientific Philosophy, Main Lectures and Colloquia of GAP 5, Fifth International Congress of the Society for Analytical Philosophy*. Mentis.

Kaplan, David. 1970. Dthat. *Syntax and Semantics*, **9**, 221–43.

Kaplan, David. 1989. Demonstratives. *In:* Almog, Joseph, Perry, John, & Wettstein, Howard (eds), *Themes from Kaplan*. New York: Oxford University Press.

Kripke, Saul. 1972. Naming and Necessity. *Pages 253–355, 763–769 of:* Davidson, Donald, & Harman, Gilbert (eds), *Semantics of Natural Language*. Dordrecht: Reidel. Revised edition published in 1980 as *Naming and Necessity* (Cambridge, MA: Harvard University Press).

Leuenberger, Stephan. 2014. Grounding and Necessity. *Inquiry : An Interdisciplinary Journal of Philosophy*, **57**(2), 151–174.

Levine, Joseph. 1983. Materialism and qualia: The explanatory gap. *Pacific Philosophical Quarterly*, **64**, 354–361.

Levine, Joseph, & Trogdon, Kelly. 2009. The modal status of materialism. *Philosophical Studies*, **145**, 351–362.

Loar, Brian. 1990. Phenomenal States. *Philosophical Perspectives*, **4**, 81–108.

Papineau, David. 1998. Mind the Gap. *Philosophical Perspectives*, **12**, 373–89.

Perry, John. 2001. *Knowledge, Possibility, and Consciousness*. MIT Press.

Perry, John. 2004. Précis of "Knowledge, Possibility and Consciousness". *Philosophy and Phenomenological Research*, **68**(1), 172–181.

Putnam, Hilary. 1962. It ain't necessarily so. *Journal of Philosophy*, **22**, 658–71.

Putnam, Hilary. 1975. The Meaning of 'Meaning'. *Pages 215–71 of: Mind, Language and Reality: Philosophical Papers, volume 2*. Cambridge: Cambridge University Press.

Rabin, Gabriel. 2013. *Mind, Modality, and Meaning: Toward a Rationalist Physicalism*. Ph.D. Dissertation, University of California Los Angeles.

Rabin, Gabriel Oak. How to Twin-Earth a Phenomenal Concept. *MS*.

Rabin, Gabriel Oak. MS. Fundamentality Physicalism.

Salmon, Nathan. 1986. *Frege's Puzzle*. Cambridge, MA: MIT Press.

Schaffer, Jonathan. 2010. Monism: The priority of the whole. *The Philosophical Review*, **119**(1), 31.

Schroeter, Laura. 2005. Considering Empty Worlds as Actual. *Australasian Journal of Philosophy*, **83**(3), 331–347.

Schwarz, Wolfgang. 2007. Conceptual Metaphysics and Modal Metaphysics. *In:* Helen Bohnse, Kirstin Dreimann, & Walter, Sven (eds), *Selected Papers Contributed to the Sections of GAP.6, Sixth International Congress of the German Society for Analytical Philosophy*. Paderborn: Mentis.

Whittle, Bruno. 2010. There Are Brute Necessities. *Philosophical Quarterly*, **60**(238), 149–159.