The Epistemological Challenge of Revisionary Metaphysics

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Introduction

Descriptive metaphysics is concerned with what the structure of reality would be *if* it were accurately mirrored in the structure of our conceptual scheme, the conceptual scheme we actually have. Revisionary metaphysics is concerned with what the structure of reality would be if it were accurately mirrored in the conceptual scheme we *ought* to have.[1] It is natural to suppose that the conceptual scheme we *ought* to have is that which carves nature at its joints, capturing the "true" structure of reality. If so, revisionary metaphysics is effectively concerned to expose the conceptual-scheme-independent structure of reality.[2]

At the time Strawson (1959) first articulated the distinction between descriptive and revisionary metaphysics, the former occupied center stage in metaphysical practice. In fact, skepticism about the viability of revisionary metaphysics is a recurring theme in philosophy.[3] Notwithstanding this troubled history, nowadays revisionary metaphysics is ascendant, widely considered the only metaphysics worth pursuing.[4]

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1. These characterizations are meant as informal. The terms 'structure of reality', 'conceptual scheme', and 'mirroring' can certainly appear vague, at least prior to philosophical elucidation. I leave them intuitive because the particular elucidation they ultimately ought to receive should not affect the thesis of the paper. Informally, we may understand 'the structure of reality' as a matter of what entities there are and how they are related; 'conceptual scheme' as a matter of what concept-level mental representations the average subject has and how they are related; and 'mirroring' in terms of the representation relation between the latter and the former.

2. The issue of revisionary metaphysics' characterization is not entirely clear in Strawson. He writes (1959: 9): 'Descriptive metaphysics is concerned to describe the actual structure of our thought about the world, revisionary metaphysics is concerned to produce a better structure.' Presumably what makes the structure better, however, is precisely that it captures the structure the world really has.

3. During Strawson's career, it was mostly Carnap's (1950) distinction between internal and external questions in metaphysics, and his arguments against the intelligibility of external questions, that underwrote the widespread skepticism. For reasons that we cannot go into here, the internal/external distinction maps quite neatly onto the descriptive/revisionary one: arguably, internal questions are the questions descriptive metaphysics attempts to answer, external ones those that revisionary metaphysics does.

4. Working metaphysicians do not typically *use* the term 'revisionary metaphysics', but most do take themselves to study the world's *real* structure, not the

Yet concerns about its theoretical underpinnings remain. Over the past decade, several philosophers have consistently pressed a semantic challenge, claiming that revisionary-metaphysical disputes are typically verbal, with disputants effectively talking past each other. Thus, Eli Hirsch (2002, 2005, 2007) has argued that disputants in central, paradigmatic metaphysical disputes use quanitifier terms in different senses, and a number of other authors have made similar claims (*e.g.*, Sidelle 2002, Thomasson 2007, Chalmers 2009); many are inspired by Carnap (1950).

Beside the semantic challenge, revisionary metaphysics may also face an *epistemological* challenge. Karen Bennett (2009: 42) has suggested that often 'there is little justification for believing' one of two opposing ontological propositions. For most ontological propositions of the form <there are Fs>, there is equal epistemic justification for assent as for dissent. More generally, one might propose the following skeptical thesis: for any pair of revisionary-metaphysical theories T_1 and T_2, such that T_1 and T_2 are (i) internally coherent and (ii) mutually inconsistent, there is not epistemic justification for believing T_1 more than T_2 or T_2 more than T_1.[5] This thesis does not call into question the existence of *facts of the matter* that settle metaphysical disputes, nor the possibility of formulating disputes so they come out substantive rather than verbal. But it does call into question our ability to *know* the dispute-settling facts, and to that extent the epistemological viability of pursuing revisionary metaphysics.[6]

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one it is attributed by our pre-philosophical conceptual scheme.

5. The notion of 'believing more' may be interpreted in terms of credences. The skeptical thesis would then be that there is not epistemic justification to have higher credence in one of the two revisionary-metaphysical theories.

6. It certainly calls into question our vision of what the 'end of metaphysical inquiry' might look like: if there is no way to settle metaphysical disputes about the conceptual-scheme-independent structure of the world (*i.e.*, revisionary-metaphysical disputes), then the pursuit of revisionary metaphysics would appear to be of limited purpose. It may issue in clarification of which global package deals are genuinely coherent and stable, but it cannot illuminate which among several such package deals ought to be believed.

For my part, I find it hard to swallow this kind of epistemological skepticism (I will explain my resistance in §4.) It does seem to me, however, that given the prominence of revisionary metaphysics in current philosophical practice, its epistemological underpinnings are disconcertingly underdeveloped. With this in mind, I wish to prosecute systematically an epistemological challenge to revisionary metaphysics. The challenge is to identify potential grounds on which we might justifiably believe one among a number of competing revisionary-metaphysical theories. Going through the "usual suspects" for theory choice, I want to argue that relatively unsurprising assumptions cast doubt on the existence of such grounds. The "usual suspects" are three types of consideration one might adduce to support a theory over competitors: (1) that it accommodates the empirical evidence better; (2) that it accords better with intuition; (3) that it fares better with respect to the 'super-empirical' or 'theoretical' virtues. If none of these can be shown to support a metaphysical theory as more likely to be true than its competitors, then however unpalatable this is to contemplate, we would have to provisionally accept that in many areas of revisionary metaphysics we can never *know* which theory is true.[7] As noted, I am personally not yet resigned to this kind of epistemological skepticism, but nor am I clear on how it might be overcome; hence 'challenge'.

Each of §§1–3 discusses one of the "usual suspects". In §1, I argue that, at least in paradigmatic, central cases, the choice among competing theories in revisionary metaphysics is underdetermined by the empirical evidence: the competing theories accommodate the empirical data equally. In §2, I raise considerations suggesting that appeal to intuitions cannot remove this underdetermination: although some intuitions can function as evidence/data in *descriptive* metaphysics, they

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7. Note that the resulting case for epistemological skepticism (which is presented here in a hypothetical mode, since I am not myself resigned to it yet) is importantly different from Bennett's. Bennett supports her epistemological skepticism with a pair of case studies: disputes about mereological composition and about material constitution and collocation. What I develop here, by contrast, is a "top-down" case, in which principled reasons are adduced for rejecting appeal to any of the potential grounds for belief in one metaphysical theory over another.

lack any evidentiary connection to theses in *revisionary* metaphysics.[8] In §3, I suggest that the theoretical or super-empirical virtues — parsimony, unity, and so on — cannot help either: while it is unclear how such virtues are supposed to be *truth-conducive* even in the context of scientific or folk theorizing, there are specially acute reasons to doubt their truth-conduciveness in the context of metaphysical theorizing.[9] The upshot would be a clear challenge to the epistemological foundations of metaphysics as practiced today by many. Unless the challenge can be met, the rational stance toward the average issue in revisionary metaphysics would be to withhold judgment on which among the coherent options is the *true* one.

One last note before starting. Some of the considerations raised below might strike the reader as more compelling when applied specifically to *ontology*, rather than metaphysics more broadly. (We may suppose, for the sake of this discussion, that ontology is the branch of metaphysics concerned with existence questions.) Although my own sense is that these considerations apply at least somewhat to all of metaphysics, this is not immensely important for my purposes. For large portions of current work in metaphysics are focused on ontological questions, especially the ontology of material objects. If the epistemological challenge presented here turns out to challenge only revisionary ontology (rather than metaphysics), it would still be a pressing challenge.

1. Revisionary Metaphysics and Empirical Adequacy

Consider an ontological debate on the existence of flowers. As far as *descriptive* metaphysics is concerned, there is no reason why it should flourish: clearly the ontology implicit in our conceptual scheme posits flowers. As far as revisionary metaphysics is concerned, however, the matter is far from straightforward. According to some metaphysicians, strictly speaking there are no flowers, only sub-atomic particles arranged flower-wise (Merricks 2001, Rosen and Dorr 2002, Sider 2013).[10] According to others, flowers exist in addition to particles, however arranged, but so do much more arbitrary-looking objects, such as the fusion of the flower on my desk, the desk itself, and the moon (Van Cleve 1986, Lewis 1991). An intermediate position countenances flowers but not any old flower-involving plurality of objects (Markosian 1998, Smith 2005, Kriegel 2008).[11]

How should we decide between (a) the flower nihilism that admits only particles arranged flower-wise, (b) the blossoming universalism that admits flowers and any other arbitrary concoctions involving them, and (c) the restrictivism that admits flowers but not arbitrary concoctions? In other areas of inquiry, the first touchstone of theory choice is *empirical adequacy*: how well the various theories accommodate the empirical evidence. 'Accommodation' here should be understood rather narrowly: as a matter of the accurate prediction of future observations, description of present observations, and 'retrodiction' ('postdiction') of past observations.[12] We might hope that competing

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8. If certain intuitions could serve as evidence in revisionary metaphysics, this would supply revisionary metaphysics with proprietary, non-empirical data that may remove the underdetermination of revisionary-metaphysical theory by (overall) evidence. The absence of such evidence, conversely, means that revisionary metaphysics is "stuck" with the same evidence as empirical inquiry, evidence it is typically underdetermined by.

9. If so, the theoretical virtues are unfit to recommend revisionary-metaphysical theses for acceptance *as true*. They may recommend them for some other kind of acceptance, but not for acceptance-as-true, that is to say, not for *belief*. More on that in due course.

10. Both Rosen and Dorr and Sider deny the existence of any concrete particulars other than mereological simples. Merricks, by contrast, accepts in addition the existence of conscious composites. Unless it turns out that flowers are conscious (say, because panpsychism or panexperientialism is true), his ontology would not include flowers.

11. The intermediate position typically accepts 'medium-sized dry goods' of the sort folk intuitions consider to be objects. As such, it could very well be proposed as a thesis in *descriptive* metaphysics. However, the view could also be offered in the same spirit as the two other revisionary claims mentioned in the main text.

12. The status of *explaining* the data is problematic. I will take up the issue in §3.2.

theories in revisionary metaphysics, such as (a)–(c) above, would be distinguished in their empirical adequacy, some accommodating the empirical data better than others.

Unfortunately, this hope will almost certainly be frustrated. Nihilism, universalism, and restrictivism accommodate the empirical data equally: observations of the 'floral aspect of the world' (the phrase is sub-optimal) are consistent with all three views. Nihilism would claim that such observations are produced by certain arrangements of particles — floral arrangements — while universalism and restrictivism that they are produced by flowers. The observations themselves do not discriminate between these two epistemic possibilities, since floral arrangements of particles look exactly like flowers.[13] One cannot simply *look and see* to decide the issue. Ultimately, this is because while we can perceive (large enough) collections of particles, we cannot perceive (instantiations of) the composition relation. This suggests that (a)–(c) are *empirically equivalent*.

To bring this out, suppose for the sake of argument that mereological composition is contingent, as some have suggested (Rosen 2006, Cameron 2007, Bohn 2009). Then there are three metaphysically qualitatively indistinguishable possible worlds W_1, W_2, and W_3, such that in W_1 there are no flowers, in W_2 there are flowers but not arbitrary flower-involving concoctions, and in W_3 there are flowers and any arbitrary concoctions of which they are part.[14] To say that mereological nihilism, restrictivism, and universalism are empirically equivalent is to say that all three worlds *look the same* — to a human subject, certainly, but arguably to *any* subject. No possible observation could tell you in which of the three worlds you live. Now, the metaphysical contingency of composition is of course very contentious. But it is also inessential to the point. We can follow the same reasoning with

W_1, W_2, and W_3 as merely *epistemically* possible worlds. The present point is precisely that observation is *epistemically neutral* as between nihilism, restrictivism, and universalism. The world would look the same — afford the same observations — regardless of whether it contained flowers or only floral arrangements of simples.

It might be objected that in fact the observations do tell against flower nihilism, since some of our observations are precisely *as of flowers*! But the nihilist would probably deny any report of the form 'S observes flowers' and assert in its stead 'S observes floral arrangements'. It is intuitive for us to report our observational states using the concept of flowers, because our conceptual scheme is ontologically committed to flowers. But a nihilist race with a different conceptual scheme would report the very same observation in flower-free vocabulary. The observations themselves are the same; the only disagreement is on how to report them.

The objector may insist that there is a difference between our observations and the nihilist race's that goes beyond reportage. For perception, and hence observation, is theory-laden and has *conceptual* content, so its content is affected by the kind of concepts the observer possesses. In observing the relevant aspects of the world, *we* deploy the concept of a flower, they the concept of a floral arrangement of simples. It is plain, however, that revisionary metaphysicians do not take floral observations to settle the issue *they* are interested in — or the dispute would never have gotten off the ground. The nihilist is well aware of our natural tendency to conceptualize the floral aspects of the world in terms of flowers. But she explains this tendency in terms of our perception being laden with a *false* ontological theory of the world. Furthermore, she might hold that mature humanity could learn to perceive the world *correctly*, that is, in a way that implicates *true* theories (see Churchland 1979).[15] Since nihilism is the true theory

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13. Indeed, revisionary metaphysicians often emphasize this in an attempt to blunt the force of instinctual skeptical reactions to their radically revisionary metaphysical theories (see, *e.g.*, Merricks 2001).

14. Let worlds be 'qualitatively indistinguishable' just when the mereological simples in them are the same and have the same intrinsic properties.

15. Churchland argued that although currently our perception of the sun is beholden to a folk physics that is geocentric, the right kind of education could lead future generations to perceive the sun in a way that is laden with a heliocentric theory.

in this area, this would involve perceiving the relevant chunks of the world as mere floral arrangements.[16]

In any case, there must be a notion of observation that is not concept-laden (at least not laden with flower concepts), since as noted above we cannot tell *by looking* which among nihilism, restrictivism, or universalism is true. Even classic proponents of the theory-ladenness of observation, such as Hanson (1958 Ch.1), recognize *some* notions of observation as not theory-laden (*e.g.*, a notion of seeing such that, upon looking at the sun, Kepler and Tycho see the same thing).[17] Hanson himself argued that this thinner notion of observation is simply not the most useful for illuminating scientific inquiry. But for all that it may be the most useful for illuminating *metaphysical* inquiry. And indeed, the ongoing debate about the ontology of mereological composites makes no sense if we use a theory-laden notion of observation that renders nihilism disconfirmed by mundane observations of the floral aspect of the world. The debate would have been settled long ago.

A different objection to the empirical equivalence of the above floral ontologies might be that although all three can accommodate the observational data, some do it *better* than others. Thus, arguably restrictivism explains the data more *simply*, nihilism more *parsimoniously*, and universalism more *uniformly*. Regardless of whether such claims are true, however, they do not concern the *empirical* adequacy of the competitors, narrowly construed (in terms of 'accommodation' as defined above). For they concern super-empirical virtues such as simplicity, parsimony, and unity. I will discuss the prospects for discriminating among revisionary-metaphysical theories in terms of their

16. Given this, to point out that our observations are laden with the concept of flower is merely to claim that the folk ontology recognizes flowers, and that consequently that our conceptual scheme is flower-friendly. This, however, is something we already knew, and something of relevance to *descriptive* metaphysics only.

17. Hanson (1958: 5) writes: "We must proceed carefully, for wherever it makes sense to say that two scientists looking at *x* do not see the same thing, there must always be a prior sense in which do see the same thing. The issue is, then, 'which of these senses is most illuminating for understanding of observational physics?'"

super-empirical (or theoretical) adequacy in §3. (In proceeding thus, I do not mean to suggest that inquiry is neatly factorizable into an empirical stage and a super- or post-empirical stage.[18]) The purpose of the present section is simply to point out that empirical adequacy as such is incapable of doing such discriminating. My claim thus far has been that this is most certainly the case for the dispute among nihilists, universalists, and restrictivists.[19]

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How many other metaphysical disputes are like floral mereology in this regard? How many concern empirically equivalent metaphysical theories? Arguably most, possibly all. Space and energy limitations do not permit an exhaustive examination here, but consider the case of some perennial problems of metaphysics: production and regularity theories of causation both accommodate observations of causal exchanges; theories of properties as Platonic *ante rem* universals, as Aristotelian *in re* universals, and as (bundles of) tropes all accommodate observations of qualitative similarities and dissimilarities; substratum and bundle theories of objects both accommodate their own data. For each, we can conceive of corresponding epistemically possible worlds that *look the same*.

It might be objected that in some areas metaphysical theories have been claimed to accommodate empirical data better than their competitors. Thus, Balashov (2000, 2010) has made a sustained argument that the theory of relativity favors perdurantism over endurantism about persistence. It might be claimed that many metaphysical debates might turn out to be amenable to this sort of empirical resolution. My response is threefold. First, it is of course controversial whether

18. In practice the process intermingles all those aspects. I only mean to suggest that it is useful to think of the process' end result as retrospectively amenable to analysis into an empirical dimension and a super-empirical dimension.

19. Note well: this claim is fully consistent with there being an objective fact of the matter that makes one of the three theories *true* and the others false. For true theories can very well be empirically equivalent to false ones — and often are.

relativity theory indeed discriminates between theories of persistence; Gilmore (2002, 2006), for instance, persistently argues for relativistic endurance. Secondly, even if this dispute is empirically resolvable, for now it stands as the exception that proves the rule. If the epistemological challenge I am attempting to formulate challenges *many*, but not *all*, revisionary-metaphysical disputes, then it is still important and worrisome. Thirdly, if what settles the debate between perdurantism and endurantism is the theory of relativity, then it may be reasonable to regard the debate as only *superficially* metaphysical. At heart, the issue is scientific rather than metaphysical, empirical rather than philosophical.[20] After all, it is the physicist, not the metaphysician, who allegedly demonstrates the truth of perdurantism.

This brings up a more general point: at least for central, paradigmatic debates in revisionary metaphysics, the debate starts precisely where the empirical data end. It is legitimate to hold that by their very *nature*, metaphysical disputes concern empirically intractable issues (this is part of what *makes* them metaphysical). When an issue turns out to be amenable to empirical resolution, we are (quite rationally) tempted to say that it was misclassified as metaphysical all along.

It might be objected that while extrapolation from floral ontology to other *ontological* debates is justified, extrapolation to *metaphysical* debates more generally is not. As noted above, I would be happy to direct the paper's epistemological challenge against revisionary ontology *only*. Still, I suspect that the case applies with similar force to non-ontological metaphysical debates, and will conduct the discussion as though this is the case.[21]

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20. This does not require maintaining a categorical distinction between science and philosophy. Even if the two lie on a spectrum, a dispute that turns out to be resolved by appeal to empirical data would appear to lie rather closer to the scientific end of the spectrum.

21. There is also the possibility, of course, that the present epistemological case extends, even more generally, to all *philosophical* theories, including on-meta-physical philosophical theories.

When two competing theories are empirically equivalent, what we have on our hands is *underdetermination* of theory by empirical evidence. In the philosophy of science, such underdetermination has been the object of much discussion (see the literature on the so-called Quine-Duhem Thesis),[22] often in the context of debates on scientific realism. Particularly influential has been van Fraassen's (1980) argument from underdetermination to his brand of scientific anti-realism, 'constructive empiricism'. The central thesis of constructive empiricism is that accepting a scientific theory does not involve believing it to be true. Perhaps it is useful to accept it, perhaps it is accepted for some other reason; but it is not for being believed to be true that it is accepted.[23] One central argument for this is from underdetermination, and proceeds roughly as follows: when two incompatible scientific theories are empirically equivalent, we have no reason to believe either to be true; for virtually any scientific theory, we can think up an empirically equivalent incompatible theory; therefore, we have no reason to believe virtually any scientific theory to be true.[24]

The debate over constructive empiricism is ongoing, but to my mind a parallel argument about *metaphysical* theories would be *prima facie* much more plausible. The parallel meta-metaphysical thesis would be that accepting a (revisionary-)metaphysical theory does not involve believing it to be true. And the parallel argument would be this: when two incompatible metaphysical theories are empirically

22. The classic discussion is in Duhem 1914.

23. As van Fraassen (1980:12) puts it: "Science aims to give us theories which are empirically adequate; and acceptance of a theory involves as belief only that it is empirically adequate." Note that van Fraassen seems to work with a conception of belief as a potential component, or aspect, of acceptance. One natural interpretation is that acceptance is a genus of which belief is a species—believing something is a matter of accepting it *as true*.

24. To repeat, we may still *accept* a scientific theory, say, because it is useful to do so, but this is not the same as believing it to be true. As van Fraassen would put it, we may still accept one theory over another for *pragmatic* reasons, but this is not to be confused for accepting it for *epistemic* reasons, and only epistemic reasons can lead us to accept a theory *as true*, as opposed to (say) accepting it *as useful*.

equivalent, we have no reason to believe either to be true; for any metaphysical theory, we can conceive of an incompatible empirical equivalent; therefore, we have no reason to believe any metaphysical theory to be true.

Van Fraassen's argument has faced two outstanding objections. The first is that empirically equivalent theories are often super-empirically *non*-equivalent, and this gives us reason to believe one theory more than another; this issue will be revisited §3.[25] The other objection is that the mere conceivability-in-principle of an empirically equivalent competitor does not undermine the reasonableness of believing a scientific theory — only concrete, actually developed competitors have this power (Laudan and Leplin 1991, Kitcher 1993). From this objection a debate has ensued over how often a scientific theory has an empirically equivalent *actual* competitor, with scientific realists arguing that this is quite rare and anti-realists that it is more common than suspected. This controversy concerns us little. What I wish to note is only this: while it is controversial how often *scientific* theories have actual empirically equivalent competitors, it is entirely uncontroversial that *metaphysical* theories virtually always do. Indeed, as we saw above it is arguably definitive, and certainly characteristic, of metaphysical debates that they concern empirically equivalent incompatible (actual) theories. Thus this kind of objection has no force in the metaphysical arena.[26]

Underdetermination of theory by evidence is also crucial for undermining the main argument *against* van Fraassen-style anti-realism — the 'miracle argument'. This is the straightforward thought that scientific anti-realism makes "the success of science a miracle"

(Putnam 1975: 73). The thought suggests the following bit of abductive reasoning: theory T is empirically adequate (*e.g.*, predictively successful); the best explanation of T's empirical adequacy is T's truth; therefore, plausibly, T is true. This sort of inference generates a reason for believing the truth of any empirically adequate theory. The argument was originally applied to *scientific* theories, but the reasoning can be readily adapted for metaphysical ones (see Sider 2009).[27] Such an inference is frustrated, however, when two incompatible theories (whether scientific or metaphysical) are empirically equivalent. For we cannot infer simultaneously to the truth of two incompatible theories, on pain of contradiction. The rife empirical equivalence among metaphysical theories thus undercuts this sort of reason to infer the truth of a metaphysical theory from its empirical adequacy.

It might be argued that whereas scientific theories are answerable to empirical evidence *only*, there may be another, *non-empirical* source of evidence that metaphysical theories must answer to as well. That is, metaphysics may have its own proprietary data to face the tribunal of. In particular, the history of metaphysics reveals a persistent appeal to *intuition* as a ground for preferring some metaphysical theories over others. It might be suggested that empirical adequacy is only one part of a metaphysical theory's overall *evidential* adequacy, the other being its *intuitive* adequacy. Thus although underdetermined by empirical evidence, metaphysical theory may yet be determined by intuitive evidence. This is the topic of the next section.

2. Revisionary Metaphysics and Intuitive Adequacy

There are, in fact, two distinct kinds of appeal to intuition in the annals of metaphysics. On the one hand, there are intuitions whose propositional content concerns whether a (typically counterfactual) object, feature, or scenario falls under a certain (typically pre-philosophical or 'folk') concept. On the other hand, there are intuitions whose

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25. Van Fraassen's response is to claim that a theory's super-empirical virtues do not portray it as more likely to be true. They provide only a pragmatic reason to accept the theory, not an epistemic one.

26. That is, this kind of objection to the thesis that accepting a scientific theory does not involve believing it to be true has no force against the parallel argument for the thesis that accepting a *metaphysical* theory does not involve believing it to be true. This raises the question of what acceptance of a metaphysical theory *does* involve. I will return to this question in §4.

27. Sider argues that the best explanation of *science*'s success involves not only scientific realism but also ontological realism. I argue at length against Sider's adaptation of the miracle argument in Kriegel 2011.

propositional content concerns the allegedly manifest truth of some general principle (universally or existentially quantified). I will call intuitions with the former content *singular intuitions*, and those with the latter content *general intuitions*. Gettier intuitions about knowledge and Kripkean intuitions about reference are prime examples of singular intuitions; Kim's principle of causal closure and Lewis' principle rejecting ontic vagueness are examples of general intuitions.[28] My claim in this section is that in neither case is it clear how the intuition provides evidence for revisionary-metaphysical theories. I argue, in §2.1, that while it is clear how singular intuitions may provide evidence for theories in *descriptive* metaphysics, it is unclear how they are supposed to have an evidentiary connection to theories in *revisionary* metaphysics; and in §2.2, that while general intuitions are relevant to revisionary metaphysics, it does not seem to be in an evidential capacity that they are.

2.1. Singular Intuitions

Appeal to singular intuitions is the hallmark of conceptual analysis, whereby we seek to articulate a concept's application conditions by (first) examining scenarios (potentially imaginary) in which the concept intuitively applies or fails to apply, and (second) attempting to extract the general rules that must be governing the concept's application. The procedure is familiar, so I will not belabor it here.[29] What matters for our purposes is that in this procedure, singular intuitions function as data points that conceptual-analytic hypotheses are expected to accommodate. Thus, Gettier intuitions count as counter-evidence, or disconfirmation, of the hypothesis that the concept of knowledge is properly applied to all and only justified true beliefs. In

this way, singular intuitions play an evidential role vis-à-vis conceptual-analytic theses.

This might be hoped to help with the underdetermination of metaphysical theory by empirical evidence. For it may well be that many metaphysical theories incorporate an element of conceptual analysis. To the extent that they do, then, metaphysical theories should be testable not only by empirical evidence but also by the evidence of intuition.

One could try to resist this by claiming that the entire enterprise of conceptual analysis is defunct and unviable. I do not share this assessment, however, so will raise a different issue here. I want to claim that while intuitions about what object or scenario falls under what concept certainly constitute evidence for theories about the metaphysics implicit in our conceptual scheme (*i.e.*, *descriptive*-metaphysical theories), it is unclear how they could constitute evidence for theories about the conceptual-scheme-independent structure of the world (*revisionary*-metaphysical theories).

To start, observe that in many areas actual metaphysical practice does not accord (singular) intuition the kind of evidential role it plays in traditional conceptual analysis. If it did, the choice between a pro-flower and an anti-flower ontology would be straightforward. For pre-philosophical intuition instructs that the flower on my desk qualifies as — falls under the concept of — an object, entity, or existent.[30] Indeed, our flower concept is arguably governed by analytic conditionals of the form 'if there are florally arranged simples at L, then there is a flower at L' (Thomasson 2007). So, metaphysicians who accorded an evidential role to singular intuitions about flowers, chairs, cars, and so on would have to conclude that nihilism is so massively disconfirmed as to not merit serious consideration. Yet typically metaphysicians do not take the issue *they* are interested in to be so straightforwardly settled.

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28. See Gettier 1963, Kripke 1972, Kim 1989, and Lewis 1991.

29. In saying that the procedure is familiar, I do not mean to suggest that it is obvious to reflection exactly how it works. I merely mean to suggest that many of us are familiar with the procedure from our workaday practice (or at least from graduate school!) and know it when we encounter it.

30. At the same time, pre-philosophical intuition instructs that the plurality of the flower and moon does not qualify as an object or an entity. So among flower-friendly ontologies the restrictivisit would obviously fare better than the universalist.

Indeed, the great majority appear to prefer nihilism and universalism over restrictivism.[31]

Why this dismissive attitude toward singular intuitions? The reason is simple. Unlike descriptive metaphysics, revisionary metaphysics is not concerned with the structure of our concepts or conceptions of reality, but with the structure of reality itself. Insofar as it studies the concept of existence, for instance, its target is not the concept we *have* but the concept we *ought* to have; not the *folk* concept, but the *philosophical* concept. Thus, Sider (2009, 2011) is happy to allow that the existential quantifier *in English* behaves in such a way that 'there are flowers' comes out true *in English*. But he insists that we can define an existential quantifier in some other, *superior* language, 'Ontologese', which carves nature at its 'quantificational joints'; for Sider, the truth of mereological nihilism ensures that 'there are flowers' comes out false *in Ontologese*. While descriptive metaphysics is concerned with the folk's naïve concept of existence (expressed by 'there is' in English), revisionary metaphysics is concerned solely with the ontologist's refined concept (expressed by 'there is' in Ontologese).[32] If so, pre-philosophical intuitions about what exists are relevant to the conceptual analysis of the folk's concept, but not the ontologist's. To that extent, they are central to the task of descriptive but not revisionary metaphysics.[33]

31. It may be objected that revisionary metaphysicians in fact do not accept that restrictivism accommodates singular intuitions better than its competition, on the grounds that the competition can accommodate those intuitions equally when it avails itself of the device of *paraphrase*. Thus, the nihilist accommodates floral intuitions by paraphrasing 'there are flowers' into 'there are simples arranged flower-wise'. However it is not at all clear how such paraphrase recovers intuitions about *flowers*, and in any case, appeal to it would very likely yield widespread (singular-)intuitive equivalence among competing revisionary-metaphysical theories, since it is widely suspected that such paraphrases can almost always be cooked up.

32. Sider makes his move in terms of *languages*, but plausibly could just as well make it in terms of *conceptual schemes*.

33. It might be thought that refined *philosophical* intuitions could still be used to flesh out *philosophical* concepts (such as the ontologist's concept of existence), but such intuitions, if there are any, lie downstream of philosophical

To summarize, singular intuitions clearly play the role of evidence in the enterprise of conceptual analysis, but conceptual analysis seems to be a way of doing *descriptive* metaphysics, not a way of doing *revisionary* metaphysics.[34] Unless we can show that conceptual analysis can play double duty as a method of revisionary metaphysics as well, or that singular intuitions can be evidence for revisionary-metaphysical theories in some other fashion (unrelated to conceptual analysis), singular intuitions would appear irrelevant to revisionary metaphysics.

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It might be suggested that the relevance of conceptual analysis to revisionary metaphysics could be secured within Frank Jackson's (1998) framework of 'serious metaphysics' (as he calls it). Serious metaphysics is the project of producing a "comprehensive account of some subject-matter — the mind, the semantic, or, most ambitiously, everything — in terms of a limited number of more or less basic notions" (1998: 4). Given a list of all and only true statements (in English, say), we may wish to draw a subset in terms of a privileged, basic vocabulary, with the thought that all statements couched in non-basic vocabulary could be in some sense *accounted for* by statements couched exclusively in the basic vocabulary. One way to think of this is as an *axiomatization* project of sorts. The goal is to do something *like* axiomatizing our overall theory of the world, except that the relation between basic and non-basic statements in serious metaphysics is probably laxer than the strict

theorizing, and thus have no evidential status with respect to the relevant theories.

34. In other words, singular intuitions have direct evidential relevance to descriptive metaphysics, in virtue of their role as data for conceptual analysis, but while conceptual analysis is a *sine qua non* of descriptive metaphysics, its relevance to revisionary metaphysics it unclear. If so, at least in their capacity as data for conceptual analysis, singular intuitions have a direct evidential relevance to descriptive metaphysics, but not to revisionary metaphysics. Accordingly, while (singular-)intuitive adequacy is a major source of evidential support for descriptive-metaphysical theories, it has no evidential role to play vis-à-vis revisionary-metaphysical ones.

deductive relation appealed to in axiomatics — perhaps it is something like Chalmers' (2012) 'scrutability' relation.[35]

An important special case of basic and non-basic vocabularies concern Sellars' (1963) 'scientific image' and 'manifest image'. Insofar as we hope to reconcile our manifest image (roughly: the everyday picture of the world) with the scientific image (the way science tells us the world is), we should hope that manifest-image statements can be accounted for in terms of (are 'scrutable from') scientific-image statements.[36] Conceptual analysis is crucial to this project because of the elusive daylight between *reduction* and *elimination*. Given a complete description of the world in basic scientific vocabulary, we may wish to know whether this or that phenomenon described in manifest-image vocabulary has a place in the world — and if so, *what* place.[37] Addressing this question requires that we know the general conditions under which chunks of the world can be properly described in terminology from the non-basic vocabulary. Identifying those general conditions is the business of conceptual analysis.

The problem with this suggestion is that while it defends the role of conceptual analysis in 'serious metaphysics', the connection between 'serious metaphysics' and *revisionary* metaphysics is unclear. On the face of it, serious metaphysics is an exercise in making explicit what is otherwise implicit in an already established theory of the world. Granted, this is not the folk's theory but mature scientific theory. Crucially, however, it is *not* a theory devised by metaphysicians. It is a theory devised through some other kind of inquiry, and the metaphysician's job is only to make explicit what is implicit in

this pre- or para-philosophical theory. Making explicit the metaphysics implicit in some non-philosophical theory is the hallmark of *descriptive* metaphysics.

Consider how the 'serious metaphysics' framework applies to our debate in floral ontology. Surely conceptual analysis of our flower concept makes the overall scientific theory of the world entail that there are flowers. Indeed, it is precisely the existence of particles arranged florally that would entail the existence of flowers, given the aforementioned Thomasson-style analytic conditionals. So if Jackson is right, the serious-metaphysical question of whether there are flowers is extremely straightforward: conceptual analysis tells us that if there are particles arranged florally, then there are flowers; science tells us that there are particles arranged florally; so, there are flowers. But the revisionary-metaphysical question is not so straightforward, which suggests that the two projects are deeply different. Importantly, mereological nihilists never deny the existence of florally arranged particles (indeed, they make a point of asserting their existence). Nor do they deny the analysis of the English term 'flower' that provides for the entailment of flower truths by floral-arrangement truths (typically, they make no claim about words and concepts).[38] In denying the existence of flowers despite accepting the existence of floral arrangements and the relevant analysis of 'flower', nihilists must therefore be misconstruing the mandate of metaphysics — as understood by Jackson, that is. Their conception of metaphysics must go beyond Jackson's, trying to do more than make explicit the metaphysical commitments implicit in this or that non-philosophical theory.[39]

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35. Strict deduction is the relation between axioms and theorems in axiomatized theories. The scrutability relation (between the base and the rest) is laxer than strict deduction, however, and includes whatever can be arrived at by *a priori* reasoning. In any case, if a comprehensive serious-metaphysical theory is not quite an axiomatized worldmodel, it is something we might call a "scrutabilized" worldmodel.

36. Presumably, manifest-image statements are stated in non-basic vocabulary, whereas scientific-image statements are stated in basic vocabulary.

37. This is what Jackson (1998 Ch.1) calls the 'location problem'.

38. And even if they did, that would turn their debate with pro-flower ontologists into a debate about what words mean, with the facts about the world (as described in the basic vocabulary) set. It is clear that revisionary metaphysicians do not take themselves to be debating the meaning of words while in agreement on the facts.

39. Relatedly, given that floral ontologies are empirically equivalent, mature science is bound to underdetermine the question of whether there are flowers or not. Help on this question must come from outside mature scientific theory. Yet the only thing Jackson proposes to do outside that theory is defining terms

It would seem, then, that Jackson's framework does not quite secure an evidential role for singular intuitions in *revisionary* metaphysics. It secures such an evidential role in serious metaphysics, but the latter seems to amount to regimenting and systematizing *descriptive* metaphysics, or some extension thereof (from folksy to non-folksy theories).

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Another suggestion might be that singular intuitions play an evidential role in revisionary metaphysics in the context not of conceptual analysis but of *modal epistemology*. Revisionary-metaphysical theories typically attempt to capture the *essence* of their target, say *what it is*. Thus they crucially make identity and essence claims (*e.g.*, 'causality = counterfactual dependence' and 'it is in the essence of causality that C causes E iff had C not occurred E would not have occurred'). On the reasonable assumption that identity and essence are necessary, such claims entail modal theses (*e.g.*, 'necessarily, C causes E iff had C not occurred E would not have occurred'). These modal theses, of the form <necessarily, *p* iff *q*>, can be falsified by citing a possible scenario in which *p* is true but *q* is false (*e.g.*, late preemption scenarios in discussions of counterfactual theories of causation). Now, a plausible story could be told that it is precisely singular intuitions that generate such counter-examples: singular intuitions instruct us about the *conceivability* of certain scenarios, providing us with propositions of the form <conceivably, *p* & ~*q*>; propositions of the form <conceivably, *p* & ~*q*> constitute *prima facie evidence* for propositions of the form <possibly, *p* & ~*q*>; and propositions of the form <possibly, *p* & ~*q*> are logically equivalent to propositions of the form <*not* necessarily, *p* iff *q*>. In this way, singular intuitions provide *prima facie evidence* against modal theses, which as noted are entailed by the identity and essence claims characteristic of revisionary metaphysics.

To appreciate how this suggestion is problematic, consider first that conceivability data are just singular intuitions applied to

through conceptual analysis and looking for entailment relations between the thus defined terms and the mature-scientific description of the world.

counterfactual rather than actual cases. The reason we do not appeal to the *conceivability* of flowers in floral ontology is that there seem to be *actual* flowers aplenty. But given that singular intuitions about *actual* cases turned out to be relevant to descriptive rather than revisionary metaphysics, so should singular intuitions about *counterfactual* cases. Whether about counterfactual or actual cases, singular intuitions track what qualifies as something under *our concepts*. Singular intuitions about flowers reveal whether world-chunks satisfy the requirements on flowerhood set by *our* concept (the folk concept) of a flower. It is not clear how singular intuitions can instruct us about the world itself, independently of our concept(ion)s thereof. Certainly it is the revisionary metaphysician's challenge to tell us how they might. (I will consider one option momentarily.)

Let me expand on this point a little. Recall that one objection to the empirical equivalence of floral ontologies was the idea that we actually observe flowers. And recall that the nihilist response was that what we in fact observe are not flowers but merely floral arrangements *misdescribed* by the folk as flowers. This response, of claiming that the intentional object of the act of observing is simply misdescribed, can be made equally with respect to the intentional object of the act of *conceiving*. Just as we can misdescribe ourselves as conceiving of water that is not H_2O when in fact we are conceiving of a substance that is not water but resembles water superficially, so we can misdescribe ourselves (*e.g.*, in late preemption scenarios) as conceiving of E's lack of counterfactual dependence on C when in fact we are conceiving of some E's lack of counterfactual dependence on C.[40] The strategy is familiar from many areas of philosophy where the modal theses are presented as Kripkean *a posteriori* necessities. As long as the modal claims concern the structure of the world, and not merely our conceptual scheme, this strategy is as legitimate as the nihilist's

40. Lewis' (1986) discussion of thin, 'modally fragile' events, whose identity conditions change with the slightest change in their spatial or temporal properties, attempts to handle late preemption cases precisely in this way.

strategy in handling the apparent observation of flowers; it is, in fact, the same strategy.

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There is one last suggestion we must consider. This is the thought that singular intuitions instruct us not about *concepts*, but about *properties*. When one intuits that some object qualifies as a flower, that some event qualifies as a causal transaction, or that some quantity qualifies as water, the intuition's propositional content should not be construed as <that object falls under the concept flower>, <that event falls under the concept of causation>, or <that quantity falls under the concept of water>. It should be construed as <that object instantiates the property of flowerhood>, <that event instantiates the relation of causation>, and <that quantity instantiates the natural kind property of being water>. In this way, singular intuitions tell us about the property's *instantiation conditions*, not just the corresponding concept's *application conditions*. They tell us about the world, not our conception thereof.

This view would clearly secure an evidential role for singular intuitions in revisionary metaphysics. It does involve, however, the notion that singular intuitions acquaint us with, or otherwise make us directly aware of, universals and other abstracta. Notoriously, the psychology and epistemology of this sort of acquaintance with abstracta is a can of worms. I recognize that there exist models of what might underlie direct acquaintance with abstracta (*e.g.*, Bealer 1998, Chudnoff forthcoming). If one of these turns out to be workable, it could certainly provide the resources to meet the epistemological challenge to revisionary metaphysics I am developing. For my part, I remain skeptical, for reasons that will come through in §2.2. In any case, it would be surprising to learn that the only reason revisionary metaphysics is legitimate is that we are blessed with direct acquaintance with abstracta.[41]

41. This is important, because one gets the impression that philosophers of many stripes engage in revisionary metaphysics, including nominalists who do not accept the existence of abstracta and staunch naturalist who reject acquaintance with such.

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To summarize, what I have called singular intuitions are best thought of as evidence for theses of conceptual analysis, which are essential to descriptive metaphysics; attempts to recruit conceptual analysis for revisionary metaphysics, or to produce an independent evidential role for singular intuitions in revisionary metaphysics, appear suspect. Given that, singular intuitions cannot supplement empirical data as a source of evidence that might discriminate among empirically equivalent revisionary-metaphysical theories.

2.2. *General Intuitions*

Revisionary metaphysicians routinely appeal to general intuitions in justifying preferring their theories over rivals'. Thus, Lewis (1991) and Sider (2001) have argued that restrictivism violates the intuitively compelling general principle that the source of vagueness must ultimately lie in language or concepts, not the world — there is no 'objective' or 'worldly' or 'ontic' vagueness. Here a certain general intuition (about what the world must be objectively like) does some epistemic work, since it is wielded to affect the dialectic. It might be tempting to suggest that the epistemic work in question is evidence-providing work. In other words, if a general intuition that p confers justification on the belief that p, it might be tempting to think that it does so by generating some kind of evidence for p. The problem is that, as I will now argue, it is unclear what might be evidence for what when we cite a general intuition in the course of a philosophical dispute. Consequently, it is unclear how accommodating general intuitions could be a form of accommodating evidence. At the same time, I will argue, there is a plausible alternative account of general intuitions' epistemic role in terms of enhancing theoretical or super-empirical adequacy.

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Question: when one believes that p on the basis of intuiting that p, what proposition is supposed to be evidence for p? One option is that

when one believes that p because one intuits that p, p constitutes evidence for itself. Another is that when one believes that p because one intuits that p, <I intuit that p> is evidence for <p>. A third is that there is some proposition q that is evidence for p, such that (i) $q \neq p$ and (ii) q bears some intimate relation R to the intuiting of p.

The first option seems somewhat perverse. While periodically in the history of philosophy some propositions have been claimed to be 'self-evident', this usually meant that entertaining them was sufficient for appreciating their truth; not that their truth provided evidence for their truth — a strange notion indeed.[42]

The second option seems more promising. Reliabilist accounts of *perceptual* justification have made it plausible that <I perceive that p> is evidence for <p>. For perceptual experiences are said to be reliable in the sense of being truth-tracking: if p were not the case, one would not be perceiving that p.[43] Thus the occurrence of one's perception of p is a reliable indicator of p obtaining, making <a perception of p occurred> evidence for <p>. Perhaps the same could be said of intuition: if general intuitions are truth-tracking, in that one tends not to intuit that p unless p obtains, then <I intuit that p> is a reliable indicator of, and hence evidence for, <p>. This gives us a model of how general intuitions could be said to constitute evidence for the intuited proposition. Unfortunately, the analogy seems to break down when we consider what might *underlie* intuition's alleged truth-tracking character. What underlies it in the perceptual case, it seems, is a broadly causal (or nomic) connection between perceived and perceivings. The exact

nature of this connection is a matter of considerable debate,[44] but is in any case unlikely to hold between intuited and intuitings. Again the issue has to do with the intelligibility of causal (and nomic) connections between abstract entities and concrete mental events and states.[45] It is clear how a table triggers a table-perception, but very unclear how a causal closure triggers a causal-closure-intuition. Certainly it is the revisionary metaphysician's challenge to make sense of the idea of mental states resonating with abstracta in this way.

Alternatively, the revisionary metaphysician might wish to offer a non-causal story about what underlies the truth-tracking character of general intuitions. It remains to be seen how this could be done.[46] But there is a deeper reason for suspicion here. Even setting aside causal considerations, the deep insight behind the reliabilist approach to justification seems to be this: a mental state displays sensitivity to the way the world is when part of the explanation of why that state occurred (and not another) is that the world is the way it is (and not another

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42. I wish neither to accept nor to deny that some propositions are such that one can appreciate their truth simply by entertaining them. I only wish to stress that entertaining a proposition does not provide evidence for the proposition. When there is evidence for p, it is always some other proposition that provides, or rather constitutes, that evidence. It is never (i) the proposition p itself or (ii) a non-proposition.

43. The literature on reliabilism and truth-tracking is by now abundant, but for the original classics, see Goldman 1967, Dretske 1971, and Nozick 1981. For a recent comprehensive discussion, see Roush 2005.

44. See Dretske 1981, Millikan 1984, Fodor 1990, among others.

45. I am assuming here what is plausible, that a proposition such as <the physical realm is causally closed> (or <there cannot be ontic vagueness>) is an abstract entity, and that mental events and states are concrete. There are, to be sure, ways of thinking of events and/or states as abstract, and perhaps of states of affairs as concrete, but the crucial contrast for present purposes is this: mental events and states are dated occurrences, where propositions are atemporal.

46. One suggestion might be that although the truth-tracking capacity requires the dependence of the intuition that p on p, the dependence need not be causal or nomic. It could be, instead, *constitutive*. Just as Xantippe's widowhood depends on Socrates' death constitutively rather than causally, so the intuition that p depends on p constitutively rather than causally: *that* intuition, and not just one very like it, could not occur unless p. However, this is effectively to construe general intuitions as *factive* states. The problem with this is that if intuitions are factive states, then they are a species of a genus we may call seeming-intuitions, and it is the genus rather than the species that plays the relevant epistemic role in revisionary metaphysics (*i.e.*, it is general seeming-intuitions rather than intuitions that we appeal to in metaphysics). Obviously, if intuition is factive, the philosopher can never know whether what she is having is an intuition or a state subjectively like an intuition but non-factive (*i.e.*, a seeming-intuition). What she appeals to, then, is the state — whatever it is — that is subjectively like an intuition.

way). Thus when *p* is part of the explanation of why S believes that *p*, that casts S as appropriately sensitive to the way the world is. But when we try to explain how Kim came to intuit that the physical realm is causally closed, it seems like the wrong explanation to say that the physical realm's causal closure made him intuit this. That explanation of how Kim came by the intuition feels odd and unsatisfying. Ditto for Lewis' intuition that there can be no ontic vagueness: it is not the absence of ontic vagueness that explains the presence of his intuition.[47]

The third option for casting general intuitions as evidence is in fact a generalization of the second: when one intuits that *p*, there is some other proposition *q* (related R-wise to the intuiting) that constitutes evidence for *p*.[48] This is certainly worth pursuing, but it is unclear at present what *q* or R might be. Some concrete proposals are needed if we are to evaluate this option, and I am unfamiliar with any account of intuitive justification that takes this form. It is thus an aspect of the revisionary metaphysician's epistemological challenge to provide such an account: she owes us an account of *q* and R.[49]

<p style="text-align:center">⁂</p>

One objection might be that not all evidence consists in propositions. Thus it is sometimes said that perceptual experiences themselves can constitute evidence for perceptual beliefs: the very act of perceiving the table is the evidence for one's belief that a table is present. Likewise, intuiting that there is no ontic vagueness (an 'intuitive act') is

itself evidence for the belief that there is no ontic vagueness (an 'intuitive belief'). This suggestion is doubly problematic, however.

First, talk of perception providing evidence but not through its propositional content is not immediately intelligible. While there is a casual way of speaking of perceptions or intuitions providing evidence for beliefs, this seems elliptical for saying that the content perceived or intuited provides evidence for the content believed. This seems to lead back to propositions.[50]

More importantly, I have already argued that the proposition <I intuit that *p*> does *not* provide evidence for the proposition that *p* (at least pending a compelling story about intuitional truth-tracking). The present suggestion is that the intuition that *p itself* is evidence for *p*. But given what I have already argued, this would require my intuition that *p* to be evidence for *p* even though the proposition <I intuit that *p*> is not. It is hard to make sense of the notion that the epistemic status of the intuition that *p* and of the proposition regarding it come apart in this way.[51]

<p style="text-align:center">⁂</p>

Perhaps the most straightforward account of intuitive justification is the kind of dogmatism or conservatism developed, for instance, by Huemer (2001, 2005).[52] Here the notion that intuiting that *p* justifies believing that *p* is derived from two principles: (i) that if it seems to

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47. This is also why I am skeptical of the attempt to cast singular intuitions as acquainting us with properties and their instantiation conditions rather than concepts and their application conditions, as mentioned toward the end of §2.1.

48. The second option is just the special case where *q* = <I intuit that *p*> and R is a description or reference relation.

49. Some philosophers have asserted more boldly that this particular aspect of the challenge cannot be met, that is, that intuitions cannot function as evidence — see Goldman 2007, Earlenbaugh and Molyneux 2009, Ichikawa forthcoming.

50. The only way it does not is if we understand the relevant content of perception to be non-propositional. But this leads to even stranger views. Suppose perception has 'objectual' rather than propositional content — what is perceived is simply the table. Then the resulting view is that the table itself (or whatever one takes to be the intentional content of a table-experience, whether the external physical table or some abstract, mental, or Meinongian entity) is evidence for the proposition that a table is present. This is even less intelligible than the idea that a table-experience is evidence for the proposition that a table is present.

51. More plausibly, unless a story can be told about the truth-tracking capacity of the intuition, the intuition itself cannot generate evidence where the proposition regarding it could not.

52. See especially Huemer 2001 Ch.3 for the general view of justification (which he calls 'phenomenal conservatism') and Huemer 2005 Ch.5 for its

one that *p*, then one is *prima facie* justified in believing that *p*, and (ii) that intuitions are a kind of seeming ('intellectual' seeming). It follows that if one intuits that *p*, then one is *prima facie* justified in believing that *p*.

Regardless of how plausible this approach is, it is important to note that it makes no claim that <I intuit that *p*> (or the intuiting of *p* itself) is *evidence* that *p*. In fact, Huemer (2005: 120) explicitly says that a general intuition that *p* presents no evidence for *p*; it justifies *p* in some other way.[53] Thus even on the most intuition-friendly epistemology, general intuitions are not taken to serve as evidence.

Still, it could be insisted that *some* kind of epistemic justification is invoked here, whether evidential or not. This could justify preferring one revisionary-metaphysical theory over another (the more intuitive over the less).

Let us bracket the question of how genuinely *revisionary* a revisionary-metaphysical theory can be if its adoption is grounded in its intuitiveness. As it stands, Huemer's approach does not illuminate how an intuitive belief is supposed to be more *likely to be true* than an unintuitive one. Conceding that intuiting that *p* does not provide evidence for *p*, one can always insist that it nonetheless justifies belief that *p*. But to believe that *p* is one and the same as to believe that *p* is true (at least for creatures who possess the concept of truth), so whatever justifies belief that *p* must suggest in one way or another the *truth* of *p*. It is unclear how simply being visited by the intuition that *p* suggests the truth of *p*.

The point can be put in terms of the *truth-connection* of epistemic justification. It is common to hold that epistemic justification must be

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application to intuition. A similar form of dogmatism/conservatism is developed also by Chudnoff 2011 and Bengson Ms.

53. What way? Huemer (2005: 120) writes: "Phenomenal Conservatism and my version of intuitionism are forms of *foundationalism*: they hold that we are justified in some beliefs without the need for supporting evidence. The role of conditions (1), (3), and (5) [the occurrence of certain intellectual appearances] in the theory of justification is that of conditions under which certain beliefs… *require no evidence*, rather than that of evidence supporting those beliefs."

connected in some way to truth, precisely because belief presents its contents as true. The idea is this: general intuitions are not truth-connected; epistemic justification is truth-connected; therefore, general intuitions do not constitute epistemic justification.[54] The revisionary metaphysician's challenge is to show what is wrong in this reasoning.

What is the truth-connection of justification? A simple but demanding view is the reliabilist one that for some consideration C to confer epistemic justification on S's belief that *p*, C must make it more likely that *p* is true. This is an 'externalist' requirement essentially reducing the truth-connection to truth-tracking. A more liberal gloss on the truth-connection of justification may allow that C confer justification on S's belief that *p* even if C does not make it more likely that *p* is true — provided that S *believes* (or perhaps that S has *reason* to believe) that C makes it more likely that *p* is true (see Cohen 1984).[55] The brain-in-vat's perceptual experiences do not make it more likely that things are the way they perceptually seem to be; but the envatted brain *believes* (and has *reason* to believe) that they do.[56] So the envatted brain is justified in believing that things are the way they perceptually seem to be, on this internalist twist on reliabilism.

I have already argued that general intuitions are probably not truth-tracking. This means that they do not possess the externalist truth-connection. But I think it also suggests that, in the context of metaphysical

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54. The first premise here is partially supported by the above discussion of the truth-tracking capacity of general intuitions. However, the notion of truth-connection is potentially more liberal than that of truth-tracking, as we will see momentarily, so the revisionary metaphysician may have some extra options here. At the same time, it is worth noting that the added liberality of the notion of truth-connection makes the *second* premise more plausible.

55. A hyper-liberal view is that C can confer justification on the belief even if (i) it does not make it more likely that *p* is true and (ii) the subject does not believe that it does, provided the subject does not have the belief (or perhaps does not have reasons to believe) that C does *not* make it more likely that *p* is true. On this view, the presence of a general intuition that *p* combined with the absence of a truth-tracking-undermining belief suffices to confer justification.

56. It is admittedly odd to speak of a brain believing something. What I have in mind here would be more accurately put by saying that the person, or subject, or cognitive agent constituted (or realized) by the brain believes something.

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inquiry, they do not meet the more internalist truth-connection. For consider the position of the revisionary metaphysician at the end of metaphysical inquiry, when all the coherent metaphysical positions on every metaphysical issue are laid out before her, along with their logical interrelations. Having been exposed to the notion of truth-connection and truth-tracking, this metaphysician would have to come up with a reason to believe that general intuitions are truth-connected if she wants to rely on them to justify revisionary-metaphysical theories. Unlike the non-philosophical ('naïve') subject, the end-of-inquiry metaphysician is aware of the notion of truth-tracking and the debate surrounding the truth-tracking capacity of intuition. So pending a demonstration of intuitions' truth-tracking capacity, the metaphysician should not believe that they are truth-tracking (let alone have reason for so believing) — which is what the internalist truth-connection requires. Thus at the end of inquiry general intuitions will be neither *actually* truth-conducive nor *believed to be* truth-conducive.[57]

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I conclude that it is far from clear how general intuitions could function as *evidence* in revisionary metaphysics. This is not yet to say that they have no epistemic role in it; merely that if they do it is not by virtue of constituting evidence. Accommodating general intuitions is not a form of accommodating evidence. I now want to suggest that what it is a form of is enhancing theoretical adequacy. The case for this is straightforward, and rests on the observation that there are theoretical virtues which are clearly enhanced by the accommodation of general intuitions.

Perhaps the most obvious case is the virtue sometimes called *conservatism*. The idea behind conservatism is that, other things being equal, a theory is preferable over its rivals when it conflicts with fewer of one's existing beliefs (and other doxastic commitments), that is,

conserves more of them.[58] This is clearly enhanced by a metaphysical theory that accommodates some general intuition: since the intuition is an existing doxastic commitment, and is often associated with a folk belief, consistency with it allows us to conserve both an intuitive commitment and a folk belief.

Another virtue often enhanced by accommodating general intuitions is *unity*. A theory consistent with some intuitive general principle is liable *mutatis mutandis* to be more unified than one inconsistent with such a principle, at least when the general intuition has a universally quantified content (*e.g.*, that *every* physical event has a physical cause, or that *every* concrete particular is precise/non-vague). A universal principle, which applies to every single entity of some ontological category, would subsume under it a comprehensive number of entities, thus enhancing one theory's overall unity.

There may be other theoretical virtues enhanced by accommodation of general intuitions. But there is no need to belabor the point: it is clear from what has already been said that the overall theoretical (super-empirical) adequacy of a theory is straightforwardly affected by its accommodation of general intuitions. This offers us a way of making sense of the epistemic role of general intuitions, especially in the absence of any clearly viable story about how they might play an *evidential* role.

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To conclude, in §2.1 I argued that singular intuitions cannot play an evidential role in revisionary metaphysics, only in descriptive metaphysics; and in §2.2, that whatever else they may do, general intuitions do not provide *evidence* for revisionary-metaphysical theories. There seem to be no other types of intuition appealed to by metaphysicians. Meanwhile, §1 argued that empirical evidence does not typically

57. Moreover it would be impossible for the metaphysician at the end of inquiry to have *no* beliefs on the matter, in a way that would satisfy the hyper-liberal view on the truth-connection canvassed in the Note 55.

58. Quine and Ullian, in their classic discussion, characterize conservatism (which, by the way, they list as the first theoretical virtue) as follows: "the less rejection of prior beliefs required, the more plausible the hypothesis — other things being equal" (1970: 67).

discriminate among revisionary-metaphysical theories. The upshot is that theory choice in revisionary metaphysics cannot be rationally affected by either empirical or intuitive evidence. Since plausibly there are no other potential sources of evidence, we have here underdetermination of revisionary-metaphysical theory by *total* evidence (not just empirical evidence). If so, theory choice in revisionary metaphysics must rest exclusively on extra-evidential considerations. The revisionary metaphysician then faces a double challenge: to show (i) that some extra-evidential considerations do indeed favor some revisionary-metaphysical theories over competitors, and (ii) that the relevant form of 'favoring' makes the favored theory likelier to be true. In the next section, I argue that (ii) proves hard to meet.[59]

3. Revisionary Metaphysics and Theoretical Adequacy

Some philosophers—most notably van Fraassen (1980)—have argued that the super-empirical or theoretical virtues are one and all pragmatic rather than epistemic. By this it is meant that such virtues recommend the virtuous theory for acceptance *as useful*, but not necessarily for acceptance *as true*. For none of them is indicative, in any context, of the probable truth of the virtuous theory. Put succinctly, the idea is that these virtues are not truth-conducive.[60] If this is right, then we can never have *epistemic* reasons to choose among competing evidentially equivalent revisionary-metaphysical theories (which I have argued is a rife circumstance).

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59. To repeat a point from §1, none of this is meant to suggest that the process of inquiry can be neatly divided into an evidence-gathering/accommodating part and a theorization part; merely that there are two different dimensions along which the end result of the process of inquiry can be assessed.

60. Van Fraassen is not alone denying the truth-conduciveness of the theoretical virtues. Lycan, for example, explicitly concedes that "conservatism as a canon of theory-preference has no justification in the epistemological sense, but neither have simplicity, testability, fruitfulness, and the other theoretical virtues" (1988: 166). Beebe (2009) offers a useful survey and analysis of the difficulty in establishing the truth-conduciveness of the theoretical virtues, with a rather pessimistic conclusion.

Most philosophers would reject the sweeping claim that the theoretical virtues are always and everywhere non-truth-conducive. In this section, I want to consider the possibility that, even if some theoretical virtues are truth-conducive in the context of scientific (and/or folk) theorizing, there are *special* reasons to think they may *not* be truth-conducive in the context of metaphysical theorizing.[61]

Unfortunately, there is no accepted organon of theory-evaluation and theoretical-virtue-assessment. The theoretical virtues are many, sometimes diffused but sometimes overlapping, often ill-defined and always quite vague. In consequence, there is no hope of mounting a decisive and all-encompassing case either for or against their truth-conduciveness. Here I focus on two groups of virtues appealed to with special frequency in metaphysics: (i) parsimony, simplicity, and modesty (§3.1); (ii) unification and coherence/cohesion (§3.2). I then offer brief remarks on three other virtues more commonly mentioned in other domains: conservatism, testability, and fecundity (§3.3). My suspicion is that none of these is truth-conducive in the metaphysical context, though showing this would require a more thorough examination. My goal here is to set a *preliminary challenge* to the revisionary metaphysician: *show me* a theoretical virtue that is truth-conducive—and *how* it is truth-conducive—in metaphysical theorizing.

3.1. Parsimony, Simplicity, Modesty

Of all the theoretical virtues, parsimony is the most prominent in metaphysical discussions. Fortunately, it is also one of the clearest, thanks to Ockham's Razor: entities should not be multiplied without necessity. Still, several different principles may be at play here. Four are prominent:

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61. It is important to keep in mind, in any case, that I do not assume here the view that the super-empirical or theoretical virtues must be truth-conducive to justify. I allow that they might justify even without being truth-conducive—as long as the relevant subject (*i.e.*, the revisionary metaphysician at the end of inquiry) believes (or has reason to believe) that they are truth-conducive (see the discussion in §2.2 of general intuitions' truth-connection).

(a) Token-parsimony: a theory positing fewer token entities is preferable, other things being equal, to a theory positing more token entities.

(b) Type-parsimony: a theory positing fewer types of entity is preferable, other things being equal, to a theory positing more types of entity.

(c) Basic-token-parsimony: a theory positing fewer basic/fundamental token entities is preferable, other things being equal, to a theory positing more.

(d) Basic-type-parsimony: a theory positing fewer basic/fundamental types of entity is preferable, other things being equal, to a theory positing more.[62]

I will now suggest that the token-parsimony principle is non-truth-conducive when applied to revisionary-metaphysical theories. I conduct the discussion with token-parsimony as target because it is the most straightforward, but as far as I can tell the considerations I raise apply equally to all four parsimony principles.

Suppose theory T_1 is more token-parsimonious than T_2. This appears to recommend, indeed *rationalize*, preferring T_1 over T_2. But if asked *why* token-parsimony makes it rational to prefer T_1 over T_2, we would be disinclined to answer as follows: it is rational to prefer T_1 over T_2 because the world is likely to contain relatively few token entities, and so the more parsimonious theory is more likely to reflect the way the world is. This answer seems misguided, utterly misconstruing the rationalizing force of parsimony. Presumably, the world has just as many token entities as it does, regardless of our theorizing.

To assume that parsimony is compelling because it renders the parsimonious theory more likely to describe correctly the number of entities the world really has is to assume a principle we may call the

barrenness of the world: the world contains very few entities. Is there a reason to believe this principle? Construed as an *a posteriori* principle, it suffers from the distinct disadvantage that there is a dearth of evidence for it. It is unclear what kind of inductive generalization, or abductive inference, might support it.[63] Construed as an *a priori* principle, it is unclear why we should expect the world to be subordinated to its dictates. As noted, one would think that the world contains just as many entities as it happens to; how many we would be pleased with it containing appears irrelevant. So there appears to be no reason to believe in the barrenness of the world.

Thus there are two problems with appeal to the barrenness principle: first, there is no motivation for the principle, and second, such appeal seems to misrepresent the rationalizing role of parsimony considerations. There certainly appear to be *pragmatic* advantages to parsimony, if only in terms of the metabolic cost of information processing (to put it crudely). There may also be *aesthetic* advantages, insofar as minimalism is a recurring theme across many artistic genres and traditions.[64] But such advantages have nothing to do with the likelihood of the world being a certain way.

It is part of the revisionary metaphysician's challenge, then, to tell us what it is about parsimony that might recommend parsimonious theories for acceptance specifically *as true*. Accepting a theory because it is aesthetically pleasing, or because it is useful to do so, will not do. In short: it is the revisionary metaphysician's challenge to show us in what way parsimony is truth-conducive.

62. Schaffer (2007) argues for the superiority of the basicness-involving versions over the more traditional construals in terms of number of overall (types of) entities. Biggs (forthcoming) incorporates both into a single mega-principle.

63. Indeed, it is unclear what phenomena might appear in the inductive sample or the abductive explanandum. That is, it is unclear what the inductive generalization or abductive inference is supposed to be generalization or inference *from*.

64. Certainly expressly minimalist contemporary art would qualify – I am thinking of Dan Flavin's installations, Agnes Martin's canvases, and Frank Stella's work in the visual arts, as well as John Cage's and Arvo Pärt's music (among others'). But aesthetic minimalism recurs much more widely, from Japanese gastronomy and poetry to Polynesian sculpture and much American twentieth-century prose (think Hemingway).

One thought might be that the barrenness principle should be embraced in a Kantian spirit: as a transcendental, synthetic *a priori* principle whereby the mind sets preconditions the world must meet in order to be intelligible. I hesitate to reject this as unworkable, but note that it would seem antithetical to the philosophical orientation of most latter-day revisionary metaphysicians.[65] And for good reason: it makes (this aspect of) theory choice in revisionary metaphysics a matter of which theory involves a better imposition of the mind's conceptual scheme onto the world it studies. We are to prefer T_1 over T_2 because T_1 better imposes the mind's weakness for desert landscapes on the world. What we are *not* doing is choosing the theory that better represents the world's structure as it is 'in itself', mind- and conceptual-scheme-independently.

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Another suggestion might be that a parsimonious theory is preferable because it is *simpler*. The idea is to ground the truth-conduciveness of parsimony in that of simplicity. And indeed it is intuitive that parsimony enhances simplicity. It is less clear, however, that simplicity is truth-conducive.

For starters, although characterizing simplicity is a thorny issue, the most natural measures are *subjective*: the easiness with which a theory is grasped; the speed with which it elicits a phenomenology of understanding; the number of sentences it requires to express it; and so on.[66] But if our goal is to characterize simplicity in a way that might cast it as truth-conducive, what is called for is some *objective* measure(s). Perhaps a theory is objectively simpler the fewer the

primitive laws it postulates.[67] But this would seem to ground simplicity in a kind of parsimony (namely, with respect to primitive laws) rather than parsimony in simplicity. Perhaps a theory is objectively simpler the fewer its unexplained explainers — propositions that do some explaining in the theory but for which there is no explanation in it.[68] But it is not clear that this is genuinely objective, given the appeal to the epistemological notion of explanation (which arguably relies on the notion of understanding). Thus it would appear a non-trivial task to produce an objective measure of simplicity, one that might cast it as truth-conducive. This too is an aspect of the revisionary metaphysician's challenge.

However the issue of measure is resolved, appeal to simplicity faces the same problem as appeal to parsimony: for simplicity to be truth-conducive, a principle of the *simplicity of the world* would have to hold. But as van Fraassen (1980: 90) points out, "it is surely absurd to think that the world is more likely to be simple than complicated". Again a destructive dilemma would arise: as *a posteriori*, the principle of the simplicity of the world is remarkably unsupported; as a priori, it is arbitrary unless Kantian. And in any case the appeal to such a principle seems to misrepresent the rationalizing force of simplicity. We do not prefer simple theories because we reason that, since the world is simple, a simpler theory is more likely to capture the world's independent level of complexity. After all, we have no theory-independent handle of the world's objective level of complexity.

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65. This does not apply, of course, to Strawson himself, whose Kantian disposition is palpable. But it does seem to characterize most working metaphysicians, at least those with realist meta-metaphysics.

66. Harman (1992: 203) mentions these subjective takes on simplicity, and Quine and Ullian (1970: 71–3) agonize over this subjectivity, presumably precisely because of its threat to the truth-connection of simplicity (though they do not use this terminology).

67. Primitive laws are ones that ground but are not grounded by/in other laws. The notion of grounding here is the one often denoted by the 'in virtue of' — a notion on which there is no agreement as yet, but which appears to be central. For a classical discussion, see Fine 2001.

68. Lycan (2002: 415) puts this in terms of the number of 'primitive explanatory notions' involved in a theory. Presumably, 'primitive' means here that there are no explanations of it, even though it serves in the explanation of other notions.

Might the truth-conduciveness of parsimony and simplicity alike be grounded in that of *modesty*? Modesty is the virtue whereby one theory says less — makes fewer claims — than another. The virtue in this can certainly be cast in the same problematic way as with parsimony and simplicity. Thus Quine and Ullian (1970: 68) write: "It tends to be the counsel of modesty that the lazy world is the likeliest world." Clearly, a principle of the *laziness of the world* would be no better than those of the *barrenness* and *simplicity* of the world. A more viable way to cast the virtue in modesty is to note that saying less exposes one less to error, keeping one's standing liabilities to a minimum. There are fewer ways for a modest theory to go wrong than for an immodest one — and this does seem to be truth-conducive.

The truth-conduciveness of modesty could then be used to ground that of parsimony and simplicity. Consider parsimony. Suppose T_1 posits five entities in the explanation of phenomenon P, while T_2 posits thirty-one (including the original five). Then there are twenty-six more simple existential claims T_2 makes and therefore twenty-six extra ways for T_2 to include a falsehood. Other things being equal, it would seem that T_1 is indeed much likelier to come out true, and precisely because it is more modest. Thus the fact that parsimony enhances modesty would mean that it *inherits* the latter's truth-conduciveness. Similar remarks can be made about simplicity and its positing of fewer primitive laws or unexplained explainers.

However, there is an important disanalogy between scientific and metaphysical theories that makes modesty less applicable to the latter. Suppose we took five particles, made a micro-sculpture out of them (in the manner of the artist Willard Wigan), and metaphysically vacuum-wrapped the sculpture. How many entities are there in the wrap? Three views suggest themselves: a nihilist view, according to which there are five; a universalist view, according to which there are thirty-one (the five particles and twenty-six fusions thereof); and a restrictivist view according to which there are six (the five particles and

their sculpture-fusion).[69] As far as parsimony is concerned, nihilism edges out restrictivism and both are far ahead of universalism. Interestingly, however, as far as modesty is concerned, the three are locked in a tie: each must make thirty-one claims. When a *scientific* theory posits five rather than thirty-one entities, it commits to the existence of five putative entities, but does not in addition commit to the *non-existence* of the remaining twenty-six. It thus makes only five claims in the area. By contrast, when nihilism posits only five entities in the wrap, it *does* commit to the non-existence of the remaining twenty-six putative entities. It thus makes *thirty-one* claims in the area — just as many as universalism.[70] More generally, for any world with n mereological simples, while nihilism posits n objects, universalism 2^n-1, and restrictivism $n<m<2^n-1$, all three must make 2^n-1 existence claims.[71]

Similar remarks apply to other central, paradigmatic debates in revisionary metaphysics. Whether one posits universals or attempts to make do with collections of particulars; whether one posits haccaeities

69. Not every restrictivist view would posit only one composite object here; any view that posits fewer than twenty-six composites would strictly speaking count as restrictivist. The only obviously plausible one, however, and in any case the only one I will consider here, is the one that posits a single composite in the wrap.

70. Similar remarks apply to the postulation of primitive laws and/or unexplained explainers characteristic of simplicity.

71. This way of putting things may be problematic, given that claim individuation is a slippery matter. Instead of listing every putative entity she does not take to be an entity, the nihilist could simply list all the putative entities she does take to be entities and then add a "that's all" clause. This nihilist would be making $n+1$ claims, not $2n-1$. Still, the fundamental point is sound, as the amount of information conveyed by making $2n-1$ claims about individual putative entities or $n+1$ claims that include a "that's all" claim would be strictly the same. Perhaps a wise measure of modesty would count solely singular claims about individual putative entities, or perhaps it would appeal to amount of information instead of the number of claims. But whatever the measure of modesty ends up being, it had better return the result that nihilism, restrictivism, and universalism are equally modest, as they appear to involve essentially the same kind of exposure to possible error. (In addition, it would be somewhat curious if theory choice in revisionary metaphysics came down to picking among theories that compete at finding clever ways of saying less. This certainly does not feel like what one is doing in considering revisionary-metaphysical issues and trying to come down on them.)

or attempts to make do with bundles of properties; whether one posits quiddities or attempts to make do with funds of causal powers; whether one posits a 'secret connexion' underlying causation or attempts to make do with actual and/or counterfactual regularities — in all these cases, and others, one must make the exact same number of claims whatever one's view, the claims being distinguished merely by the presence or absence of a negation sign. The competing theories in each of these debates are therefore equally (im)modest. (The reason for this seems to be that metaphysical theories are supposed to be *global*, or *total*: they have to say the *whole* truth. They must consequently commit to myriad claims about what is *not* the case. This total character is built into their nature in a way it is not into the nature of scientific and folk theories. At least this is one natural diagnosis of the equi-modesty of metaphysical theories.)

Even if modesty is truth-conducive, then, the fact that metaphysical theories are typically equi-modest means that modesty does not *discriminate* among them.[72] The upshot is that among parsimony, simplicity, and modesty we do not find a theoretical virtue both truth-conducive and discriminating. Parsimony and simplicity are discriminating but not truth-conducive, modesty truth-conducive but undiscriminating. Thus it is unclear how revisionary-metaphysical theory choice could rely on parsimony, simplicity, and modesty.

3.2. *Unification and Coherence/Cohesion*

In the philosophy of science, one of the most discussed theoretical virtues pertains to the unity or unificatory power of a theory. In epistemology, a much discussed feature of belief systems is their coherence or cohesion. It is not entirely clear from the literature whether these are at bottom one and the same feature or two slightly different

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72. Furthermore, parsimony and simplicity do not inherit modesty's truth-conduciveness when applied to metaphysical theories. For while a scientific theory's parsimony and simplicity enhance its modesty, as we have just seen in a metaphysical theory they do not, since the theory must still make claims about all those putative entities it does *not* posit and all those putative primitive laws or unexplained explainers it does not postulate.

features. In any case, my contention here is that it is unclear how either unification or coherence are supposed to be truth-conducive.

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Start with unification. To be sure, at an intuitive, pre-theoretic level, unification certainly "feels" truth-conducive. Aristotle (1098b4) remarks that "with what is true all things which really are are in harmony, but with that which is false the true very soon jars". Yet Aristotle offers no argument for this optimism, and vindicating the feeling of truth-conduciveness proves harder than expected.

The first challenge here is how to characterize unification. In philosophy of science, the relevant discussion is typically conducted in the context of debates on the nature of scientific explanation, in particular the explanation of laws by other, more basic laws.[73] The assumption is that a law is more basic than others when it unifies them, and the question becomes how to characterize the relation R that holds among laws L_1, L_2, and L_3 when and only when L_1 unifies L_2 and L_3.

A more fundamental question, however, is why we should prefer a more unified theory over a less unified one. Again, it is not really in question that unification does rationalize acceptance of a theory. The question is how to elucidate this rationalizing role of unification. In particular, it is an open question whether unification provides us with an *epistemic* rationale for preferring a theory (as opposed to pragmatic, aesthetic, etc.).

In a seminal discussion, Friedman (1974) develops an account of unification that suggests a two-part approach to its rationalizing role: (i) the more unified a theory is, the more laws it subsumes under more basic ones, thus economizing on the number of laws we have to accept as primitive and inexplicable; (ii) the fewer the laws we have to accept as primitive and inexplicable, the greater our understanding

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73. The explanation of laws by (more basic) laws is to be contrasted with (i) the explanation of singular events by laws and (ii) the explanation of singular events by singular events.

of the world.[74] This seems quite promising as an account of the virtue in unification. It does not, however, cast the effected unity as an indicator of likely truth. First, on Friedman's account, the virtue of unity in effect reduces to that of simplicity (a minimum of unexplained explainers) or parsimony (of primitive laws), which we have already seen to be problematic. Secondly, while Friedman shows that unification enhances understanding, he does nothing to establish that the independent level of the world's *understandability* (or *intelligibility*, or *comprehensibility*) is such that we ought to expect the kind of enhanced understanding afforded by a unified theory.

The point may seem repetitive by now, but it is worth emphasizing. Insofar as the speed, effortlessness, and vivacity of our comprehension of the world reflected accurately the world's objective comprehensibility, we could take those measures of comprehension to be indicators of the relevant theory's truth.[75] The problem is that we have no independent handle on the world's objective comprehensibility, so we have no way of establishing how accurately our theory's level of comprehension reflects the world's level of comprehensibility.

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Recall that in §1 we defined the 'accommodation' of data in terms of a theory's prediction, description, and retrodiction of data. We did not include as part of this the *explanation* of data. The main reason for this is this. Despite decades of lively debates over the nature of *scientific* explanation, little illumination has carried over to the presently more obscure notion of *metaphysical* explanation. What exactly counts as a

metaphysical 'explanation' is not at all clear. A philosopher could legitimately hold that in fact there is no such thing. My own view is that there *is* a sense in which metaphysical theories can be said to explain their data, but they do so purely in virtue of unifying them — subsuming them under ever more general metaphysical principles.[76] This would ground the virtue of explanation in the virtue of unification (at least in the metaphysical domain). If so, the explanation of data would be an aspect of the explanatory theory's super-empirical rather than empirical adequacy. And, crucially for our present purposes, the non-truth-conduciveness of unification would extend to explanation in the metaphysical domain.[77]

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There are, of course, accounts of explanatory unification other than Friedman's. But as far as I can tell, none offers a substantially different gloss on the virtue in unification — why it is we ought to favor more unified theories. One might hope for help from epistemological quarters, where philosophers have developed various accounts, as well as formal measures, of the degree of *coherence* exhibited by a system of beliefs.[78] Here 'coherence' is a matter not just of the *absence* of logical inconsistency, but also of the *presence* of various entailment and probabilistic relations among the beliefs in the system; the term 'cohesion'

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74. Friedman (1974: 15) writes: "I claim that this is the crucial property of scientific theories we are looking for; this is the essence of scientific explanation — science increases our understanding of the world by reducing the total number of independent phenomena that we have to accept as ultimate or give. A world with fewer independent phenomena is, other things equal, more comprehensible than with more."

75. Here the world's 'comprehensibility' just means the degree to which the world lends itself to comprehension; one may or may not take this to come to the same as intelligibility.

76. Thus whatever the merits of Kitcher's (1981) unification theory of *scientific* explanation, I think it is probably the right sort of theory for *metaphysical* explanation.

77. In any case, meeting the epistemological challenge to revisionary metaphysics by leaning on the notion of metaphysical explanation would require offering an account of metaphysical explanation that casts it as truth-conducive. This may involve denying the unification account of metaphysical explanation and/or the non-truth-conduciveness of unification. In addition, however, it would also require a positive account of explanation and its truth-conduciveness.

78. This is of evident epistemological significance, given the centrality of the notion of coherence to coherentist accounts of epistemic justification.

would forsooth make a better label.[79] One could propose, in any case, that the coherence/cohesion of revisionary-metaphysical theories is truth-conducive, so that more coherent theories are more likely to represent the way the world actually is. I now turn to argue that this faces some extraordinary obstacles.

There is something *prima facie* suspicious about the notion that coherence is truth-conducive.[80] The system of statements constituted by *The Brothers Karamazov*, augmented with certain background assumptions (of the sort susceptible to imaginative resistance),[81] forms an extraordinarily coherent system, yet one that is nowise truth-linked. This pedestrian observation is underscored by two recent proofs in Bayesian confirmation theory that venture to *demonstrate* that coherence is not truth-conducive, in that more coherent systems are not likelier to be true (Bovens and Hartmann 2003, Olsson 2005). Both proofs require certain assumptions to be in place in order to go through, but the consensus seems to be that these are fairly innocuous.[82] The formal derivation of the non-truth-conduciveness of coherence from these

79. Logical consistency is of course an aspect of coherence, but only a first aspect. In a seminal discussion, Bonjour (1985 Ch. 5) lists four aspects of coherence of belief systems that go beyond logical consistency: degree of probabilistic consistency, inferential connectedness, divisibility to inferentially connected subsystems, and lack of explanatory anomalies. For more details, see Bonjour's discussion.

80. More precisely, what is suspicious is the notion that the aspects of coherence that go beyond logical consistency are truth-conducive. There is a straightforward sense in which, pending the adoption of paraconsistent logic, the consistency of a theory is very much truth-conducive, as it makes it *possible* for the theory to be true.

81. Imaginative resistance occurs when certain background assumptions are such that the author of a piece of fiction cannot stipulate them away. For example, Dostoyevsky cannot tell us that, in the world of *The Brothers Karamazov*, although *p* obtains and if *p* then *q* obtains, *q* does not obtain; or that in that world, red is not a color; or that genocide is not wrong. For fuller discussion, see Gendler 2000.

82. Two assumptions stand out. The first is that the degree of coherence of a system of beliefs is determined by probabilities of the beliefs' propositional contents. The second is that the individual probability of each belief's propositional content is independent of that of any other's. Both seem attractive, pre-theoretically.

assumptions has never, to my knowledge, been contested. Typically, coherentists have preferred responding by either (i) denying the allegedly innocuous assumptions used in the proofs, (ii) denying that epistemic justification must be truth-conducive, or (iii) arguing that there are other epistemic desiderata (different from truth-conduciveness) furthered by coherence. Let me comment on each option.

Full discussion of the allegedly innocuous assumptions made by the proofs would take us too far afield, and in any case I have nothing original to say about them. I only wish to register my sociological impression that the experts take them to be rather modest. Still, their plausibility *has* been challenged.[83] The revisionary metaphysician may hope that these debates will be settled in her favor, with the proofs of coherence's non-truth-conduciveness undermined and — ideally — contrary proofs produced to the effect that coherence *is* truth-conducive. At present, however, this seems like a shot in the dark. While the anti-coherence proofs are debated, no one has yet managed a pro-coherence proof. Yet meeting the epistemological challenge of revisionary metaphysics would require positive reasons to think coherence *is* truth-conducive.

The option of denying the truth-conduciveness of epistemic justification is also unpromising. As noted in §2.2, there is surely a truth-*connection* involved in epistemic justification. Perhaps this truth-connection does not require that the coherence be truth-conducive. Perhaps it only requires that we *believe* (or have *reason* to believe) that it is. But if coherence cannot be shown to be truth-conducive, the end-of-inquiry revisionary metaphysician would not even believe (nor have reason to believe) that they are truth-conducive. So coherence would not exhibit even the weaker, internalist kind of truth-connection.

The most plausible option is to pursue the third response. Probably the most developed version of this response is Dietrich and Moretti's (2005) formal demonstration that, while coherence may not be *truth*-conducive, it *is* *confirmation*-conducive. In other words, while

83. For example, by Huemer (2011).

the coherence of a set of beliefs does not make any of the individual beliefs in it more likely to be true, it does guarantee that what confirms one belief also confirms the beliefs that cohere with it, thus enhancing the theory's overall 'confirmedness' — essentially, its evidential adequacy. Upon reflection, this is intuitive. Suppose e is a piece of evidence that confirms p. If p belongs to a set of logically unrelated propositions, there is no reason to expect e to confirm in any way other members of the set. By contrast, if p belongs to a strongly coherent set of propositions, e may also confirm the other individual members of the set (as well as the conjunction of them all). Thus the system's coherence propagates confirmation through the system.

The confirmation-transmitting properties of coherence are good news for coherentists, but may be of no help to revisionary metaphysicians. For revisionary metaphysics is characterized by underdetermination of *complete* theory by *total* evidence, making the propagation of confirmation within different parts of the theory irrelevant. Suppose that two theories (T_1; T_2) are such that (i) each has two parts (T_{1a}, T_{1b}; T_{2a}, T_{2b}), (ii) all four theory-parts (T_{1a}, T_{2a}, T_{1b}, T_{2b}) are equally internally coherent, and (iii) the two parts of T_1 cohere better than the two parts of T_2. Under such conditions, and other things equal, if some body of evidence e confirms T_{1a} and T_{2a} equally well, then T_{1b} is better confirmed than T_{2b}. This is because of the better propagation of confirmation from T_{1a} to T_{1b} than from T_{2a} to T_{2b}. However, if e confirms equally well not *parts* of T_1 and T_2, but T_1 and T_2 *themselves*, then there is no further propagation of confirmation to consider.[84] And this is the characteristic state of affairs in revisionary metaphysics: the total body of evidence confirms equally *complete* theories.

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I conclude that appeal to the theoretical virtues surrounding unification and coherence for the purposes of revisionary-metaphysical theory choice faces a number of significant obstacles. Granted, my argumentation has relied on formal proofs in Bayesian confirmation theory that I did not present and am of limited competence to evaluate. Here again, though, I think it is the revisionary metaphysician's challenge, and burden, to show us how a revisionary-metaphysical theory's unity or cohesion enhances the likelihood that it correctly represents the world's structure. The discussion above merely attempts to point at the harder parts of the challenge.

3.3. Other Theoretical Virtues
I close with brief remarks on three other theoretical virtues sometimes mentioned in philosophy-of-science discussions: conservatism, testability, and fecundity.

The virtue of greatest importance in the present context is conservatism: as we saw in §2.2, accommodating general intuitions is certainly a form of enhancing conservatism.[85] Thus one basis for theory choice in revisionary metaphysics could be the accommodation of general intuitions, but only provided that a theory's conservativeness can be shown to make it more likely that the theory is true.

On the face of it, however, this would seem extremely implausible. As a matter of psychological fact, conservatism is immensely compelling. There is doubtless a great pragmatic value in adopting the more conservative of two theories — formulating it would have lower metabolic cost, certainly. But the question of its *epistemic* value is far from clear. A proposed theory is conservative to the extent that it is continuous with established beliefs. What is it about a theory's continuity with established belief that makes it more likely to describe the world accurately?

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84. The only possibility for this consideration to regain its relevance is if we become interested in the way T_1 and T_2 might integrate into yet larger theoretical edifices. However, once we consider overall theories of the world in revisionary metaphysics, where there is no potential larger, subsuming theory, that possibility falls by the wayside.

85. We also mentioned that accommodating general intuitions likely enhances unity. But since unity has just been argued to be non-truth-conducive, to the extent that they enhance unity accommodating general intuitions would not make it more likely that the accommodating theory is true.

Quine and Ullian (1970) discuss conservatism at some length, and seem to think of its virtue as essentially continuous with modesty's. Perhaps the thought is that the less it departs from established belief, the fewer *new* ways a theory has of going wrong. The problem with this, from the standpoint of truth-conduciveness, is that a revolutionary, unconservative theory may not only introduce potential new ways of going wrong, but may also potentially purge old ways of going wrong. So there is no reason to think that, of two theories making the exact same number of claims but differing in degree of conservativeness, the more conservative is less *exposed to error.*[86] To suppose otherwise would be to commit to the general principle that the world is always and everywhere more or less the way it is already believed to be — an absurd proposition.[87] In short: conservatism is probably not truth-conducive. In consequence, insofar as accommodating general intuitions is a form of enhancing conservatism, it may be psychologically compelling for non-epistemic reasons but not indicative of likely truth.

Furthermore, if theory choice in revisionary metaphysics came down simply to choosing the more conservative theory, this would render revisionary metaphysics surprisingly dull.[88] It would also cast

86. There may be other ways to account for the value in conservatism, which would cast it in a more truth-conducive light. But not many come to mind. One is to construe conservatism as relying on inference from past success at survival and/or flourishing of subjects with certain beliefs to the truth of the beliefs they are holding. However, the inference is straightforwardly problematic inasmuch as sheer empirical adequacy of one's beliefs would presumably explain just as well one's survival and flourishing.

87. The absurdity here is primarily due to the 'always and everywhere' part of the claim. For it to be a general virtue of a theory, conservatism would have to apply not just to our current theory of the world, but to every theory of the world. For example, it would have to apply to the caveman's theory of the world. Suppose two über-cavemen propose new theories, T_1 and T_2, such that T_1 conserves more of the caveman's theory, C, than T_2 does. T_1's greater faithfulness to C does not seem to enhance the likelihood that it describes the world accurately.

88. I am assuming here that all the other tools for theory choice we have been discussing fail for revisionary metaphysics (*e.g.*, for the reasons cited in our discussion).

it as not terribly different from descriptive metaphysics, whose mandate is to make explicit the metaphysics implicit in the folk theory of the world — the theory of the world already (*i.e.*, pre-philosophically) believed.[89] I conclude that conservatism is in several ways an unpromising path out of the epistemological challenge facing the revisionary metaphysician.

Parsimony, simplicity, modesty, unity, coherence, and conservatism are arguably the most important and most commonly cited theoretical/super-empirical virtues. Various lists of the theoretical virtues contain other, more rarified items. Typically these are not *prima facie* promising candidates for truth-conduciveness; reminding ourselves of this should be useful. Consider *testability*. A theory is testable to the extent that it is open to falsification. This is clearly better thought of as a useful heuristic than as a truth indicator: the notion that the world is in and of itself a 'powerful falsifier' is neither clear nor plausible. Next consider *fecundity*. A theory is fruitful or fecund to the extent that it opens up new avenues of inquiry and energizes research in the area. This may render a theory intellectually exciting, but it is unclear why it is supposed to render it more likely to conform to the way the world is: a principle of the *excitingness of the world* would be flattering but not plausible.

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I conclude that, pending demonstration that unity or cohesion may be truth-conducive despite the Bayesian theorems to the contrary, modesty is the only truth-conducive theoretical virtue of revisionary-metaphysical theories, but unfortunately does not discriminate among them. In any case, given the underdetermination of revisionary-metaphysical

89. In fact, since the most conservative theory is always the one currently believed (it involves *no* departure from established theory), the rational thing to do for revisionary metaphysicians, in that circumstance, might conceivably be to stop doing revisionary metaphysics. The only point of revisionary metaphysics would be to expose inconsistencies in the folk's metaphysics and propose the most minimalist fix possible to them. Once this is done, however, there would be nothing left for the revisionary metaphysician to do.

theory by empirical and intuitive evidence, and the non-truth-conduciveness of the other theoretical virtues, it would be curious if revisionary metaphysics reduced to the simple exercise of determining which coherent metaphysical package is the most modest. Certainly this does not seem to be the exercise revisionary metaphysicians take themselves to be engaged in.

It is much more plausible, at least to my mind, that revisionary metaphysics reduces to the exercise of determining which coherent metaphysical package is the most *unified*. As we have seen, however, it would be a non-trivial challenge to show that metaphysical unification is truth-conducive. The looming worry is that unless we do so, the choice among evidentially equivalent revisionary-metaphysical theories becomes not a choice of the theory most likely to be *true*, but some other kind of choice (a pragmatic or aesthetic choice, perhaps).

4. Conclusion: Possible Reactions to the Challenge

The epistemological challenge facing revisionary metaphysics — at least the one presented here — is a disjunctive one: show us how revisionary-metaphysical theories might differ in their empirical adequacy (while remaining genuinely metaphysical); *or* how singular intuitions can be relevant to revisionary (and not only descriptive) metaphysics; *or* how general intuitions can function as evidence for revisionary-metaphysical theories; *or* how revisionary-metaphysical theories can differ in their modesty; *or* how parsimony, simplicity, unity, coherence, and/or conservatism can be truth-conducive. What are the possible reactions to this challenge?

The best-case scenario is that all parts ('disjuncts') of the challenge can be met. Competing metaphysical theories turn out to differ in empirical adequacy more often than expected, singular and general intuitions turn out to be legitimate evidence in revisionary metaphysics, and the theoretical virtues turn out to be truth-conducive (and discriminating). In that scenario, we can certainly go on pursuing

revisionary metaphysics more or less as we do now, and with more transparent epistemological and methodological foundations to boot.

A less optimistic scenario involves *some* but not *all* parts of the challenge being met. This might force a change in our conception of what the pursuit of revisionary metaphysics is about. Suppose, for instance, that singular or general intuitions can be shown to play an evidential role in revisionary metaphysics after all, but that the rife empirical equivalence and non-truth-conduciveness of theoretical virtue stand. Then revisionary metaphysics would reduce to the following relatively uninspiring exercise: identify all the internally coherent theories and choose the most intuitive one. Or suppose the only part of the challenge that is met is that parsimony turns out to be truth-conducive after all. Then revisionary metaphysics would (disappointingly) reduce to identifying all the internally coherent theories and adopting that which posits the fewest entities.

The more parts of the challenge can be met, the closer we get to the best-case scenario, and to the 'uncritical' conception of what pursuit of revisionary metaphysics can hope to achieve. The fewer parts can be met, the further we drift away from that scenario. In the worst-case scenario, *no* part of the challenge can be met. Competing revisionary-metaphysical theories are always empirically equivalent, intuitions play an evidential role only in descriptive metaphysics, and no theoretical virtue is both truth-conducive and discriminating. Note that even in such circumstances, for all that has been said here the world could still *have* a conceptual-scheme-independent structure (with natural joints and all the rest of it) and disputes about what that structure is like could still be framed in a single language (without disputants talking past each other).[90] It is just that no resolution of such disputes would be possible, because we could not form *justified beliefs* about what the structure is like. In that respect, the conceptual-scheme-independent

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90. If so, there is neither a metaphysical nor a semantic problem with revisionary metaphysics.

structure of reality would be something of a Kantian noumenon: we could know nothing of it, except (at most) that it exists.[91]

One very natural reaction to this worst-case scenario would be to abandon pursuit of revisionary metaphysics altogether.[92] An alternative reaction would not abandon theory choice in revisionary metaphysics but instead radically recast it. By a sort of intellectual reverse engineering, we might consider what values other than truth the theoretical virtues are conducive to, and recast the aim of revisionary metaphysics accordingly. For even if the theoretical virtues are not *truth*-conducive, surely they are conducive to *something* valuable. If we could identify a value V, such that many of the theoretical virtues commonly appealed to in metaphysical discourse are V-conducive, then we could recast revisionary metaphysics as aimed at the achievement not of truth but of V.[93] We have already mentioned pragmatic and aesthetic values, which may serve as potential substitution instances of V; but there may be others.[94]

This is quite a radical reaction to the epistemological challenge facing revisionary metaphysics, and I suspect an *over*reaction. For it is hard to believe that typically competing revisionary-metaphysical theories are in fact epistemically equivalent and are only distinguished by their non-epistemic (pragmatic, aesthetic, etc.) character. Consider the choice between realism and idealism about medium-sized objects.

91. Pursuing the metaphysics of the Kantian noumenon is senseless, of course, and pursuing the metaphysics of the Kantian phenomenon is just doing descriptive metaphysics. Thus in this picture there is no sensible project for revisionary metaphysics.

92. This would still leave *descriptive* metaphysics as an epistemologically viable project. So abandoning revisionary metaphysics would not quite be abandoning metaphysics.

93. It may well be that V is a highly complex or composite value, of course, or (what may come to the same) that it is in fact a conjunction of values. And it strikes me as coherent, though not quite plausible, that there is in reality *nothing* valuable in the pursuit of metaphysics.

94. Taking V to be a pragmatic value would result in a sort of pragmatism about revisionary metaphysics, perhaps akin to Poincaré's (1905) conventionalism about science and indeed Carnap's (1950) own approach to metaphysics.

Perhaps Berkeley's own variety of idealism, whereby tables and chairs are ideas in God's mind, turns out to be incoherent. But surely some kind of idealism is coherent, and could very plausibly be made empirically equivalent with realism, accommodating all the same perceptual experiences. Indeed, one could devise a brand of solipsism-of-the-moment without physical entities or persisting mental entities that would be coherent and empirically equivalent to the standard realist picture of persisting physical and mental entities. It is hard to believe that such a view would *only* be less useful or less beautiful than standard realism, and would not also be less *plausible* and less *likely to be true*. Yet if we insist that such a view is less likely to be true than (the empirically equivalent) realism, we must admit that something about its intuitive and/or theoretical adequacy makes it more likely to be true, and therefore that *some* part of the epistemological challenge to revisionary metaphysics can be overcome.

For this reason, I am tempted to think that ultimately revisionary metaphysics *can* meet the epistemological challenge it faces.[95] There must be a way some revisionary-metaphysical theories are *epistemically* preferable to others. There must be some considerations that recommend accepting some of them *as true*. However, to say that a challenge *can* be met is not quite the same as to meet it, and not the same as to articulate *how* it is to be met. Actually meeting the epistemological challenge of revisionary metaphysics would require addressing as many of the challenge's disjuncts as possible. Doing this would not only lay to rest the worry that we can never have *knowledge* of the conceptual-scheme-independent structure of the world, but also crystallize the epistemological and methodological foundations of the search for that kind of knowledge.[96]

95. It is for this reason that I think of it as a challenge *of* revisionary metaphysics rather than a challenge *to* it.

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