

Notes on John Heil's *Appearance in Reality*
Elizabeth Miller (supplement to *NDPR* review written with Christopher S. Hill)
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Consider a painting—depicting a sunrise, perhaps—along with a description of some of its contents:

ORANGE There is an orange circle in the upper-left corner of the canvas.

Such a description can be both true and apt while also cohering with each of two rival hypotheses about the distribution of pigments underlying the scene:

(1) Long, continuous strokes of a single pigment, from one paint tube O, saturate the corner.

(2) Alternating dots of two different pigments, from tubes R and Y, speckle the corner.

Suppose we learn that hypothesis (2) is correct. The artist used dots of just three primary-colored pigments—from R, Y, and one other tube, B—to depict the entire scene. For all we know, in fact, *every* painting in the gallery is such a pointillist array. There is nothing that we would intuitively describe as an irreducibly “orange” pigment, nothing like the hypothesized tube O, to be found. Still, we would be confused to conclude that ORANGE is therefore false, that there are no orange circles after all. An alternative: (2) reveals something new and interesting about the decoration of our canvas, about what *it is* for our familiar orange circle to occupy its corner. Ultimately, ORANGE is made true by an appropriately proportioned and arranged constellation of pigmented dots.

John Heil tells an analogous story about:

TABLE There is an extended, solid object—a table—in the seminar room.

On his telling, we have developed familiar terms and taxonomies—talk of “tables” and “solidity”—precisely to navigate what he, following Wilfrid Sellars, labels “the manifest image”: “the picture of the universe that guides everyday interactions with our surroundings, including the interactions of scientists wielding instruments in their laboratories” (5; cf. Sellars 1962). This stands in contrast with “the image of the universe emanating from those laboratories”, “the scientific image” (5). Where we expect to find our familiar solid table, this scientific image might depict, say, some sparse cloud of whizzing charges (5). TABLE, of course, mentions no such things, at least not explicitly. According to Heil, though, we would be confused to conclude that, if science is right, then TABLE is false, that there is no table, only some charges, to be found. Heil’s alternative: we have gained new insight into the nature of our familiar table; we have learned something about what it *is* for there to be an extended and solid object in our world.

For Heil, when we endorse TABLE in the ordinary course of things, we are wielding representational tools tailored to the manifest image. This is roughly akin to using ORANGE to convey the contents of our canvas, when we have developed some taxonomies and terms—“orange circle” or, say, “green trapezoid”—precisely to communicate about “manifest” decorations at ordinary viewing scales in our gallery. In both cases, our tools are, at least mostly, fit for purpose, and yet—or perhaps *therefore*—they do not commit us to substantive theses about the underlying nature of what they help to represent.

We can and do recognize orange circles—that is, portions of canvases aptly described in such terms—throughout our usual activities in the gallery. We agree, at least for the most

part, about whether ORANGE applies to a given canvas, and when it does, ORANGE is a literally true and apt characterization of the decoration we are considering. Crucially, however, ORANGE is not—does not purport to be, and should not be mistaken for—a maximally detailed description of that decoration, or any hypothesis about how the artist originally distributed some pigment. To expect otherwise is to conflate our different ways of engaging with, and within, the gallery.

Likewise, for Heil, we can and do recognize solid tables—that is, portions of the cosmos aptly described using the predicates “is a table” and “is solid”—in our ordinary comings and goings in the world. Tables are what we sit around in the seminar room, rest our books on, and pound for emphasis. In the ordinary course of things, we agree, at least for the most part, about whether TABLE applies in any given case, and when it does, TABLE is a literally true and apt characterization of the portion of reality under consideration. Crucially, though, TABLE is not—does not purport to be, and should not be mistaken for—a maximally detailed description of the underlying character of that portion.

Instead, when TABLE does obtain, then, plausibly, some further, deeper story *also* applies: the portion of reality it picks out can be truly and aptly described—in more, or at least *different*, detail—using more scientific terms and taxonomies. Importantly, though, it does not follow that, in endorsing TABLE, we are implicitly endorsing any deeper story, or even any disjunction of alternatives. Nor does it follow that there is, even in principle, a translation—an analytic connection or *a priori* entailment—between TABLE and claims expressed in less familiar, scientific terms (cf. Chalmers and Jackson 2001). Rather, we must

uncover the deeper story by engaging with our cosmos in less ordinary ways, using the empirical tools and methods of science. Compare: when ORANGE obtains, then, plausibly, a further story *also* applies, perhaps one along the lines of (1) or (2). Yet it is only when we investigate with other methods, maybe inspecting our corner with a microscope, that we uncover additional features or aspects of the decoration. We discover empirically that ORANGE is made true by a decoration that we also can characterize, truly and aptly, using (2)'s taxonomy and terms of “primary-colored pigments” and “dots”.

Just as we might use ORANGE to bring into view a particular corner of canvas, we use tools of the manifest image to select some localized portion of the cosmos for further investigation. We then use the less familiar tools of science to undertake this investigation, to uncover further features of that part of reality to which our ordinary description, “the seminar table”, applies. But just as it is confused to treat ORANGE as a hypothesis on the order of (1) and (2), it is confused to treat TABLE itself as constraining these further features. Contrary to what some suppose, then, endorsing TABLE does not commit us to, say, some sort of irreducible tableness, or any interesting ingredient—whether “fundamental” or “derivative”—unifying all and only those portions of reality to which our ordinary description “this is a table” applies. Nor, though, does it commit us to the view that there *isn't* any such thing: TABLE itself simply does not take a stand on the ultimate nature of its truthmakers. To assume otherwise is to make a sort of category mistake, one rooted in a misunderstanding of our various ways of engaging with, and within, the cosmos.

If Heil is right, then this sort of mistake lies behind attempts to “read off” the negation of TABLE—and other, similarly revisionary metaphysical consequences—from scientific theories, or their realist interpretations. It also lies behind attempts to preserve TABLE—and other, similarly ordinary truths—by resorting to an implausible scientific instrumentalism, treating scientific theories as merely predictively useful tools. According to Heil, moreover, this same mistake lies behind attempts to chart a middle course between these two alternatives as well. The middle, compatibilist strategy starts with the realist position that science is useful, at least in part, because it helps to reveal further truths about reality. Then, to stave off any conflict with TABLE, it restricts the immediate subject matter science to domains or “levels” of reality distinct from those at issue in our manifest image.

According to Heil, the resulting division of reality generates explanatory gaps that fashionable appeals to interlevel “grounding” cannot close. On his own alternative, in contrast, there is just one level: there is the universe. Rather than distinguishing different subject matters, we should recognize that there can be, and indeed are, multiple—equally good, veridical—ways of representing one and the same thing. Our different modes or ways of being in, and engaging with, the universe can and do emphasize different aspects of the same reality. Still, any distinctions among these aspects are, in historical terms, merely ones of “reasoned reason”, and not, as fans of a “levels” picture erroneously assume, “real distinctions” between separable domains (199-200).

For Heil, in other words, there is not any conflict between our ordinary ways of representing our world of “solid tables”—and “tomatoes” and “human agents” and so on—

and scientific hypotheses that describe our universe in genuinely different terms. It only appears so, if it does, because we are mistakenly assuming that the truth of TABLE imposes some substantive constraints on the character of its underlying truthmakers, the character investigated by science. This is a sort of category mistake akin to treating ORANGE itself as proposing some hypothesis on the order of (1) and (2). Heil hints at some sources of what he takes to be widespread confusion on this point, but his main concern is to develop an alternative.¹ On his model, it is the job of metaphysics not to arbitrate a conflict between incompatible hypotheses but instead to help “reconcile” or “integrate” our various representations or images of reality. Done properly, metaphysics draws on relevant scientific insights to circumscribe and illuminate the more specific truthmakers underlying our ordinary claims about familiar, localized elements of the manifest image (38). This is the sense in which metaphysics is continuous with science—and, indeed, with all our various ways of coming to know about our world.

So understood, metaphysics is not a piecemeal undertaking: it is an attempt to construct a coherent model for all of reality, and the results must be evaluated as a package. Since constructing a coherent model involves preserving the spirit—indeed accommodating

¹ Among the sources of error he cites are confusion about the demands of realism, and, especially, a misinterpretation of the requirement that truths are made true by ways the world is (12, 20). Another source is a misunderstanding of the distinction between primary and secondary qualities (99). So is a common tendency to mistake features of our language or representational tools for what we are representing, as is a widespread reliance on certain tools—such as frameworks for modeling possibilities or propositional contents—without attending to the theoretical or metaphysical assumptions behind them (162). Closely related are a neglect of history and resulting ignorance of the origins and pedigrees of influential philosophical concepts— notions of physical law, for example, or even causation—as well as a failure to challenge historically or sociologically dominant ways of thinking (111). Unifying all of these, perhaps, is a temptation to think of ourselves as external spectators on, rather than embedded participants in or parts of, the cosmos (97).

the literal truth of—various representations while also transcending or departing from their own taxonomies, it also requires a distinctive sort of intellectual empathy, a curiosity and willingness to get inside a particular way of thinking and to “feel its pull” (cf. Heil ms). In his book, Heil sets out to demonstrate, more concretely, what it looks like to engage in the enterprise of serious metaphysics, so understood.

Following Donald C. Williams, Heil divides the work of metaphysics into two projects. The task of “analytic ontology” is to articulate very general categories of being, categories we can use to analyze, and thus to draw comparisons across, representations that employ different tools and taxonomies (17). The task of “speculative cosmology” is to propose an inventory of the actual occupants of each basic ontological category—to say “what kinds of things are there, what stuff they are made of”—along with a story about how these entities are “strung together” in our universe (Williams 1953, 3; cf. Heil 191). In the final reckoning, an adequate metaphysical proposal should account for all our data, revealing the manifest and scientific images as aspects of the same coherent whole.

Turning to analytic ontology, Heil proposes a framework that he thinks is up to the task. Denizens of the manifest image are familiar, localized objects exhibiting features and interacting with one another in space over time. While our “understanding of the nature of these...might be called into question by the sciences...”, Heil maintains that, “...even in the sciences we find objects with particular characteristics standing in relations” (37). As a result, his “point of departure” is an ontological scheme comprising three basic categories of being: substances, properties, and relations (37). Ultimately, Heil himself is sympathetic to the

suggestion that the third of these, a basic category of relations, might prove to be “dispensable”, since, although “relational talk is unavoidable” for characterizing what we encounter in our universe, the “truthmakers for relational claims still could turn out to be nonrelational features” of substances (39). If, as Heil suspects, all relations are “founded” in this sense, then two basic categories of being are enough (21). Regardless, Heil himself is most interested in showing how deploying his framework of “qualified substances” can help us make progress in the project of integrating our manifest image with the deliverances of science (37).

Suppose we take up Heil’s suggestion that science, especially fundamental physics, gives a glimpse into the deeper natures of things—into the substances, properties, and (perhaps founded) relations strung together in our universe. What should we conclude about the truthmakers for TABLE? As science “is a work in progress”, Heil takes two passes at the question (39). He begins, in the first stage, by applying his ontological categories to the manifest image familiar from everyday life and the special sciences, as well as to an historically influential, corpuscular scientific image familiar from classical physics. The hope is to develop an abstract model for thinking about the relationship between these, using “placeholders” to leave room for details to be filled in by physics. Then, in the second stage, Heil explores how we might adjust this model to accommodate scientific images unlike the corpuscular one. He considers some more squarely philosophical challenges to the corpuscular model as well as some that draw on contemporary physical theory. The hope is

to show how the substance-property ontology leaves room for a variety of ways in which, for all we know, fundamental physics might evolve in the future.

Throughout, Heil employs a traditional understanding of substances as “metaphysically nondependent entities that bear properties” (39). Such properties, for Heil, are not universals but modes, particular ways that individual substances are. These categories are complementary: any “substance could not exist without being some way or other”, and any “property could not exist without must being the property of some substance” (41). Applying these categories to a corpuscular scientific image yields a metaphysics on which most familiar objects are not substances but rather complexes of substantial parts.

One upshot is that such familiar objects are not bearers of properties, except in some unofficial and highly attenuated sense. What we might commonly refer to as the seminar table’s “properties” of massiveness and solidity, for example, are instead what Heil calls mere “Episcopalian properties”—“properties-by-courtesy, quasi-properties, resolvable into objects’ propertied parts duly organized” (131). For Heil, this is another illustration of the moral that ordinary truths such as TABLE do not wear their truthmakers on their sleeves. According to Heil, if we take this lesson to heart, and take on board his resulting metaphysics, we can avoid common philosophical confusions about, among other things, essences, emergence, and the relationship between the mental and physical.

Another highlight of this first stage is Heil’s comparison of two competing inventories of properties, the broadly “Humean” inventory associated with the speculative

cosmologies of Williams and David Lewis, and Heil's own preferred, broadly "Aristotelian" alternative. Heil argues that his own metaphysics of substances bearing "powerful qualities" fits most comfortably with the plurality of localized, causally interacting objects we encounter in everyday experience, in the special sciences, and even in our corpuscular physics. More specifically, genuine efficient causation involves production, strict necessitation of effects by causes. This requirement weighs in favor of an Aristotelian picture on which causation is or involves the mutual or "reciprocal manifestation of powers" among interacting "empowered objects" (121).

On the resulting view, causal processes are continuous, and as a result, they do not fit cleanly into a framework that treats causation as a relation among distinct events. Roughly, though, we can think of some initial interactions between objects as causes and mutual manifestations of their reciprocal dispositions as effects. One upshot is that causal relations are strictly internal to their relata: if we take *all* the relevant objects—exhaustively specifying *all* their empowering properties—and combine or arrange them in the right way, then, by metaphysical necessity, we will get the associated manifestation. Any appearance to the contrary arises merely from under-specification, maybe our omission of other interacting objects in the background or our failure to consider strictly *all* the empowering properties present in some given case.

If we could specify everything, though, we would find "a dense dispositional matrix evolving continuously over time", furnishing "truthmakers for ordinary causal claims, as well as truthmakers for counterfactual claims concerning what objects would do" (122; cf. Martin

2008). A vast structure of causal dependence permeates the matrix, linking its assorted elements. For the Aristotelian, after all, fixing the empowering properties of even a few partners in some case suffices to constrain at least some further decoration of our universe: at the very least, its contents must include the mutual manifestations of their reciprocal dispositions. Since such manifestations, in turn, are or involve some substances bearing further empowering properties, which in turn combine to constrain further cosmic contents, consequences quickly ripple outwards, saturating the universe.

Heil favors his Aristotelian inventory of empowering properties because it locates the truthmakers for ordinary causal and counterfactual claims in the natures of familiar localized objects—or, more exactly, in their substantial parts. TABLE, for example, is true because our table's duly empowered and arranged constituent particles are disposed to attract one another and to hold together in a structured way. If we opt instead for a Humean inventory of properties, any localized, qualified candidates are, ultimately, inert. At best, the Williams-Lewis model locates truthmakers for claims seemingly about localized object's individual dispositions in global patterns throughout the total Humean mosaic (cf. Lewis 1986, ix-x). For it to be true that the table is solid, roughly, is for all or most particles qualitatively like the table's constituent particles, in relevantly similar circumstances, to in fact hold together. According to Heil, this result ultimately pushes towards a sort of Spinozistic monism, on which space-time itself is the unique substance, and both familiar objects and what we count as their "constituent particles" are in fact mere localized modes of this substance. Since, at bottom, there is not a plurality of interacting substances, efficient causation—or, perhaps better, its appearance—is restricted to the manifest image.

Notably, though, Heil also highlights what he takes to be a crucial commonality between this (Spinoza-)Williams-Lewis outlook and his own: both stand allied against an “externalist” alternative that presupposes some cleaner separation between more broadly metaphysical modality and a more narrowly physical variety (cf. Miller 2018). Roughly, such externalism pairs the Humean inventory of inert properties with a vision of physical laws as further constraints on—over and above—the features and behaviors of any property bearers.

While Heil does not put it in quite these terms, his own view and the (Spinoza-)Williams-Lewis alternative are both ones on which propertied substances supply all the truthmakers for causal and counterfactual claims. Any disagreement is about what these property-bearers are like and, roughly, how they combine to underwrite various modal claims. On the Aristotelian picture, we can get away with localized truthmakers for some causal and counterfactual truths. Just these empowered substances here—intuitively, the particles making up this table—are alone enough to underwrite the truth of TABLE. On the (Spinoza-)Williams-Lewis picture, in contrast, while we still need only propertied substances, truthmakers for at least all causal and counterfactual truths are now inescapably global. This is perhaps clearest in the Spinoza-Williams-Lewis picture, in which the universe is a single substance, all localized entities are its mere modes, and *all* truths trace, ultimately, to the intrinsic character of this single substance. But even if we start with a version of the Williams-Lewis picture that attempts to posit a plurality of property-bearers—qualified “elements” of the Humean “mosaic”—we need strictly global patterns, across *all* of these, to supply the truthmakers for at least all causal and counterfactual claims.

Contrast all of these options, though, with an externalist alternative on which, at least sometimes, even *all* the propertied substances taken together—the complete contents of space-time—are not enough: we also need further, metaphysically contingent physical laws, over and above these, to underwrite some of the truths. Two “worlds” can agree entirely about what does happen, and about all the features of property-bearers, while disagreeing about what could, physically speaking, happen. As a result, causal relations are contingent not only insofar as they are external to any intuitively local relation of “cause” and “effect”—as on the (Spinoza-)Williams-Lewis picture—but also insofar as they are external to the features and arrangements of and interactions among *all* property-bearers taken together. No matter what actually *does* happen, things always *could* have gone differently.

For Heil, such externalism assumes that contingency is “easy” or cheap in a way that seems, at least, unmotivated (165). Like the (Spinoza-)Williams-Lewis account, his own Aristotelian proposal, which folds facts about what *could* happen into the actual natures of individual things, rather than any global collection of these or, alternatively, any global substance subsuming them, still has more in common with Spinoza’s necessitarian monism than such externalism. There are other points of contrast, of course. For example, Heil notes that his own view has room to incorporate genuine contingency, in the form of spontaneity, that the (Spinoza-)Williams-Lewis alternative excludes (179ff). Still, the fundamental disagreement, for Heil, concerns the status of efficient causation. Where the (Spinoza-)Williams-Lewis picture restricts this to the manifest image, his dispositional matrix of powerful qualities can accommodate genuine production and dependence.

The second stage puts a twist on all of this: Heil ends the book by questioning this apparent advantage of his Aristotelian metaphysics. Having already referenced, in passing,

other challenges to the corpuscular model in earlier chapters, he devotes his second stage to exploring how his substance-property ontology can be brought to bear on some very different scientific images (cf. 145, 158ff). More specifically, he considers two candidates that, on his analysis, suggest modifying our metaphysics in a way that limits efficient causation to the manifest image after all.

One candidate builds on the suggestion, familiar from general relativity, that space-time itself has an intrinsic geometry and topology, or otherwise qualifies as a bearer of properties in its own right. According to Heil, this points to a monistic metaphysics on which space-time is the only substance—since, for Heil, no substance has other substances as mereological parts. The truthmakers for TABLE, on this view, would be localized modes of this cosmic substance. There would be no genuine interaction or causal dependence among these. Instead, in true Spinozistic fashion, familiar happenings of the manifest image would be or reflect the intrinsic character of the universe as a whole.

The second candidate image Heil considers builds on the non-local character of quantum mechanics. As Heil notes, there is widespread disagreement among philosophers of physics about how—and even if—to make metaphysical sense of entanglement. Some proposals also seem to pull towards a view on which the universe is a single substance, one cosmic system, with any localized objects its mere modes. Yet even those hoping to retain some plurality of substances still must accommodate, somehow or other, ineliminable correlations in the evolving dispositions of—sometimes quite far-flung—parts of entangled systems, and “a Humean, having already moved beyond the thought that the arrangement

evolves as it does owing to local causal interactions among its parts, is in a better place than an anti-Humean” here (211).

Minimally, then, Heil takes both candidates to call into question what might have appeared, in the first stage, to be a significant advantage of the Aristotelian picture over its main rival. Indeed, Heil expresses increasing sympathy for not only the Spinoza-Williams-Lewis view but, more generally, for a metaphysics resonant with the monism(s) of Spinoza and F. H. Bradley: the universe is a single substance with familiar localized objects as its modes, efficient causation belongs solely to the manifest image, and the intrinsic nature of the universe supplies the truthmakers for familiar claims like TABLE (202). Naturally, Heil’s discussion in this second stage is more tentative than that in the first. There is a lot of philosophical work to be done in working out what even our currently best physical theories suggest, individually, about the ultimate nature of reality, and, even worse, no one knows how to unify general relativity and quantum mechanics with one another. Moreover, it is not at all clear how physics will evolve in the future. Still, Heil shows us the sort of work that, on his view, serious metaphysics—that is, reconciling the manifest and scientific images— involves.

As should be evident from even this cursory summary, this is a rich text that exhibits many philosophical virtues. While it is written in a straightforward and accessible way, it still manages to cover a broad range of topics—including many that I have not mentioned here. Both its own systematic, sweeping approach, as well as its engagement with multiple global metaphysical frameworks offer refreshing contrasts to much contemporary work in

metaphysics. So does its emphasis on points of agreement or convergence among what might at first appear to be incompatible outlooks. It presents serious metaphysics as a crucial but challenging undertaking, and it models how to rise to the challenge with insight, curiosity, empathy, humility, and courage.

I will conclude review by raising a question about Heil's overarching vision of the relationship between the manifest and scientific images, a vision that comes through most clearly and systematically at the very end of the book. I started out by emphasizing some key convictions that underly this vision: for Heil, the truth of ordinary claims, such as TABLE, does not itself impose substantive constraints on the natures of their underlying truthmakers, and, relatedly, one and the same subject can be represented truly and aptly in different ways. But what exactly are the grounds or arguments for these convictions?

As Heil acknowledges, the book does not include much explicit discussion about the nature of representation in general or about his own understanding of truthmaking in particular; these are topics he has dealt with in earlier work (12). Perhaps Heil thinks that at least some of it is obvious, following almost automatically once we appreciate, for example, that "Hesperus" and "Phosphorus" pick out one and the same planet (cf. Heil, forthcoming). Or perhaps our question itself gets the dialectic backwards: maybe the argument *for* these key convictions is precisely the philosophical fruits that follow when we take up his own hypothesis. However, there is also suggestion of another sort of justification (10; cf. Heil forthcoming). On this reading, we begin with the realist conviction that science does, in fact, help to enrich and improve our understanding of the world. We then ask what else

must be true—what the relationship between the scientific and manifest images must be like—for this to be the case, or, indeed, even possible.²

Framed this way, there is an illuminating connection between Heil’s concern about the status of our manifest image and philosophical debate about constraints of “empirical adequacy” or “empirical coherence” on physical theories.³ We must distinguish at least *some* pre-theoretical claims about the world from the sort of hypotheses we find in (1) and (2). After all, before we can decide, empirically, between two competing hypotheses, we must be able to recognize them as rivals, as competing accounts of the *same* target. For that, we must have some way of circumscribing this target, or characterizing the relevant data, that is itself neutral between, and also not, itself, in *competition* with, our rival hypotheses. On pain of “empirical incoherence”, then, it seems truth of each of these hypotheses must be compatible with the truth of some pre-theoretic characterization of our data. Assuming that this characterization employs some linguistic claims, it follows from this that, if empirical science is to get off the ground at all, *some* familiar true claims about the world must be neutral between competing empirical hypotheses and so, it seems, about something like the ultimate natures of their own truthmakers.

² On this framing, Heil approaches from a direction exactly opposite to the one taken by Della Rocca (2020), who, roughly put, starts with some particular conceptions of representation and, relatedly, metaphysical explanation and then concludes that, given these, coming to understand the world in the sense at issue is, indeed, impossible. Interestingly, Della Rocca also draws inspiration from both Spinoza and F. H. Bradley, but Della Rocca’s starting conceptions are ones Heil seems to reject.

³ Barrett (1999) introduces and explores, in great detail, worries about empirical coherence in interpretations of quantum mechanics. For some more recent discussion that connects more clearly to the present concerns, see Maudlin (2015), Ney (2015), and Miller (2022); cf. Heil (forthcoming).

The topic of empirical coherence is an important one, and Heil does us a great service by bringing it to the attention of a wider swath of metaphysicians. Note, though, that even if we agree that there needs to be *something* like Heil's distinction for at least *some* pre-theoretic claims, this is not enough to get us all the way to his own contention that, say, TABLE itself is insulated from direct revision. Plausibly, no coherent hypothesis about our gallery can deny that this portion of canvas—whatever decoration we ordinarily describe as “an orange circle”—exists. In other words, *some* truths about that portion—some tools, terms, or taxonomies of our manifest image—must be above reproach. Crucially, though, it does not follow from this that ORANGE itself—or, more generally, whatever representation we in fact employ in selecting this portion for further investigation—must be. Likewise, any coherent hypothesis about our seminar room must accommodate the data we ordinarily describe as concerning the “solid, extended” seminar table. Yet it does not follow that the truth of TABLE *itself* must be consistent with our hypothesis. Perhaps it is enough that there is, at least in principle, *some*, perhaps less metaphysically contentious, consistent characterization of the data to hand. It seems Heil needs, or at least wants, the stronger claim.

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