

How to Make the Case for Brute Facts

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One morning I arrive at my classroom to teach and I notice that one of my students, Sarah, is not in attendance. After class I seek an explanation of Sarah's absence. I email Sarah and ask her to explain her absence, and I ask Sarah's friends if they know why she was absent. Throughout this process, however, I do not consider the option that there may be *no explanation* of Sarah's absence. There may be an explanation that I cannot obtain, perhaps because Sarah does not want me to, such as if Sarah's absence is explained by her hangover. But regardless of whether the explanation will be made available to me, I know that there is *some* explanation of Sarah's absence.

Most facts we encounter are like this; even if we cannot obtain an explanation for the fact, we know that there *is* some explanation. The view that there are ontologically brute facts is the view that certain facts are not like this, because those facts are not and never will be explained. Although ontologically brute facts appear to be suspiciously mysterious, some philosophers have argued that we should embrace them (Barnes 1994). The possibility of ontologically brute facts generates a methodological question: what is an adequate basis for belief in ontological bruteness? When is it reasonable to think that some fact is not and never will be explained? In this article I explore this question.

I begin by introducing ontological bruteness, and distinguishing it from other types of bruteness and related notions of emergence and fundamentality. I then consider three

hypothetical failed attempts to make the case for ontological bruteness. The first is an attempt to infer bruteness from fundamentality, the second an attempt to infer bruteness from the absence of a particular kind of scientific explanation, and the third an attempt to infer bruteness from the absence of a particular kind of philosophical explanation. I draw cautionary lessons from these failures, arguing that in each case the inference to bruteness is made too quickly. Finally, I offer a positive proposal according to which if a naturalistic, general metaphysical theory with strong abductive support posits ontologically brute facts, then this is an adequate (but defeasible) case for ontological bruteness.

What is an ontologically brute fact?

Before discussing what a brute fact is, we should consider what a fact is. There are many different notions of facts, but authors working on questions about ontological bruteness have for the most part adopted a notion of a fact as a state of affairs, as opposed to a more finely-grained conception of facts as propositions. For example, in Markosian's discussion of bruteness he defines a fact as an instantiation of some universal by some object or objects (Markosian 1998). For the purposes of this discussion I will adopt the following similar definition that avoids this emphasis on universals: a fact is the instantiation of some property by an entity, or a combination of such instantiations. This conception of facts is broad enough to permit a wide variety of purported cases of ontological bruteness.

There are different kinds of brute fact. An *epistemically* brute fact is a fact that is unexplained because of some limitation in our knowledge that will eventually be removed, pending future discoveries or research. For example, if a scientific explanation of some fact has not yet been formulated, but will be in the future, then that fact is epistemically brute. These facts

are unexplained because of our temporarily inadequate knowledge, and Barnes describes epistemically brute facts as facts with a hidden causal history that will one day be revealed (Barnes 1994 pg 61). An *ontologically* brute fact, on the other hand, is a fact for which there is *no* explanation, and for which there never will be an explanation. Ontologically brute facts are unexplainable for metaphysical reasons, such as there being no other fact in virtue of which the brute fact obtains. There is a further kind of unexplained fact that lies between the epistemically brute fact and the ontologically brute fact, and this is the kind of fact that is permanently unexplainable because of human cognitive limitations. This kind of brute fact is not commonly discussed in the literature on brute facts, though it does appear in certain areas of philosophy of mind.¹ In order to restrict this discussion to the genuinely ontological conception of brute facts, I will focus on facts that have no possible explanation and where there is no person- or species-relative explanation of why there is no possible explanation.

So far I have characterized ontologically brute facts in terms of explanation, but certain authors have adopted alternative definitions in terms of the absence of a metaphysical basis for explanation. For example, some hold that a fact is ontologically brute if and only if there is no other fact in virtue of which it obtains.² In this discussion, however, I will focus on the explanatory definition of ontological bruteness. The explanatory conception of brute facts is

¹ For example Nagel describes a view like this in Nagel 1974.

² Markosian holds this view in Markosian 1998, and Barnes appears to hold this view in Barnes 1994, as his definition of a brute fact is *a fact with no explanatory basis beyond itself*. Versions of this view also appear in the grounding literature, as documented by McKenzie in McKenzie forthcoming.

dominant in the literature to which I am responding,³ but there are also non-exegetical reasons to prefer the explanatory view. An "in virtue of" definition of brute facts presupposes far more by way of background metaphysical framework than the explanatory definition does. For example, on this view of bruteness, the belief that there are brute facts entails (at least on most notions of fundamentality) the belief that there is a most fundamental level, as the brute fact will be a most fundamental fact. Furthermore, the "in virtue of" definition of brute facts conflates fundamentality with bruteness, and later on in this discussion I argue that this conflation is problematic.⁴ Accordingly, for the purposes of this discussion I will adopt the following definition of ontological bruteness:

F is a brute fact =_{def} F is a fact, there is no possible explanation for F, and there is no person-relative or species-relative explanation for the impossibility of that explanation.

I will remain open about whether there are any ontologically brute facts, but it will be helpful to consider some purported candidates. Authors have argued that the following are ontologically brute: facts about the fundamental laws of nature, the fact that the universe exists, the fact that there is some particular amount of matter or of energy in the universe rather than some other amount (Barnes 1994), the theory of everything if one is ever developed (Fahrbach

³ For example, Fahrbach defines a brute fact as a fact for which an explanation does not exist in Fahrbach 2005, Hudson defines a brute fact as a contingently true proposition for which there is no sufficient reason or explanation in Hudson 1997), and Feit defines a brute fact as a fact for which there is no sufficient reason in Feit 1998.

⁴ This issue has also been discussed by McKenzie, who argues against what she calls *brute fundamentalism*, the position that "being fundamental" and "having no explanation" are effectively synonymous, in McKenzie forthcoming.

2005), and the facts about special composition (Markosian 1998). This is not an exhaustive list, but gives us some idea of the candidates for ontologically brute facts.

The claim that certain facts are ontologically brute is related to, but, as I will argue in Section 2, distinct from, the claim that certain facts are *fundamental*. There are many different conceptions of fundamentality, but a standard view is that the most fundamental facts are the facts that do not ontologically depend on any other facts (Barnes 2012). Another way to put this is that there are no other facts in virtue of which the most fundamental facts obtain. For example, consider the case of facts about consciousness. If I hold that facts about consciousness are ontologically dependent on facts about the brain, then I think that facts about consciousness are not fundamental whereas the facts about the brain may be, depending on whether they in turn depend on other facts. If I hold that facts about consciousness do not depend on facts about the brain, then I hold that facts about consciousness are as fundamental as facts about the brain, or more so if the facts about the brain in turn depend upon other facts. On an “in virtue of” definition of ontologically brute facts the fundamental facts will be ontologically brute. However, on the explanatory definition of bruteness the picture looks rather different, as fundamental facts may be explained by other facts that are equally, or less, fundamental. I will return to this point in detail below, but for the moment we can simply note that ontological bruteness is not equivalent to fundamentality.

Another concept that is closely related to but also importantly distinct from bruteness is the concept of *emergence*. It is commonly thought that there are two different kinds of emergence, metaphysical and epistemic (Crane 2001, Chalmers 2006). To illustrate the difference, consider the case of a property of conscious experience, call it Q, that arises from a certain brain state, call it R. Someone who holds that Q is metaphysically emergent from R

would typically hold that Q is dependent on R in so far as Q supervenes upon R, but is also in some sense metaphysically autonomous from R, perhaps because Q has causal powers that R does not have, or is not metaphysically reducible to R. Someone who holds that Q is only epistemically emergent from R would hold that it is impossible to know about Q given full knowledge of R, but that this is a contingent epistemic limitation.⁵ In cases of both metaphysical and epistemic emergence the emergence is associated with the absence of a certain kind of explanation of the emergent in terms of its micro-level base. In the metaphysical case this absence is an indication of a metaphysical distinction between the emergent and the micro-level base, while in the epistemic case the explanatory failure is a contingent epistemic matter. But in each case of emergence there is an explanatory failure (Taylor 2015a).

There is a lively debate about ontological emergence, with many philosophers arguing that there is no such thing.⁶ But we can leave these questions aside and acknowledge the similarity between ontological bruteness and emergence, because in each case the absence of an explanation is taken to be indicative of or associated with a particular kind of metaphysical autonomy. For this reason it can be tempting to think that emergence and ontological bruteness are closely connected, such that, for instance, all metaphysical emergents are also ontologically brute. However, there is an important difference between metaphysical emergence and bruteness. In cases of metaphysical emergence there will be no explanation of the emergent in terms of the micro-level, but there may be some other kind of explanation of the emergent. For example,

⁵ For discussions of this distinction see Crane 2001, Chalmers 2006, Wilson 2014, Hempel & Oppenheim 1965.

⁶ For defense of this view see Kim 2006, Taylor 2015b. For defense of strong emergence see Wilson 2010, Wilson 2013, Barnes 2012.

some hold that consciousness is metaphysically emergent, but that we can explain emergent consciousness by appealing to psychophysical laws (McLaughlin 1992, Chalmers 1996). Ontological bruteness, on the other hand, is a much more radical matter. The ontologically brute fact has *no explanation at all*, of any kind. Some metaphysical emergents may turn out to have no explanations, but ontological bruteness is not the same as metaphysical emergence, nor does it follow from metaphysical emergence.

The problem

Philosophers and others often use the notion of bruteness and refer to taking certain assumptions or facts “as brute”, but there is little literature on brute facts, and particularly little on ontological bruteness. A substantial proportion of what literature there is focuses on questions related to the Principle of Sufficient Reason, and examines questions about the nature and role of the Principle of Sufficient Reason in early modern philosophy (Cross 2011, Della Rocca 1997, Melamed 2012). In another part of the brute facts literature authors have explored the scientific implications of ontologically brute facts, and about the precise explanatory status of brute facts given different approaches to explanation (Barnes 1994, Feit 1998, Hudson 1997). Although the concept of a “brute fact” is widely used, most of the literature on bruteness focuses either on the Principle of Sufficient Reason or on the scientific implications of embracing brute facts. Importantly, little or no attention has been devoted to the question of how to make the case for brute facts. Perhaps the answer to this question seems obvious; if a brute fact is any fact with no explanation, then any fact for which we have no explanation will be brute, and the matter ends there. But establishing bruteness is more complicated than this. As we will see in the rest of this paper, many seemingly plausible ways to make the case for brute facts fail.

We should clarify, first of all, what the challenge is *not*. The challenge is not to show beyond any doubt that some fact is or is not ontologically brute. On a plausible conception of contemporary metaphysics much metaphysical enquiry proceeds through inference to the best explanation.⁷ On this view metaphysical enquiry consists of constructing a model of reality, and then comparing rival models along a variety of different theoretical virtues, in a process similar to scientific theory choice. The result of such enquiry can only ever be high inductive support, and so on this view we cannot expect to show beyond all doubt that some fact is or is not ontologically brute, as this would be an unreasonable standard. The problem is instead how to show that it is reasonable to interpret the unavailability of an explanation of a particular fact as a case of ontological bruteness.

One helpful way to understand this challenge is to compare bruteness to emergence. When making claims about metaphysical emergence, we base a claim about metaphysical structure on a particular explanatory failure. For example, some philosophers have taken the absence of particular forms of explanation of consciousness to indicate that consciousness is emergent. However, simply noting that there is an absent explanation is not in itself enough to show that there is metaphysical emergence. The absence of a particular kind of explanation must be appropriately contextualized with respect to the relevant metaphysics and science and made

⁷ Paul 2012, Sider 2009. There is an apparent tension between on the one hand using inference to the best explanation to decide upon a metaphysical model, and on the other hand positing brute facts in that model. However, this is only an apparent tension as there is no in-principle problem with using abduction to support the view that there are brute facts. Brute facts must in some sense earn their keep within the model, such as being the only posit that can accommodate some particular data.

part of a general metaphysical proposal before it can support a metaphysical claim. For example, we must consider whether it is likely that an explanation of this fact will be developed in the future, and what scientific and metaphysical reasons we have for believing that such an explanation is not possible. To infer directly from the absence of some particular form of explanation to a claim about metaphysical emergence is to move too fast. The proponent of ontological bruteness faces a similar challenge. They cannot find facts that lack particular kinds of explanation and then directly infer that these are the ontologically brute facts. To work out what *else* they must do, after encountering an explanatory failure, to support a claim about ontological bruteness, will be the subject of the rest of this piece.

I will begin by looking at three bad ways to make the case for brute facts: conflating bruteness with fundamentality, reading bruteness directly from the absence of a particular form of scientific explanation, and reading bruteness directly from the absence of a particular form of idealized philosophical explanation. Drawing lessons from these failures, I will argue that only if a particular brute fact is posited by a naturalistic, general metaphysical theory with strong abductive support do we have even a defeasible case for ontological bruteness.

Problem case 1: Bruteness and Fundamentality

In this section I will examine one way to *not* make the case for brute facts. In this case, ontological bruteness of certain facts is inferred directly from the fundamentality of those facts. Although certain fundamental facts may turn out to be brute, in this section I will argue that fundamentality is not in itself sufficient evidence for ontological bruteness.

As briefly discussed in Section 2, according to one popular contemporary conception of metaphysical fundamentality, metaphysically fundamental facts do not depend upon other facts,

while derivative facts do depend upon other facts.⁸ This metaphysical dependence can be understood in a number of ways. For example, some hold that the fundamental facts serve as truthmakers for themselves and derivative facts, while derivative facts are not truthmakers (Heil 2012). Alternatively, some hold that fundamental facts ground the nonfundamental facts (Fine 2001). Philosophers also draw a distinction between absolute and hierarchical conceptions of fundamentality (Barnes 2012). On the absolute conception of fundamentality the distinction between fundamental and derivative is not a matter of degree, and there is only fundamental or nonfundamental, with nothing in between. On the hierarchical conception fundamentality comes in degrees, and facts are arranged in a hierarchy running from most to least fundamental.

A full investigation of the relationship between bruteness and fundamentality would require a full investigation of fundamentality, which is beyond the scope of the current discussion. However, even without narrowing in on a particular conception of fundamentality there are good reasons to think that bruteness and fundamentality come apart, and so that fundamentality alone is no guide to bruteness. As discussed earlier, if we begin with a definition of ontological bruteness in terms of the “in virtue of” relation, according to which the ontologically brute facts are those and only those that do not obtain in virtue of any other facts, then metaphysical fundamentality will be equivalent to ontological bruteness, so long as metaphysical fundamentality lines up with the “in virtue of” relation. If we adopt an explanatory conception of ontological bruteness, however, the result is very different.

⁸ This and most of the following discussion of fundamentality can be translated into talk of entities, such that the fundamental entities do not depend for their existence on other entities, while the derivative entities do.

In making an inference from fundamentality to ontological bruteness we would take the fundamentality of a certain fact to show that this fact is ontologically brute. Let us take as an example a hypothetical entity, a most fundamental physical particle called P. Say for the sake of argument that we know that certain facts about P are metaphysically fundamental, by which we mean that there are no other facts in virtue of which these facts about P obtain. To infer bruteness from fundamentality in this case would be to infer that that because the facts about P are metaphysically fundamental, the facts about P are ontologically brute. This would mean that P's nature and existence are unexplained – the fact that P exists, for example, would have no explanation. This is one example of a direct inference from fundamentality to bruteness.

However, the problem with this inference is that fundamentality is not equivalent to bruteness, nor should it be used as a guide to bruteness. This is because the most fundamental facts do sometimes have explanations. They are not explained by *more fundamental* facts but they may have explanations all the same. To show that metaphysical fundamentality is not guide to ontological bruteness, I will offer a thought experiment and then consider two other arguments for the position that fundamentality and bruteness come apart in philosophy of science, one from Humeanism about laws, the other from unificationism about explanation.

Imagine a universe entirely composed of four flat tiles, two black and two white, and call these tiles W, X, Y and Z. Imagine that the tiles are arranged in a square, and that the top left hand corner of this square (presuming that what counts as the top left hand corner is absolute for the sake of the example) is occupied by the black tile W. Stipulate that in this universe the tiles are the fundamental entities. The facts about the tiles are not true in virtue of any other facts, as the tiles do not depend on anything else for their existence and do not decompose into any more fundamental entities. The arrangement of the tiles generates a patterned square of alternating

black and white tiles. This patterned square depends for its existence on the tiles, and so on an absolute conception of fundamentality the square is not fundamental, and on a hierarchical conception of fundamentality it is less fundamental than the tiles. Stipulate also that the space taken up by the tiles exhausts the space in this universe.

We can use the facts about the positions of the individual tiles to explain features of the patterned square manifested by their arrangement. Thus the more fundamental facts (about the individual tiles) can explain the less fundamental facts (about the square that the tiles compose). This is a standard form of metaphysical explanation, in which we explain a feature of a whole by appealing to features of the parts of that whole. We can also, however, use the tiles to explain features of other tiles, and so use facts at the *same level of fundamentality* to explain each other. For example, consider the position of the black tile *W*, which is in the top left hand corner of the universe. If we want to explain why *W* is in the top left-hand corner, then we can offer the following explanation: *tiles X, Y and Z occupy the other three spaces surrounding W, and so there is nowhere else for W to be located.* The metaphysically fundamental facts can explain other equally fundamental facts, as certain facts about some of the tiles can explain certain other facts about the tiles.⁹ This thought experiment indicates that the most metaphysically

⁹ Some may be uncomfortable with this as an explanation because it is non-causal, but I am going to presume that non-causal metaphysical explanation is ok for the sake of this discussion. See Correia & Schneider 2012 for discussion of non-causal metaphysical explanations. Someone might also object that in this case the constraint that this is the only space in the universe would count as a law, and so would play a role in the explanation. However, note the stipulation that the facts about the tiles are the most fundamental facts in this universe, as there are no other facts in virtue of which they obtain. If we take this stipulation seriously, then any fact other than the facts

fundamental facts are not necessarily unexplained. They may turn out to be ontologically brute, but the mere fact of their fundamentality is not sufficient for their bruteness, and is not enough to show that they are ontologically brute.

That the fundamental is not necessarily unexplained is reflected in work in other areas of philosophy of science. For example, consider the position of the Humean about laws. The Humean holds that laws of nature are regularities among events, which makes the laws no more fundamental than the events themselves. However, the laws *explain* individual events, and so according to this view certain facts explain other facts that are equally fundamental, rather than less fundamental.¹⁰ Regardless of whether or not we endorse Humeanism about laws, this case gives us another reason to think that explanation does not track fundamentality, and so that metaphysical fundamentality is no guide to ontological bruteness.

Another view according to which explanation and metaphysical fundamentality come apart is the unificationist approach to explanation. According to the unificationist we scientifically explain by unifying, which involves deriving as many phenomena as possible from a small set of argumentative patterns (Kitcher 1989). The unifying patterns need not be metaphysically or theoretically more fundamental than the phenomena they unify. We can have a situation in which a set of facts, that may include metaphysically fundamental facts, is explained

about the tiles would be a nonfundamental fact. Even if we reject that stipulation, however, we must still recognize that the spatial constraint cannot itself explain the position of any particular tile, and so the facts about the tiles still play an explanatory role.

¹⁰ This example leads us to the problem of self-explanation, for the Humean. I will presume a solution to this problem for the sake of the example. For discussion see Loewer 2012, Lange 2013, Miller 2015.

by being derived from a set of argumentative patterns. If the facts include the most metaphysically fundamental facts then the argumentative patterns are not metaphysically more fundamental than the facts they explain, and there is nothing in the unificationist account of explanation that precludes this possibility. So this is a case in which the more fundamental may be explained by the less, or equally, fundamental.

Overall, the inference from theoretical or metaphysical fundamentality direct to ontological bruteness is mistaken. A full exploration of the connections between fundamentality and bruteness would require a more thorough exploration of fundamentality, but as it stands we have good reason to reject the direct inference from fundamentality to bruteness. It may turn out that the facts about certain metaphysically or theoretically fundamental entities are ontologically brute, but their fundamentality is in itself insufficient evidence for their bruteness.

Problem case 2: Unavailable Scientific Explanation

In this section I will examine attempts to infer ontological bruteness directly from the absence of a particular kind of scientific explanation. Although the absence of a particular kind of scientific explanation can form a part of a case for ontological bruteness, I will argue that the absence of a scientific explanation is in itself an insufficient case for ontological bruteness.

The idea of a brute fact is familiar to philosophers but there is very little scientific literature that appeals to bruteness, and particularly not to ontological bruteness. This poses a difficulty for philosophers thinking about how to incorporate scientific data into discourse about ontological bruteness, because they cannot respond to use of the concept in scientific practice. Instead of examining actual scientific claims about ontological bruteness, then, I will begin by examining claims about emergence, and use those as the basis for hypothetical claims about

bruteness. Emergence is, as discussed above, not equivalent to bruteness, but it does involve the absence of a particular kind of explanation. Accordingly, I will use a claim about emergence as the basis of a hypothetical attempt to make the case for brute facts. As in the previous section, this attempt will fail for instructive reasons.

Consider some phenomenon, which we can call X. Imagine that in a particular area of science a particular kind of explanation of X is unavailable. Often, as we will see in the examples below, the absence of a particular kind of explanation leads to the phenomenon being labeled as “emergent.” In inferring bruteness from an absent scientific explanation, we would take the absence of this particular kind of scientific explanation of X to in itself show that the facts about X are ontologically brute. For illustration, consider a hypothetical case from ecology. Local ecological communities are groups of species that share a local habitat such as a particular wetland or a particular beach, and local ecological communities are of significant scientific interest to ecologists. Ecologists and philosophers of ecology debate the nature of local ecological communities, such as the extent to which such communities should be regarded as structured, organized systems as opposed to mere gatherings of individual organisms (McLaurin & Sterelny 2008: Chapter 6). One hypothesis that has come up in such debates is the position that certain local ecological communities have emergent properties (McLaurin & Sterelny 2008: Chapter 6). In this context the term “emergent” is used for those features of communities that cannot be explained by looking only at the features of the individuals that compose the community. For example, some have argued that the *stability* of certain local ecological communities is an emergent property of those communities (McLaurin & Sterelny 2008: Chapter 6). The precise definition of the stability of a local ecological community is a matter of some

controversy, but the basic idea is that a community is more stable the more able it is to quickly recover after a disturbance such as a drought or flood (Sarkar 2005: 115-120).¹¹

Imagine that I am studying a particular local ecological community on a nearby wetland. Call that community Wetland. I believe that Wetland's stability is a feature that cannot be explained by the properties of the individual organisms that compose Wetland, and so that Wetland's stability is emergent. From the fact that Wetland's stability is emergent, I infer that the facts about Wetland's stability are also ontologically brute. That is to say, I infer that, because Wetland's stability is unexplained in terms of the individuals that compose it, Wetland's stability will *never* be explained. The stability of a local ecological community is a bad candidate for ontological bruteness, for a number of reasons, but looking into those reasons will be instructive as they will provide guidance as how to properly and appropriately make the case for brute facts.

This inference relies on an unjustified presumption that the particular kind of unavailable explanation is the only possible explanation of the target phenomenon. In making this inference, I claimed that because there was no explanation of Wetland's stability given *entirely in terms of features of the individual organisms that compose Wetland*, Wetland's stability is ontologically brute. But Wetland's stability may be explained in other terms. For instance, some ecologists argue that there is a connection between a local ecological community's stability and its *diversity*, which is roughly speaking the range of different species in that community, and some hold that diversity is also an emergent feature of local communities (McLaurin & Sterelny 2008:

¹¹ Precisely what counts as a disturbance and what it means to recover from one are also debated questions in ecology, but I will assume that there is a non-controversial definition of stability for the sake of this example.

113, 120-123). If that is the case, then even if stability is emergent it is not entirely unexplained, though if diversity is not emergent and does explain stability, then stability will not be emergent. Furthermore, even if a satisfactory ecological explanation of Wetland's stability is unavailable, there may be a different sort of scientific explanation available, such as a microphysical or a chemical explanation. We may not look for a physical explanation when practicing ecology, but such an explanation may still be available.

Another problem with this inference is that there is no reason to think that the absent explanation in this case is any kind of guide to metaphysical structure. Why would the availability or unavailability of an explanation of Wetland's stability in terms of features of its composing individuals give us any indication of the structure of the world? In order to move from the absence of an explanation to a claim about ontological bruteness, we must have some reason to think that the absent explanation is a *guide*, in some sense, to metaphysical structure, and in this case we have no reason to do so. Another reason to reject the direct inference from the emergence of Wetland's stability to its bruteness is that it is too *pessimistic*. We may have reason to believe that an explanation of this sort will be developed in the future. Earlier I pointed out that if we conceive of metaphysics as proceeding through inference to the best explanation then we do not need to be certain about bruteness to infer bruteness. Accordingly it would be unreasonable to dismiss a claim about brute facts just because we have not established beyond all doubt that an explanation of this particular fact would not be uncovered. However, in this case it does seem that we do not have good reason to be so pessimistic about the prospects for an explanation. It may be that in the future an explanation of Wetland's stability given in terms of features of its composing individuals will be developed, and without an exploration of the possibility of such an explanation we cannot infer that Wetland's stability is ontologically brute.

Overall, the problem with my imaginary inference from the fact that Wetland's stability is emergent to the view that it is ontologically brute is that it happens *too quickly*. In order to show that an absent explanation supports ontological bruteness, I must show that it is unlikely that an explanation of this fact will be developed in the future. I must also show that the ecological explanation is the only possible explanation of this fact, because non-ecological explanations such as chemical or physical explanations are unavailable. Without moving through these steps, I do not have an adequate basis for commitment to ontological bruteness.

One could argue that the Wetlands example is an improbable case study as local ecological facts are unlikely to turn out to be ontologically brute. Instead, one might argue, we should look to fundamental physical facts for more promising case studies of ontological bruteness. I will argue, however, that it is possible to make similar mistakes when it comes to inferring that there are physical cases of ontological bruteness.

Morrison has argued that superconductivity is an ontologically emergent physical phenomenon. Her argument for this position is based on the claim that we cannot explain superconductivity in terms of the components of the systems that display it, and must instead use a renormalization group technique (Morrison 2012). The fact that we need this different mathematical framework, the renormalization group, to explain superconductivity, shows us that superconductivity is ontologically emergent. As she puts it, *...what is truly significant about emergent phenomena is that we cannot appeal to microstructures in explaining or predicting these phenomena even though they are constituted by them...* (Morrison 2012: 143). Imagine that I take the fact that superconductivity cannot be explained in terms of the components of the systems that display it and infer from this that superconductivity is ontologically brute. That is to say, I infer from the fact that superconductivity cannot be explained in terms of the components

of the systems that display superconductivity that superconductivity will never be explained, for ontological reasons. (As before this is a hypothetical case, because Morrison herself holds that superconductivity is emergent, not brute.) This would be a mistaken inference, which fails for similar reasons as the inference in the Wetlands case.

The case for ontological bruteness cannot be made merely on the basis of this absent explanation. First, if we move directly from the absent explanation to bruteness then we fail to make a case for the fact that the absence of this particular kind of explanation is significant. One might wonder why should we place so much metaphysical emphasis on the fact that there is no explanation in terms of components, when another explanation *is* available? In this case it may be more reasonable to think that an explanation of this sort will not be developed in the future, due to the mathematical details of the theories involved, but I do not take this detail into account when I move merely from the absent explanation to the claim about bruteness, and so this is another problematic aspect of this hypothetical inference.

Overall, the inference from the mere absence of a particular kind of explanation of some fact within a particular area of science to a claim about ontological bruteness simply moves *too quickly*. To show that some fact is ontologically brute, we must offer a scientific survey of other available explanations and the possibility of a future explanation. Then, an account must also be given of the metaphysical significance of the absent explanation. Without this detail, we do not have sufficient support for a claim about ontological bruteness.

Problem case 3: Unavailable philosophical explanation

The first two failed attempts to make the case for brute facts involved a move from explanation to ontology that failed because it moved too quickly. In the first case, it seemed

appealing to infer bruteness from fundamentality, but it turned out that theoretically and metaphysically fundamental entities are often explained. In the second case, the move from the absence of a particular scientific explanation directly to bruteness was also unjustified, as it missed the important steps of showing that the absent explanation is particularly metaphysically significant, and showing that a future explanation is unlikely to be developed. The final case is similar in that the move from absent explanation to bruteness also happens too quickly, and it involves inferring ontological bruteness from the mere absence of a philosophically idealized form of explanation.

The general structure of this inference is similar to that of the previous problem cases. Imagine that there is some fact for which a particular kind of philosophically significant explanation is unavailable. By philosophically significant I mean a form of explanation that plays an important role in philosophy, perhaps even only in a certain area of philosophy, but is not necessarily so significant outside of philosophy. A priori reductive explanation, in which the explanandum is a priori deduced from the explanans, is one example of a philosophically idealized form of explanation. A priori reductive explanations play a central role in the practice of metaphysics but are not commonly used outside of philosophy. In this case, given that the philosophically significant explanation of this fact is unavailable, we infer that the fact in question is ontologically brute.

For example, consider the case of the explanatory gap in philosophy of mind. The “explanatory gap” is a label for the absence of a satisfactory explanation of consciousness in terms of brain activity. Discussion of the explanatory gap dominated 20th century philosophy of mind, with some philosophers arguing that there is no gap, others arguing that there is a gap but

that it indicates nothing metaphysical, other still arguing that there is a gap and that this gap does indicate that facts about consciousness are metaphysically distinct from facts about brain activity. However, in most of the literature on the explanatory gap it is assumed that the missing explanation is a deductive explanation, such that the missing explanation would have to involve a deduction of the facts about consciousness from the physical facts.¹² Imagine, then, that I am convinced that there is an explanatory gap, which consists of the absence of a deductive explanation of the facts about consciousness from the physical facts about the brain. On this basis I infer that the facts about consciousness are ontologically brute.¹³ Of course, it may turn out to be the case that the facts about consciousness are ontologically brute, but this direct inference from the absence of explanation to bruteness is problematic. As before, looking into the reasons why it is problematic will help us to work out how best to make the case for brute facts.

Before we take the absence of a deductive explanation as evidence for ontological bruteness, we need some reason to think that deductive explanation is a particularly good guide to metaphysical structure. This view has a long history, mostly in work on deductive definitions of reduction, but deductive models of reduction have been fairly convincingly shown to be far too narrow (Bickle 1998, Churchland 1985). There are many different kinds of explanation, and so we need to show that this kind is a particularly important or significant guide to metaphysical structure before we take the absence of it, rather than any other kind of explanation, as a guide to metaphysical structure. There is also a worry about the availability of other kinds of explanation

¹² I document this assumption and argue that it is problematic in Taylor 2015c.

¹³ The literature on the explanatory gap is rich and complicated, and so I will not attribute this inference to any particular author, but will instead treat it as a hypothetical case.

in this case. In order to accept the view that the facts about consciousness are ontologically brute, we must be convinced that there is no alternative scientific explanation of consciousness, and furthermore that it is unlikely that a scientific explanation of consciousness will be developed in future. It may be the case that there are no scientific explanations of consciousness, and attempts to show that there are such explanations have been deeply controversial among philosophers of mind. But to show that consciousness is ontologically brute we would have to survey these attempts, and explore the likelihood of a future explanation. To move from the absence of a philosophically idealized form of explanation, without surveying the availability or otherwise of scientific explanations is, once again, to move too quickly.

Positive Lessons: Making the Case for Brute Facts

In each of these examples we saw an attempt to make the case for brute facts that failed for a number of different reasons. In this final section, we'll draw lessons from those failures and build them into a positive account of how to make the case for brute facts.

To begin, let us work out what we learned not to do. First, we cannot take the absence of one kind of explanation as an indication of ontological bruteness without showing that the absence of this kind of explanation is metaphysically significant, or without showing that this is the *only* possible explanation of this fact. This was a problem in the Wetlands case, where I took the fact that Wetland's stability was not explained in terms of features Wetland's component members to show that the facts about Wetland's stability were ontologically brute. In doing so, I skipped the important step of showing that this particular form of explanation was a good guide to metaphysical structure, and/or showing that this would be the only possible explanation of Wetland's stability. Second, before inferring that some fact is ontologically brute we must give

some reason to think that any kind of explanation of this fact will not be formulated in future. It is not necessary to show that this is the case beyond all doubt, but we need good reason to be pessimistic about future explanations before endorsing a hypothesis about ontological bruteness. Third, we cannot make claims about bruteness without contextualizing such claims with respect to both scientific practice and philosophy. So, for example, we should not make a claim about bruteness without saying something about how bruteness fits into the broader metaphysical scheme of things, such as the laws of nature and causation. And we also cannot make a claim about bruteness without saying something about why this fact is unexplained, given surrounding scientific enquiry. These are the negative lessons. These are the ways *not* to make the case for brute facts.

There is a proposal that avoids these problems, and also fits with a popular conception of metaphysics as proceeding through inference to the best explanation, in a process akin to scientific theory choice.¹⁴ The proposal in question is that an adequate basis for positing brute facts is that they form part of a general, naturalistic metaphysical theory with strong abductive support. General means a theory that is not restricted to brute facts, that makes some attempt to connect bruteness to other metaphysical concepts. Such a theory need not be completely exhaustive or completely systematic, but would make some attempt to answer questions about, for example, the relationship between metaphysical emergence, metaphysical fundamentality and ontological bruteness. Naturalistic means informed by scientific practice, such that, for example, standards for explanation take account of varying standards for explanation in different areas of science. In requiring that the theory have strong abductive support, we make more likely that the

¹⁴ See Paul 2012, Sider 2009.

theory be true and so less likely that an explanation of the relevant fact would be developed in the near future.

To see how this would work, let us consider some of the earlier examples. The inference from the absent scientific explanation to ontological bruteness would be blocked, because in making this inference I failed to offer a broader metaphysical interpretation of the absent explanation, or to give reason to think that the explanation would not be developed in future. The inference from fundamentality to bruteness would be blocked, because even a brief metaphysical consideration of the nature of fundamentality shows that bruteness is not equivalent to fundamentality, and nor does it necessarily follow from fundamentality. Finally, the inference from the absent philosophical explanation would be blocked, because the absent explanation was not appropriately contextualized with respect to the relevant science and metaphysics.

It would be possible following this proposal, however, to turn each one of these cases into a successful case for brute facts (so long as the empirical facts are friendly, which will not be shown here). Consider, for instance, the Wetlands case. Imagine that I begin by noting that there is no explanation of the stability of Wetlands in terms of the individuals that compose the Wetlands community. Instead of simply directly inferring from this that Wetland's stability is ontologically brute, however, I then conduct some further scientific and metaphysical investigation. I look into the possibility of other scientific explanations, in ecology and elsewhere, including in fundamental physics. Given this survey, I then think carefully about how likely it is that an explanation of Wetland's stability will be developed in the future, if one has not been developed already. I then consider my general metaphysical theory, and consider how this explanatory absence will fit into our best theories about the structure of the world and how it hangs together. For example, if I acknowledge that Wetland's stability is ontologically brute,

should I therefore be a dualist about Wetlands? Should I also be a dualist about other similar communities? Will I have to acknowledge special laws of nature that apply only to Wetlands? If I can go through this process and come out of it with a general, naturalistic metaphysical theory with high abductive support, according to which Wetland's stability is ontologically brute, then that will be a good case for the position that Wetland's stability is ontologically brute. The fact that ontological bruteness is posited by such a theory is an adequate case for brute facts, but that case is defeasible. Rival metaphysical frameworks, equally naturalistic and with equal levels of abductive support, may not posit brute facts and deciding between such frameworks simply is the practice of metaphysics.

This process will rely upon philosophical and scientific work about a variety of questions. Take for instance the importance of philosophical work on explanation. Cases of irreducibly statistical phenomena appear to present cases of bruteness, such as the timing of a particular instance of radioactive decay. Say that for some particle, decay within a period of time is compatible with probabilistic laws, but decay at a particular time within that period is not determined by those laws. Is the decay at a particular time then a case of bruteness? The answer will depend on the results of a long-standing debate about the nature of statistical explanation, and about whether we can explain probabilistic events, including low-probability events (Jeffrey 1971). Deciding on which facts are brute will require serious philosophical work on the nature of explanation, in order to appropriately interpret cases.

As we can see from these examples, making the case for brute facts will be arduous. It may be that no fact can be shown to be ontologically brute after going through this process, but that will be an empirical question. Some may hold that the fact that this procedure will be arduous is a reason to reject this proposal, but metaphysical enquiry is difficult and we should be

appropriately suspicious of results that arrive too easily. It may be the case that there are no brute facts, but it is only on the basis of a naturalistic, general metaphysical theory with strong abductive support that we can even begin to make the case for ontological bruteness.

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