Essence and Naturalness

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Abstract

According to sparse modalism, the notion of essence can be analysed in terms of necessity and naturalness. In this paper, I develop and defend a version of sparse modalism that is equipped with a non-standard, relativized conception of naturalness. According to this conception, properties and relations can be natural to different degrees relative to different kinds of things, and relations can be natural to different degrees relative to different slots. I argue that this relativized version of sparse modalism can accommodate various cases that the standard, non-relativized version can't. The alternative version can accommodate cases where a relation is essential to a relatum but merely necessary to another, cases where a property is essential to an object but merely necessary to another, and cases where a less-than-perfectly natural property is essential to an object.

1 Introduction

An object's essential properties are those that are part of 'its nature'; they are part of 'what that object is' in some metaphysically relevant sense.[1] According to *modalism*, this notion is analysable in standard modal terms. A

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[1]Fine (1994: 1)

once prominent version of modalism says that an object's essential properties are those that, necessarily, that object has if it exists. However, this has well-known problems. Necessarily, if Socrates exists, he has the properties of *being such that he is bald or not* and of *being not identical to the Eiffel Tower*, and yet these properties aren't part of his essence in the intuitive sense.[2]

Whereas *pure* modalists analyse essence using standard modal concepts alone—at most assisted by classical logical notions—*hybrid* modalists appeal to further notions to avoid such problematic cases.[3] Sparse modalism, a view first developed by Cowling (2013) and Wildman (2013), appeals to the notion of perfectly natural, or sparse, property. An object's essential properties are taken to be those perfectly natural properties that, necessarily, that object has if it exists.[4] Intuitively, the perfectly natural properties are those that carve reality at the joints, account for objective similarities, ground causal powers and are needed to characterize everything completely and without redundancy.[5] *Being such that he is bald or not* and *being not identical to the Eiffel Tower* are not perfectly natural in this sense. But not only does the view avoid the problems above, it's also supported by an independent reason, which is that properties that do not 'carve reality at the joints' are plausibly not part of 'what an object is' in a metaphysically significant sense.[6]

However, sparse modalism in its current form cannot accommodate three sorts of cases. First, there are cases of properties that are essential to an object but merely necessary to another. To take Fine's (1994: 7) suggestion, *being such that there are sets* might be essential to the empty set but merely necessary to the number two. Second, there is what Dunn (1990: 77, 89) called 'asymmetry in essential relational properties'—cases of relations that are essential to a relatum but merely necessary to another. To take Fine's (1994: 4) famous example, that Socrates is a member of the singleton {Socrates} is essential to the singleton but merely necessary to Socrates. As we will see, these cases are problematic for sparse modalism because

[2]See Marcus (1967: 95), Parsons (1969: 38) and Fine (1994: 5)

[3]Other accounts, such as Correia (2007) and Brogaard and Salerno (2013), appeal to non-standard modal notions. See Torza (2015) and Steward (2015) for arguments against these views.

[4]See Cowling (2013: 258) and Wildman (2013: 765). Cowling (2013) distinguishes 'essence' and 'nature', argues that the relevant notion in Fine (1994) is the latter, and calls sparse modalism 'sparse essence view of natures'. I will use those terms indistinguishably.

[5]See Wildman (2013: 763–4), Lewis (1983: 345–7) and Lewis (1986: 59–60). The intuition that perfectly natural properties ground causal powers conflicts with the possibility that e.g. the membership relation is perfectly natural. Cf. Wildman (2013: 762–3, 776) This intuition can be either dropped or qualified; see footnote 18.

[6]Wildman (2013: 764–5) developed this argument. I present another version of this argument in Section 5.

properties and relations are often understood to be perfectly natural or not *simpliciter*—and not relative to one or another object. Third, Skiles (2015) argued that there are cases of properties that are essential to an object but less-than-perfectly natural. *Being a tower* might be essential to the Eiffel Tower but isn't perfectly natural.

In this paper, I develop and defend an alternative version of sparse modalism that avoids the problems above. I offer various analyses of the concept of essence in terms of a relativized conception of naturalness. According to this conception, a property might be natural to different degrees relative to different kinds of objects and a relation might be natural to different degrees relative to its different slots.[7]

In Section 2, I show why exactly sparse modalism in its current form cannot accommodate the first two sorts of cases. Cowling and Wildman claimed that we can avoid the second problem by denying the plausibility of the case involving Socrates and his singleton.[8] I argue against this strategy in Section 3.

From Section 4 through Section 7, I develop and defend an alternative version of sparse modalism. In Section 4, I argue for the intelligibility of the relativized conception of naturalness above and I develop an analysis of essence that avoids the first two sorts of counter-examples (raised by Dunn and Fine). In Section 5, I argue that this first analysis accounts for a strict sense of essence. In Section 6, I develop an analysis of a less-than-strict notion of essence in terms of a less-than-perfect conception of naturalness. I show how these analyses together can accommodate the third sort of case (raised by Skiles). Finally, in Section 7, I address a potential concern about circularity suggested in Fine (1994), show how our account differs from an account proposed by Zylstra (2019), and develop yet a third conception of essence.

2 Old Problems for Sparse Modalism

Following Fine (1994: 3–4), we can distinguish two versions of pure modalism. According to the *categorical version*, it's essential to an object x that it has a property P just in case, necessarily, that object x has that property P. According to the *version conditional on existence*, it's essential to an object x that it has a property P just in case, necessarily, if x exists, x has P. The latter version can be motivated by serious actualism—the thesis that

[7]This conception is developed and independently defended in de Melo (ms-a; ms-b).

[8]See Wildman (2013: 761 and §III) and Cowling (2013: fn. 30).

non-actual objects cannot have properties.[9]

2.1 Asymmetry in essential relational properties

One of the most important characteristics of the intuitive notion of essence, emphasized by Dunn (1990) and Fine (1994: fn. 2), is what we might call 'localization' or 'relativization'. Given the intuitive notion, it seems conceptually possible for a dyadic relation to be essential to one relatum but just necessary to another, for standing in that relation might be part of what one relatum but not the other is. According to Fine's (1994) example, it's not highly implausible, or at any rate, it's conceivable that whereas the singleton {Socrates} is essentially such that it has Socrates as a member, Socrates is necessarily but not essentially such that he is a member of that singleton. The 'essentiality' of the fact that Socrates is a member of the singleton is somehow 'localized' in, or 'relativized' to, one of the relata. (Thus, essentialist claims are usually formed not only by combining an essentialist expression to a sentence or predicate but also to a name for an object: 'it's essential to . . . that ---' or '. . . is essentially ---'.) As noted by Dunn, examples seem to multiply: 'it is an essential property of Queen Elizabeth II that she had the parents she had' and:

> it is an essential property of the world that it was created by God, it is an essential property of the set {Tom, Dick} that it has Tom as member, it is an essential property of Maine that it is north of Boston, it is an essential property of a particular table that it was made from a particular piece of wood. But in none of these cases does the converse seem to hold. (Dunn, 1990: 89)

The problem for pure modalists is that there is no proper conceptual room in their analyses to account for this asymmetry in the localization of essence. Their categorical version doesn't provide any room. For, if it's essential to the singleton {Socrates} that Socrates is a member of it, then it's necessary that Socrates is a member of the singleton. But then, according to this very analysis, it's also essential to *Socrates* that Socrates is a member of the singleton. However, the latter is way more implausible than what we had before the analysis, or at any rate, it shouldn't be conceptually implied by a truth about the singleton's nature.

The version conditional on existence might provide *some* room for such cases. For, even if the doubleton {Tom, Dick} cannot exist without Tom,

[9]See Steward (2015: 1915).

maybe Tom can exist without the doubleton. An asymmetry in their *existence* across possible worlds would then ground the asymmetry concerning their essences. For then, even though the account implies that Tom must be a member of that doubleton conditional on the doubleton's existence, it doesn't imply the same conditional on Tom's existence. And thus, it wouldn't imply that Tom is essentially a member of the doubleton. Asymmetries in essential relational properties would give pure modalists a further reason to adopt the conditional version—besides serious actualism.

However, pure modalists would be committed to there being a corresponding asymmetry in the existence of the relata across possible worlds whenever there is an asymmetry in essentialist relational claims. In general, it should be possible for the relatum in whose essence the relational claim is *not* localized to exist without the other also existing. Now, this is plausible in some cases. The Queen Mother could exist without Queen Elizabeth; Tom could exist without the doubleton {Tom, Dick}. But it's arguably implausible for the existence of Socrates without the singleton {Socrates}; and, to take another example by Dunn, it's implausible for the existence of the empty set {} without other pure sets, such as the doubleton { {} , {{}} }. For, according to a standard modal set theory, sets exist whenever its members do.[10]

The versions of sparse modalism developed by Wildman and Cowling don't do any better than pure modalisms when it comes to the cases above. Wildman's statement of the view includes the following clauses to analyse cases involving monadic properties and dyadic relations:

Sparse Modalism 1 It's essential to an object x that it has a property P just in case (i) necessarily, if x exists, then x has P; and (ii) P is a perfectly natural property.

Sparse Modalism 2 It's essential to an object x that it bears a relation R to y just in case (i) necessarily, if x exists, then R holds of the ordered pair $\langle x, y\rangle$ and (ii) R is a perfectly natural relation.[11]

Clearly, clause (i) of *Sparse Modalism 2* doesn't avoid the problems raised by asymmetries in essential relational properties. For, by itself, this is just pure modalism conditional on existence. Thus, the relevant question is whether the added restriction on relations introduced by clause (ii) makes proper room for the given asymmetries. And the answer is also clear: it does not. For, on the standard view, 'being perfectly natural' is not relative

[10]See Dunn (1990: 90–1) and Fine (1994: 4).

[11]See Wildman (2013: 765, 773). The account can be easily extended to polyadic cases in general. Cowling (2013: 258) offers an equivalent formulation for monadic cases. See footnote 4.

to one or another relatum. If the singleton {Socrates} essentially bears the membership relation to Socrates, it follows, according to (ii), that the membership relation is perfectly natural (*simpliciter*). As before, if the singleton must exist whenever Socrates does, it follows that necessarily, if Socrates exists, Socrates is a member of the singleton. But then, if the membership relation is perfectly natural (*simpliciter*), Socrates must be essentially such that he is a member of the singleton.

Thus, sparse modalism doesn't do any better than pure modalism when it comes to asymmetry in essential relational properties.[12] But there is a further way in which essence is 'localized' that is also not properly analysed by sparse modalism.

2.2 Essential to some but merely necessary to others

Given the intuitive notion, a property might be essential to one object but just necessary to another. To take again an example from Fine (1994: 7), it's not highly implausible, or at any rate, it's conceivable, that whereas the empty set is essentially such that there are sets, Socrates is necessarily but not essentially such that there are sets. For, although it might be part of what the empty set is that there are sets, this might not be part of what Socrates is; and yet, since sets necessarily exist, Socrates is necessarily such that there are sets if he exists.

Now, according to *Sparse Modalism 1*, clause (ii), if the property of *being such that there are sets* is essential to the empty set, it must be perfectly natural. But, since according to the present notion properties are perfectly natural or not *simpliciter*, clause (ii) can't introduce any asymmetry. And since *being such that there are sets* is also necessary to Socrates, sparse modalism is committed to saying that it's essential to Socrates that there are sets. However, this is highly implausible, or at any rate, it shouldn't be conceptually implied by a truth about the empty set's nature.

Cases again multiply. *Having no members* might be essential to the empty set but it's merely necessary to me. *Existing* might be essential to God but merely necessary to the number two. *Being preceded by no natural number* might be essential to the number zero but merely necessary to Socrates. *Being such that two plus two equals four* might be essential to the fact that two plus two equals four but it's only necessary to the empty set.[13]

[12] Zylstra (2019) generalizes the argument above for a family of hybrid modalisms.

[13] As shown in Section 5, standard understandings of naturalness provide reasons to take these (and other) properties as less-than-perfectly natural. And yet, these properties might be essential to some objects. This is the third problem that our account solves.

Thus, the restriction to sparse properties—introduced by clauses (ii) above—isn't able to create proper conceptual room to accommodate pairs of claims that manifest the 'localized', or 'relativized', character of essence. Likewise for any concept of property that doesn't itself introduce some relativization. The arguments above can be repeated for any restriction Φ such that a property is Φ *simpliciter*—and not relative to one or another object.

3 Conceptual Analysis versus Metaphysical Reduction

Wildman and Cowling are aware of the problem posed by Fine's case involving Socrates and his singleton. Wildman bites the bullet and argues that it's not implausible that Socrates is essentially a member of the singleton.[14] Cowling bites the other bullet and claims that abstract objects, including the singleton, do not have essences.[15] Likewise, one might want to adopt the biting-the-bullet strategy for the other counter-examples.

To properly evaluate this strategy we must distinguish two kinds of account. I dub them *conceptual analysis* and *metaphysical reduction*. For our purposes, their main difference concerns whether conceivability is relevant as a criterion of adequacy. A conceptual analysis of essentialist claims is adequate only if analysandum and analysans aren't conceptually independent. That is, the analysis is inadequate if we can clearly conceive of an essentialist claim being true without the purported analysans being also true, or vice-versa. A metaphysical reduction won't require that much. For it must guarantee strict, but not conceptual equivalence. A reduction might still be adequate if the occurrence of the explanandum without the explanans, even if intelligible, is impossible. Mere conceivability, or intelligibility, isn't relevant to decide whether a metaphysical reduction is a candidate for truth.

This distinction accommodates Fine's claim that his argument against pure modalists doesn't depend on endorsing the modal and essentialist claims to which he appealed. All that is necessary, he says, 'is that [the reader] should recognize the intelligibility of a position which makes such claims.' (Fine, 1994: 5)[16] Dunn and Fine both found it plausible that i) Socrates isn't essentially a member of the singleton {Socrates} and that ii) the singleton essentially has Socrates as a member. If these claims are true, then

[14]See Wildman (2013: 761 and §III)

[15]Cowling (2013: fn. 30). McDaniel (2017: 257–61) argues that, given sparse modalism and the principle that only fully real entities can have perfectly natural properties, less than fully real entities must lack essences.

[16]See also Fine (1995a: 274).

pure modalism isn't successful either as a metaphysical reduction or as a conceptual analysis. But denying the truth of either claim won't support pure modalism as a conceptual analysis if one grants that (i) and (ii) are co-conceivable. Since Fine found the conjunction of (i) and (ii) both intelligible and plausible, he claimed that essence is 'not to be understood in modal terms or even to be regarded as extensionally equivalent to a modal notion.' (1994: 3) If they are implausible but intelligible, then Fine would still say that essence is not to be *understood* in modal terms.

The biting-the-bullet strategy can now be reconstructed in two ways. If sparse modalism is meant as a conceptual analysis, the strategy is to deny that (i) and (ii) are co-conceivable. Against this, I'll argue that they are. If sparse modalism is meant as a metaphysical reduction, the biting-the-bullet strategy is to deny that (i) and (ii) are both true. I'll argue that, even if they aren't both true, a metaphysical reduction that can accommodate similar cases is, other things equal, better than one that can't.

To argue that (i) and (ii) are co-conceivable we start with our pre-analytical understanding of essence. The traditional conception voiced by Fine relates the notion of essence of an object to questions of the form 'what is that object?' when such questions are asked in a 'metaphysically significant sense'. Metaphysics is concerned, he writes, 'with the identity of things, with what they are.' And it's in answers to such questions that 'appeal is naturally made to the concept of essence. For what appears to distinguish the intended properties is that they are essential to their bearers'. (Fine, 1994: 1)

Now, suppose that someone answers that 'what Socrates is' is a rational, human, living, concrete being, originated from gametes such and such, but that she leaves out the fact that Socrates is a member of the singleton {Socrates}. Her answer might be wrong but it's certainly not inappropriate; she cannot be accused of not understanding the question. Suppose next that the same person answers that 'what the singleton {Socrates} is' is a set whose sole member is Socrates. It doesn't follow that she's now committed to including this last relational claim in her answer about Socrates or that she's being incoherent. All this implies is that she doesn't take Socrates's relation with the singleton to be relevant to answer 'what Socrates is' whereas she does take it to be relevant to answer 'what the singleton is'. Her answers shouldn't be rejected for mere conceptual reasons intimately tied to the intended meanings of the 'what is it' questions. Thus, the conjunction of (i) and (ii) is conceivable.

Against Sparse Modalism, the argument goes that, if that same person above also held that iii) necessarily, if Socrates exists, so does his singleton, her answers—about what Socrates and the singleton are—would still be co-

herent. Thus, the conjunction of (i), (ii) and (iii) is conceivable. But now, the conjunction of (iii) with the analyses of (i) and of (ii) should be conceivable too. However, this is not the case, since (iii) and the analysis of (ii) logically entail the sentence negated by the analysis of (i).

Thus, given the conceivability of Fine's singleton case, the standard version of sparse modalism cannot be defended as a conceptual analysis of essence.

Suppose, however, that sparse modalism is intended as a metaphysical reduction only. The conceivability of the problematic cases above would still support the relativized version of sparse modalism developed in the next sections. It would do so, not because conceivability is relevant as a necessary condition for being true, but because it's relevant as an epistemic virtue—a criterion to decide which theory is the best explanation. For the conceivability of those cases supports the epistemic possibility that there are further claims where the localization of essence would be problematic for sparse modalism. But then, if the alternative version to be developed can in fact accommodate those otherwise problematic cases, then, other things being equal, the alternative version must be preferred to Cowling's and Wildman's versions.

4 Locally Sparse Modalism

The alternative account I will develop assumes a twice relativized notion of naturalness. This conception is both kind-relativized and slot-relativized. I will build on the way Lewis introduced his, non-relativized, notion to introduce mine. In doing so and for the rest of this paper, I will often speak of properties, relations and kinds as if they were classes of (n-tuples of) possibilia.

To introduce the notion of perfect naturalness, Lewis (1983) first describes Armstrong's (1978) conception of universals. Universals 'ground the objective resemblances and the causal powers *of things*' and 'comprise a minimal basis for characterising *the world* completely' (Lewis, 1983: 345, our emphasis). The perfectly natural properties and relations are then intuitively characterized as the ones that do what Armstrong's universals do: i) account for objective resemblances among things, ii) ground causal powers of things, and iii) serve as a minimal basis to characterize everything.[17] Another description, which sums up the intuitive notion, is that perfectly natural properties 'carve reality at the joints'. Now, by 'things', 'world' and 'reality' Lewis

[17]Cf. Schaffer's (2004: 93–4) 'qualifications' for being a sparse property. See also footnote 5.

means the plurality of all possible things and worlds. Accordingly, he says that a property is 'natural or unnatural *simpliciter*, not relative to one or another world.' (Lewis, 1986: fn. 44) Likewise, it's clear that for him a property is natural or unnatural *not* relative to one or another object, or set of objects, or kind, etc. A property is natural or unnatural *simpliciter*—in every such way.

Lewis's conception is certainly an absolutist, non-relativized one. However, his notion is absolutist only because there is just one, a unique plurality of all possible things and worlds by reference to which the notion was introduced. For the initial locution 'ground objective resemblances and causal powers' naturally calls for a complement—'among things' and 'of things', and it's in this sense already 'relativized'. (So much so that Lewis's own elucidations included them; and that it wouldn't be unfair to call his conception 'absolutized' rather than ours 'relativized'.) The key to 'relativize' naturalness is merely to complete such locutions by things other than the unique plurality of all things and worlds.

According to the *kind-relativized* notion, a property that is perfectly natural relative to a kind is a property that grounds objective resemblances and, possibly, causal powers *of things of that kind*, carve those things up at the joints and comprise a minimal basis for characterizing them completely and without redundancy. And, like Lewis, by 'things' I mean all possible things, though, of course, only of that kind. Thus, if a property is perfectly natural relative to a kind, it's necessarily so.[18]

Lewis also introduces a graded conception; a property, even though not perfectly natural, might still be more natural than another.[19] *Being green*, for example, is more natural than *being grue*. More specifically, Lewis suggested a definitional conception according to which the simpler it is to define a property or relation out of the perfectly natural ones, the more natural that property or relation is.[20]

Just like Lewis's conception, my conception also comes in degrees. Properties and relations are more or less natural relative to kinds. The definitional conception can also be adopted, but now relativized to kinds. Since properties and relations can be perfectly natural relative to a kind but not another,

[18]Plausibly, some properties ground causal powers whereas others don't. Given kind-relativism, this rift within the realm of perfectly natural properties could be explained as arising from the kind of thing relative to which the property is perfectly natural, say, whether it's concreta or not. See footnote 5.

[19]This is sometimes called 'relative naturalness'. I use 'graded' to distinguish it from what I call 'relativized'. This is also why I prefer 'kind-relativized' rather than 'kind-relative'.

[20](Lewis, 1986: 61) and (Lewis, 1984: 228)

some properties and relations might turn out to be natural to different degrees relative to different kinds. *Having no members*, for example, might be pretty natural relative to sets, but not that much relative to other kinds. Intuitively, relative to sets this property seems to at least somewhat 'carve the joints' by distinguishing the empty set from all other sets, but relative to, say, concreta this property doesn't carve the joints at all since it's had by Socrates, the Eiffel Tower and everything else without grounding genuine resemblances or being needed to characterize them.[21]

Now for the second relativization. Relations have 'slots'. The *loving* relation has two slots, one to be occupied by a lover, and the other by its beloved. According to the *slot-relativized* notion, a relation that is perfectly natural relative to its slot s is a relation that grounds objective resemblances and causal powers *of occupants of* s, carves those things up at the joints and comprise a minimal basis for characterizing them completely and without redundancy. Moreover, slot-relativized naturalness can come in degrees. Relations can be natural to different degrees relative to different slots. This conception allows us to say, for example, that *loving* is somewhat natural relative to its lover-slot but not that much relative to its beloved-slot. Intuitively, this might be because it accounts for genuine similarities and causal powers of lovers more than it accounts for similarities and powers of the beloved ones.

For present purposes, it's enough if we have a clear understanding of the relativized conceptions, which I hope to have provided by mirroring the way Lewis introduced his own conception. This paper, if successful, provides a reason to take the relativized conceptions as more fundamental than their non-relativized counterparts. Other things being equal, the relativized conceptions should be taken as more fundamental because they can properly analyse essence whereas their opponents can't.[22] Let's see now what the relativized conceptions of naturalness can do for an account of essence.

Let's call *Locally Sparse Modalism* the analysis that replaces the standard conception of sparseness present in Wildman's clauses by the relativized conceptions as follows:

Locally Sparse Modalism 1 It's essential to an object x that it has a property P just in case (i) necessarily, if x exists, then x has P; and (ii) P is perfectly natural relative to a kind that includes x.

[21]There is a question whether the notions of kind and kind-relativized naturalness are themselves primitive or analysable. I won't settle this issue here. The urgent question is whether our analyses will be circular in virtue of assuming a notion of kind to analyse essence. I address this in Section 7.

[22]Independent reasons to take these conceptions as fundamental are explored in de Melo (ms-a; ms-b).

Locally Sparse Modalism 2 It's essential to an object x that it bears a relation R to y just in case (i) necessarily, if x exists, then R holds of the ordered pair $\langle x, y\rangle$ and (ii) R is perfectly natural relative to the slot occupied by x and relative to a kind that includes x.

Even though the conception of kind-relativized naturalness above is compatible with kinds themselves being perfectly natural relative to further kinds, some of them won't be. Essentialist claims involving such 'fundamental' kinds won't be 'local'—neither in the sense above, nor in the sense developed in Section 6. An analysis of such cases must be similar to the standard sparse modalist analysis but now restricted only to such fundamental kinds. I'll discuss it in Section 7. For now, let's see how Locally Sparse Modalism can accommodate cases that were intractable before.

4.1 Essential to some but merely necessary to others

Fine (1994: 7) suggested that a general restriction on 'improper' properties for essence will have to tackle the problem of properties that are essential to some objects but just necessary to others. Our account 'relativizes' the restriction. A property might be 'proper' to define some essences but 'improper' to others. What follows from the claim that a property is essential to an object is that it is perfectly natural relative to a kind that includes that object, and not that it is perfectly natural relative to every kind. Thus, if the empty set is taken to be essentially not membered, then there must be some kind that include the empty set relative to which *having no members* is perfectly natural. Crucially, it doesn't follow that Socrates is also of a kind relative to which this property is perfectly natural.

To emphasize, the account isn't committed to the essentialist or to the naturalness claims above. It is only committed to the conceivability of the naturalness claim conditional on the conceivability of the essentialist claim. Analogous remarks apply to the following analyses.

4.2 Asymmetry in essential relational properties

Let's take Dunn's (1990: 90–1) less famous singleton case first. That the empty set is a member of the singleton of the empty set is essential to the singleton but not to the empty set. According to our account, since the singleton of the empty set essentially has the empty set as a member, the membership relation must be perfectly natural relative to its set-slot and relative to a kind K of which the singleton is one. Now, of course, it's plausible that the membership relation is perfectly natural relative to sets, and

the empty set also happens to be a set. Thus, the relativization to kinds doesn't accommodate the asymmetry. But the relativization to slots does. For the analysis doesn't imply that the membership relation is perfectly natural relative to its member-slot, which the singleton occupies. Moreover, it's plausible that the membership relation, although perfectly natural relative to its set-slot, is not natural relative to its member-slot, for, intuitively, being a member of one set or another doesn't account for genuine similarities at all.

Both points above can be repeated concerning the famous pair. Since the singleton {Socrates} essentially has Socrates as a member, the membership relation must be perfectly natural relative to its set-slot and relative to a kind that includes the singleton. But it doesn't follow that the membership relation is perfectly natural either relative to a kind that includes Socrates or to its member-slot.

Suppose that it's essential to Queen Elizabeth II, but not to the gametes g, that the Queen is originated from the gametes. Plausibly, g can exist without the Queen. But suppose not. Even without asymmetry concerning their existence, our analysis accommodates the asymmetry concerning their essences. For, if the Queen is essentially originated from the gametes, *being originated from* must be perfectly natural relative to the originated-slot. Now, if the gametes do not essentially originate the Queen, then *being originated from* isn't perfectly natural relative to the origin-slot. Incidentally, this shows that a categorical version of *Locally Sparse Modalism* is available if serious actualism is false.

Thus, our doubly relativized conception of naturalness gives sparse modalism conceptual room to accommodate the two sorts of cases raised by Dunn and Fine. Let's now consider a third sort of case.

5 No Strict Essence without Perfect Naturalness

Lewis's (1983) own conception was that the perfectly natural properties are the ones that serve as a 'minimal' ontological basis for characterizing the world completely and without redundancy. This suggests what Schaffer (2004: 92–3) calls a 'fundamental' conception of sparseness. According to this conception, the perfectly natural properties are those identified by the most fundamental science—plausibly, fundamental physics. However, if the standard sparse modalism adopts this conception, then properties such as *being rational* and *being made of iron* cannot be essential properties of Socrates

and the Eiffel Tower. For they are plausibly not properties invoked by fundamental physics.

Both Cowling (2013: fn. 29) and Wildman (2013: 766–7) pointed out that a more liberal conception of sparseness is available. According to Schaffer's (2004) scientific conception, the perfectly natural properties are those identified by the total science in its different levels—physics, chemistry, biology etc. For example, if *being rational* and *being made of iron* appear somewhere in our total science, then Socrates and the Eiffel Tower might have those properties essentially.

However, in 'Essence in Abundance', Skiles (2015) argued that there are further properties that are essential to things without being perfectly natural either in the fundamental or in the scientific conceptions. For example, it might be that the Eiffel Tower is essentially a tower and essentially designed and constructed to perform such-and-such function by Gustave Eiffel; the brownness of my table essentially inheres in my table; the proposition ⟨the Eiffel Tower is a tower⟩ is essentially such that it is true iff the Eiffel Tower is a tower.[23] Yet, *being a tower* and *being designed and constructed to perform such-and-such function by*, for example, don't seem to be sparse in either conception.

Once it's equipped with relativized naturalness, sparse modalism can accommodate such cases in two ways. First, by maintaining that whenever a property is essential to an object it must be *perfectly* natural relative to *some* kind that includes that object. I defend this here. This defence will show that the concept of essence analysed by *Locally Sparse Modalism* might be stricter than one might have expected. But there is another way to accommodate those cases. Namely, by providing a complementary analysis of a less-than-strict sense of essence. This second analysis assumes that whenever a property is essential to an object, it must be natural to some degree relative to a kind that includes that object. I'll develop the latter in Section 6.

I start with the intuition that there is no essence in *mere* abundance. For, if there are any answers, for example, to the question 'what is the Eiffel Tower' in the *metaphysically significant* sense, those answers can't merely be that the Eiffel Tower has a certain completely gerrymandered, miscellaneous property. Of course, this doesn't show that essential properties are *perfectly* natural. But in a kind-relativized theory of naturalness, it gives us enough reason to claim, for instance, that the Eiffel Tower must be a member of some kind relative to which properties are distinguished in various degrees of naturalness. In general, if a property is essential to an object, it must be

[23]Skiles (2015: 107)

natural to some degree relative to a kind that includes that object.[24]

Now, if some properties are natural to some degree relative to a kind, there must be perfectly natural properties relative to that kind. Intuitively, these will be the ones that meet the qualifications for being natural to the highest degree relative to that kind. Thus, in general, it's safe to assume that:

No Essence without Naturalness If a property P is essential to an object x, then x is of a kind K relative to which properties, including P, are natural to various degrees, including the perfect grade.[25]

Given this principle, an important subclass of the essential properties of an object can be shown to be perfectly natural relative to a kind that includes that object. As we saw in Section 3, according to the traditional conception, the notion of essence is related to metaphysical questions of the form 'what is it?'. But there are different ways to relate these. We might think that, if a property is essential to an object, it *can* provide a partial and appropriate answer to such questions.[26] Call this the *less-than-strict* notion of essence. Alternatively, we can think that, if a property is essential to an object, it's *needed* to provide a complete and appropriate answer to such questions. It's the latter, *strict* sense that is assumed below.

Consider a property P had by an object x. We want to show that, if P is strictly essential to x, P is perfectly natural relative to a kind K that includes x. Assume the antecedent. From *No Essence without Naturalness*, it follows that x is of a kind K relative to which properties, including P, are natural to various degrees, including perfect ones. Call 'PN' the set of properties that are perfectly natural relative to K. From our assumption and the sense of 'strict essence' above, we have that P is needed to provide

[24]I find it very plausible that there is some connection between a property being essential to something and it being somehow ordered by a ranking of naturalness, and I consider my account's commitment to a version of this connection as a reason to take it seriously. That said, for present purposes, it's enough that the connection that I'm assuming here is consistent with Skiles's claim that there are properties that are essential to an object but less-than-perfectly natural (and with the kind-relativized version of this claim). I thank an anonymous referee for helpful discussion here.

[25]An anonymous referee suggested that, as long as we establish properties that are perfectly *non*-natural relative to a kind, the naturalness ranking relative to that kind might lack maximal elements. Recall that I've followed Lewis's lead in starting with the 'perfect' notion to define the 'graded' one. Doing so warrants there being maximal elements wherever there is some ranking. The referee's conception is worth exploring and might be adopted if we have independent reasons to prefer infinite rankings relative to some kinds. However, reasons to reject perfect naturalness relative to a kind will support rejecting strict essences relative to things of that kind. I thank the referee for this important suggestion.

[26]See Roca-Royes (2011: 66) and Cowling (2013).

a complete and appropriate answer to the relevant 'what is x?'. But now, if P were less-than-perfectly natural, P would not have been 'needed' for such answer, for, intuitively, less-than-perfectly natural properties relative to K are not needed to characterize things completely and without redundancy. That is, it would have been possible to define P out of perfectly natural properties PN, and thus we could just use the properties PN to give the relevant answer to 'what is x?'. Therefore, P must be one of the perfectly natural properties PN if it's strictly essential to x.[27]

One might object that the strict sense of essence is *too* strict, because the relevant notion admits properties that, even though not needed to provide a complete answer, *can* provide appropriate, if redundant, answers to 'what is it' questions. There are two non-exclusive ways to address this. First, by offering an analysis of less-than-strict essence, which I do in Section 6. The second is by arguing that the strictness of the notion was always there and is now made transparent.

The last reply can be supported by noticing, first, that it's the strict notion that is at play in relevant contexts. For example, to argue that Socrates isn't essentially a member of the singleton {Socrates}, Fine argues that '[s]trange as the literature on personal identity may be, it has never been suggested that in order to understand the nature of a person one *must* know to which sets he belongs.' (Fine, 1994: 4, our emphasis) The relevant notion here seems to be the strict one, since Fine reasons that if membership to sets were 'essential' to people, it would be that one 'must' include facts about membership to sets to provide a complete answer to the 'what is it' question.

Second, the strict notion is close to Fine's notion of 'constitutive' plus 'immediate' essence, which is the most important notion for him. He distinguishes constitutive and consequential essences as follows:

> An essential property of an object is a constitutive part of the essence of that object if it is not had in virtue of being a consequence of some more basic essential properties of the object; and otherwise it is a consequential part of the essence. (Fine, 1995b: 57)

[27]This argument is a modification of Wildman's (2013: 764). Wildman's notion of essence is plausibly the less-than-strict one. As such, it's vulnerable to Skiles's (2015: 108) objection that some essential properties might play only a 'redundant' role in answering what an object is; thus, they might be less-than-perfectly natural because they are unnecessary to characterize everything completely and without redundancy. When a property is strictly essential, however, it can't play only such a 'redundant' role. Thus, my argument blocks Skiles's objection.

It's constitutive essence, for example, that is relevant for Fine's (1995a) account of ontological dependence. In fact, since Fine doesn't have a primitive distinction among properties—like basic or derivative, proper or improper, natural or unnatural—he assumes the concept of consequential essence as primitive and restricts it by 'generalizing out' those objects that enter the consequential essence of an object as a result of being a logical consequence of more basic properties.[28]

Now, if a property is strictly essential to an object, then it's not had in virtue of being a logical consequence of 'more basic essential properties' of that object. For, if it were, it wouldn't be needed to answer what that object is. Thus, if a property is strictly essential to an object, it must be constitutively essential to it.[29]

Fine distinguishes the immediate and the mediate senses as follows:

> the immediate nature will only include that which has a direct bearing on the nature of the object and will exclude whatever belongs in virtue of the nature of the objects upon which the given object depends. (Fine, 1995a: 281)

For example, *containing something that is a man* is part of the mediate essence of the singleton {Socrates}, but not of its immediate essence. For it includes *being a man*, which would 'belong' to the essence of the singleton only to the extent that it's had by Socrates, an object on which the singleton depends. *Being a man* doesn't have a 'direct bearing' on the essence of the singleton.

Now, *containing something that is a man* is not *needed* to fully answer what the singleton {Socrates} is. For even if one says that the singleton contains something that is a man, she will still need to say that the singleton contains Socrates. But, if one says that the singleton contains Socrates, she doesn't need to say that it contains a man. The argument is generalizable for any property that doesn't have a 'direct bearing' on the essence of a given object. Thus, if a property is strictly essential to an object, it must be immediately essential to it.

Therefore, if a property is strictly essential to an object, it's both constitutively and immediately essential to it. A *prima facie* plausible conjecture at this point is that the relevant notion of essence to Fine is the strict rather than the less-than-strict one. For the less-than-strict seems to allow properties that are only mediately or consequentially essential, as long as they can provide appropriate, though maybe not needed, answers to 'what is it' questions.

[28]Cp. Fine (1995a: 276–7)

[29]I thank an anonymous referee for discussion here.

6 No Essence without Some Naturalness

One might object that *Locally Sparse Modalism* isn't enough. Maybe a property can be essential in a relevant sense without being strictly essential. We can define a less strict concept as follows.

Let's say that a property is *natural* to a kind just in case it's definable out of properties perfectly natural relative to that kind. Otherwise, it's *unnatural* relative to that kind. For example, the membership relation, *having no members* and *being such that there are sets* are unnatural relative to kinds that include Socrates, since they are not definable out of properties and relations that are perfectly natural relative to kinds that include Socrates.

More generally, let's say that a n-adic property or relation is *natural relative to its slot s and relative to a kind K* if it's definable out of properties and relations that are perfectly natural relative to that kind K and to slots to which s can be traced back. A slot s of a n-adic property P is 'traceable back' to a slot s' of a m-adic property P' with which P is defined just in case things that occupy the slot s of P, by definition, also occupy the slot s' of P'. For example, *containing something that is a man* isn't natural relative to its only slot and to sets both because *being a man* is not perfectly natural relative to sets and because its only slot is not traceable back to the only slot of *being a man*; for the singleton {Socrates} which instantiates *containing something that is a man* by occupying its only slot, doesn't occupy the only slot of *being a man*.

Finally, let's understand *Locally Natural Modalism* as including the following:

Locally Natural Modalism 1 It's essential to an object x that it has a property P just in case (i) necessarily, if x exists, then x has P; and (ii) P is natural relative to a kind that includes x.

Locally Natural Modalism 2 It's essential to an object x that it bears a relation R to y just in case (i) necessarily, if x exists, then R holds of the ordered pair $\langle x, y\rangle$; and (ii) R is natural relative to a kind that includes x and to the slot occupied by x.

Intuitively, whereas *Locally Sparse Modalism* relies on the claim that there is no essence without perfect naturalness, *Locally Natural Modalism* relies on the claim that there is no essence without *some* naturalness.[30]

I have thus provided two analyses of essence. I submit that they give plenty of room to accommodate various cases raised by Skiles. Of course,

[30]See the argument for *No Essence without Naturalness*.

our analyses are not committed to one or another naturalness claim just as it is not committed to one or another essentialist claim. But a person should find in one of our analyses commitments that are as conceivable and plausible as the essentialist claims that she holds true. For example, suppose someone claims that the Eiffel Tower is essentially a tower. According to our analyses, she is committed to the Eiffel Tower being of a kind relative to which *being a tower* is at least somewhat natural. She should find this commitment as plausible as her initial claim. Moreover, she has two options. She might prefer the concept analysed by *Locally Sparse Modalism*, in which case she will be committed to the claim that *being a tower* is *perfectly* natural relative to a kind, maybe artefacts. But she might prefer the concept provided by *Locally Natural Modalism*. If the latter, *being a tower* will have to be definable out of properties and relations that are perfectly natural relative to a kind K that includes the Eiffel Tower, say, concreta. Let's see another example.

Suppose someone thinks that the Eiffel Tower essentially bears the relation of *being designed and constructed to perform such-and-such a function by* to Gustave Eiffel. She has a couple of options. She can take this relation as itself perfectly natural relative to some kind, or as definable out of properties and relations that are perfectly natural relative to a kind that includes the tower and are perfectly natural relative to slots to which the slot occupied by the tower is traceable back. If the latter, she might think that *being designed by*, *being constructed by* and *performing the function of* are all perfectly natural relative to, say, artefacts and to their first-slots, which are all traceable to the slot occupied by the tower; or that these properties are themselves further definable out of properties or relations that are perfectly natural relative to another kind, say, concreta.

Note that the concept analysed in *Locally Natural Modalism* is close to Fine's consequentialist conception. For instance, *being a human or not* will be essential to Socrates. But this concept still accommodates the asymmetries that the standard sparse modalism didn't before, and in this respect it's as good as Fine's primitivism about consequentialist essence. Moreover, various stricter notions are now available. First, one can adopt *Locally Sparse Modalism*. Alternatively, just like Fine's consequentialist concept of essence, the concept defined in *Locally Natural Modalism* can also be restricted by the 'generalizing out' strategy.[31] Finally, now that properties are ranked by naturalness, still further strategies become available. For example, one could require that, if a property P is essential to an object, besides P being natural relative to a kind that includes the object, having P isn't a logical consequence of having another property that is more natural relative to that

[31] Fine (1995a: 276–7).

kind. All these options avoid properties like *being a human or not*, and at least the last two still accommodate the cases we discussed in this section, like *being a tower*. (Note that there is no need to choose between these analyses; they're all available to sparse modalism and might be useful in different contexts.)[32]

7 Essence and Fundamental Kinds

In this section, I address a potential objection suggested by Fine (1994), show how our account differs from an account proposed by Zylstra (2019), and make a third, complementary, conception of essence available.

Fine argued that modalists cannot avoid his counterexamples by adding a condition of relevance to their accounts without also presupposing some conception of essence.

> One would demand, if a property is to be essential to an object, that it somehow be relevant to the object. However, the case of Socrates and his singleton makes it hard to see how the required notion of relevance could be understood without already presupposing the concept of essence in question. For we want to say that it is essential to the singleton to have Socrates as a member, but that it is not essential to Socrates to be a member of the singleton. But there is nothing in the "logic" of the situation to justify an asymmetric judgement of relevance; the difference lies entirely in the nature of the objects in question. (Fine, 1994: 6–7)

Fine's objection can be instantiated, for example, against Zylstra's (2019: §5) proposal of accounting for essence in terms of necessity plus the notion of 'being within the ken of x that A'. Zylstra defines this notion partially in terms of the dependence closure of x, that is, the set of everything on which x depends. For example, that Socrates is a member of the singleton {Socrates} is within the ken of the singleton but not of Socrates because the singleton *depends on* Socrates but not vice-versa. But now, Fine would say, the difference lies in the 'natures' of Socrates and of the singleton, for the dependence closure of these objects seem to hang on 'what those objects are' in a relevant sense; it depends on what we would take to be their nature and not merely on what's strictly implied by their existence, for example.

[32]See Livingstone-Banks (2017) for some potential problems against the Finean strategy.

This is not to say that Zylstra's account fails as an account of essence. It's just to say that his account is in this respect close to Fine's own primitivism about essence, a result that Zylstra himself might be willing to embrace.[33]

Let us consider three attempts to raise Fine's objection against our account. First, we required that relations must be 'natural relative to the slot occupied by' the given object. One might take this as requiring that standing in that relation must be somehow relevant to the 'nature' of the object—say, to the nature of the singleton but not of Socrates. But this is not the case. For the sense in which slot-relativization makes the relation 'relevant' to one object but not the other doesn't depend on the nature of the objects in question. Rather, the relevance and lack thereof hold of *any* two objects occupying those *slots*. The asymmetry 'lies' only in the naturalness of the relation—not in a further nature of the relata.

Second, we required that a property or relation must be 'natural (maybe perfectly) relative to a kind that includes' that object. One might take this as requiring that the property or relation must be somehow relevant to the 'nature' of the object. However, this isn't the case. The asymmetry between Socrates and the empty set regarding *having no members* holds because *having no members* is natural relative to sets, which includes the empty set, whereas it's unnatural relative to kinds that include Socrates. The asymmetry is not due to the empty set being *essentially* a set, or on it *depending* on something, for example. The asymmetry lies in the naturalness of properties relative to kinds and in the instantiation of those kinds—not on the essential instantiation of those kinds.[34]

Finally, our appeal to the concept of 'kind' might seem to presuppose the concept of essence. For kinds are often part of the nature of their members. We cannot develop here a full defence of what constitutes a kind. To address this worry, however, it will be enough to give some examples of accounts that do not appeal to the concept of essence. For example, one might take the concept of kind as primitive. So conceived, the concept of kind is still relevantly different from the concept of essence. For *being a kind* is not relative to objects in the way that *being essential* is. In a nominalist framework, for example, we say of a class of objects that it's a kind or not *simpliciter*, but we say that it is essential or not *to* one object or another. We might also analyse the concept of kind in terms of kind-relativized naturalness itself. Kinds could be species of perfectly natural properties, namely, the ones that

[33]See Zylstra (2019: 349).

[34]Nothing in the relativized conceptions commits us to naturalness facts being essential to properties and relations. But even if it did, the analyses wouldn't be circular given that their being essential to the properties isn't required in the analyses or dependent on the objects in question. I thank an anonymous referee for discussion.

are perfectly natural relative to *Being*, the class of everything. Alternatively, kinds could be maximal classes of objects relative to which some property or another is perfectly natural. Importantly, the concept of essence doesn't appear in any of such accounts.

Let's assume the primitivist conception of kind. Suppose one takes the empty set to be essentially a set and takes *being a set* as a fundamental kind—that is, as a class of things that is not perfectly natural relative to a further kind. Our first two analyses—*Locally Sparse Modalism* and *Locally Natural Modalism*—don't capture this, for they both require that for a property to be essential to an object it must be at least somewhat natural relative to some further kind.[35]

Essentialist claims involving fundamental kinds can be analysed as follows. A property is *kind-essential* to an object just in case that property is a fundamental kind necessarily had by an object whenever it exists. This analysis is committed to the claim that, if there are such fundamental kinds, then they can't be kind-essential to one thing but only necessary to another. But this is not a problem since the other two analyses are still available for cases where there is definitely an asymmetry. Whenever such asymmetry occurs, it must be that the property involved is not a fundamental kind after all, in which case the other two analyses offered will play their roles. Importantly, once again, it won't 'lie in the nature of the object in question' whether it is essentially a member of such kind. Rather, this is true for any objects that are included in those kinds. The kind-essentiality of a kind lies only in the modal facts and in the fundamentality of the kind—not in a further 'nature' of the object itself.

I have thus distinguished three concepts: the 'strict', sparse essence, which is given by *Locally Sparse Modalism*; the 'less-than-strict', natural essence, which is given by *Locally Natural Modalism*; and a 'fundamental', kind-essence, which is given by a fundamental kind to which the object necessarily pertains and on which the sparse and natural essences are built. Once the essential fundamental kinds are laid down, the many strict and less-than-strict essences of the objects are determined by the analyses previously given. And again, that they are part of the *essence* of the object—as opposed to being merely necessary to the object but not part of its essence—doesn't depend on a further 'nature' of the object. Rather, *any* other object of the same fundamental kind with the same properties in the same possible worlds would have the same essences.[36]

[35] A similar issue arises concerning ontological categories, such as *being an object* or *being a property*, if they're not perfectly natural relative to something further.

[36] Our account is disjunctive in that essentialist claims fall under three different species. But this should be surprising only if essence was taken as primitive. Given that it's a

8 Conclusion

I offered different analyses of different concepts of essence in terms of necessity and of a relativized concept of naturalness. If successful, these analyses vindicate both a once prominent view that essence is analysable in standard modal terms and the intuition that purported counterexamples involve 'improper' or 'irrelevant' properties. Moreover, if the analyses in terms of kind- and slot-relativized naturalness are better than analyses that appeal to the standard, non-relativized conceptions, other things being equal, we should prefer the relativized ones.

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derived notion, some disjunctiveness is expected. Moreover, these three species are closely connected. First, because they're all analysed by appeal to necessity plus a certain restriction; second, because such restrictions are always made in terms of notions pertaining to a theory of kind-relativized naturalness—for, as we saw, kinds (including the fundamental ones) and perfect and less-than-perfect natural properties become interconnected in this theory. I thank an anonymous referee for discussion here.

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