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Essence in abundance

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Fine (1994 "Essence and Modality", *Philosophical Perspectives*, 8: 1–16) is widely thought to have refuted the simple modal account of essence, which takes the essential properties of a thing to be those it cannot exist without exemplifying. Yet, a number of philosophers have suggested resuscitating the simple modal account by appealing to distinctions akin to the distinction Lewis (1983. "New Work For a Theory of Universals", *Australasian Journal of Philosophy*, 61: 343–377; 1986. *On the Plurality of Worlds*. Oxford: Blackwell) draws between sparse and abundant properties, treating only those in the former class as candidates for essentiality. I argue that 'sparse modalism' succumbs to counterexamples similar to those originally posed by Fine, and fails to capture paradigmatic instances of essence involving abundant properties and relations.

Keywords: essence; modality; essentialism; sparse versus abundant properties; Kit Fine; David Lewis

1. The modal account of essence: simple versus sparse

In his contemporary classic 'Essence and Modality', Fine (1994) is widely thought to have refuted the once-dominant view that the essential properties of an individual are simply those properties it must exemplify if it exists. According to Fine, every property that is essential to an individual is one it must exemplify if it exists – but not vice versa. For some properties satisfy what occurs to the right of the following 'simple' modal account, but not what occurs to the left:

MP: The simple modal account of essential properties

A property, Φ, is essential to $x =_{\text{def.}}$ necessarily, if x exists, then x has Φ.[1]

As counterexamples, Fine points to properties such as (i) *is such that there are infinitely many prime numbers*, (ii) *is distinct from the Eiffel Tower*, and (iii) his most famous case, *is a member of {Socrates}*. Although all of these are properties that Socrates cannot exist without exemplifying, none intuitively concern his 'nature' or 'identity' (1994, 9). As Fine puts it, citing facts about how Socrates is related to things such as the Eiffel Tower, the prime numbers, and {Socrates}

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does not help to 'define' Socrates, at least not in the sense of specifying 'what it is' to be the very individual he is (1994, 2), and so MP does not specify what is sufficient for a property to be essential to him. Due to Fine's influential critique, literature on the metaphysics of essence has largely moved on, either following him in treating the notion as reductively unanalyzable, or instead by exploring the viability of reductive accounts that either appeal to unfamiliar pieces of ideology or make use of non-standard modal notions (or both).[2]

However, a number of philosophers have suggested that this retreat from the simple modal account has been too drastic, since one could *restrict* the class of properties eligible for essentiality in some way. For instance, Almog (2003), Gorman (2005), and Correia (2007) tentatively suggest the possibility of undermining Fine's counterexamples by distinguishing between properties corresponding to 'anything that can be said about a thing' no matter how 'artificial', as opposed to those properties that 'really characterize' it (as Gorman puts it: 2005, 278–279), restricting MP to the latter class. In a similar vein, Barbara Vetter, after noting that Fine's putative counterexamples are 'strange properties', observes that MP seems to function perfectly well for 'such more natural candidate properties as being human or being a philosopher', and wonders whether Fine only establishes 'the more modest conclusion that some naturalness restriction needs to be imposed on candidate properties for essentiality' (2009, 3). The challenge, of course, will be to show that this restriction is not an unprincipled one, does not itself presuppose the notion of essence, and that suitably clarified will classify non-essential yet necessary properties of Socrates such as *is a member of {Socrates}* as 'strange' and 'artificial' in the relevant sense while classifying essential properties such as *is a human* as 'natural', 'real characteristics' of him – a 'tricky task', as Correia concedes (2006, fn. 2).

Although Almog et al. neither develop this response to Fine's counterexamples in detail nor explicitly endorse it, Cowling (2013) and Wildman (2013) have independently proposed appealing to what Lewis (1983, 1986) famously calls the distinction between the *sparse* and *abundant* properties in order to clarify the distinction upon which the response rests. Rather than taking an essential property of a thing to be *any* property it cannot exist without exemplifying, Cowling and Wildman propose taking an essential property of a thing to be any *sparse* property it cannot exist without exemplifying:

SPM: The sparse modal account of essential properties

> A property, Φ, is essential to $x =_{\text{def.}}$ (i) necessarily, if x exists, then x has Φ and (ii) Φ is a sparse property.[3]

As Cowling and Wildman both note, non-equivalent conceptions of what it is for a property to be sparse rather than abundant yield non-equivalent variants of SPM.[4] For instance, under Lewis's conception of the distinction, the sparse properties are all and only the *fundamental* (or 'perfectly natural') properties, which collectively share the following characteristics:

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> [s]haring of them makes for qualitative similarity, they carve at the joints, they are intrinsic, they are highly specific, the sets of their instances are *ipso facto* not entirely miscellaneous, there are only enough of them to characterize things completely and without redundancy. (Lewis 1986, 59)

Lewis contrasts these with the abundant properties, which

> [. . .] may be as extrinsic, as gruesomely gerrymandered, as miscellaneously disjunctive as you please. They pay no heed to the qualitative joints, but carve things up every which way. [. . .] There is one of them for any condition we could write down, even if we could write an infinite length and even if we could name all those things that remain nameless because they fall outside our acquaintance. (Lewis 1986, 59–60)

Call this fundamentalist SPM. One obvious worry with this variant of SPM is that it yields a criterion that seems far too narrow – certainly more narrow than the 'natural' properties 'really characterizing' a thing that Almog et al. allude to. Presumably, *is a human* is a biological property, and therefore not a fundamental one; hence fundamentalist SPM would entail that Socrates is not essentially human. Cowling and Wildman note that those worried with this consequence could instead opt for what Schaffer (2004) calls the *scientific* conception of sparsity. As Wildman puts it, the sparse properties under this conception are any 'involved in the total scientific understanding of the world, regardless of level of occurrence' (2013, 766). Call SPM interpreted under this broader conception of sparsity *scientific* SPM.[5]

Cowling and Wildman claim that relational properties such as *being a member of {Socrates}* are not sparse under either conception, and thus conclude that the relational properties Fine cites against MP pose no difficulty for SPM (cf. Cowling 2013, 259; Wildman 2013, 767 and 770–774). So far, so good – but the problem now is that the account overgeneralizes, ruling out cases in which it seems to be essential to a thing how it is related to other *particular* things (such as its being essential to {Socrates} to have Socrates as a member), and cases in which it seems to be essential to a thing how it is related to some or other things of a particular *kind* (such as its being essential to Socrates that he originated from some gametes, though none in particular, to borrow a case from Wildman 2013, 773). Rather than ruling out all such essentialist judgments wholesale, Wildman treats them not as ascribing an *abundant relational property* to a thing, but rather as ascribing a *sparse relation* between that thing and others (in particular or of a particular kind). Wildman thus proposes the following supplement to SPM, which takes a thing to be essentially thus-and-so related just in case (i) the relation at issue is a sparse one and (ii) the thing in question cannot exist without also being thus-and-so related (cf. 772–773):

SRM: The sparse modal account of essential relations

a. It is essential to x that it bears Ψ to $y =_{\text{def.}}$ (i) necessarily, if x exists, then Ψ holds of the ordered pair $<x, y>$ and (ii) Ψ is a sparse relation.

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b. It is essential to x that it bears Ψ to something that has $\Phi =_{\text{def.}}$ (i) necessarily, if x exists, then there is some y that has Φ and is such that Ψ holds of the ordered pair $<x, y>$ and (ii) Ψ is a sparse relation.[6]

By appealing to SRM, one can accommodate instances of essence involving relations that SPM overlooks. Following Wildman, and purely for the sake of argument, assume that the relation *has ___ as member* described in set theory and the relation *originates from* described in biology are both sparse relations, at least when sparsity is conceived of scientifically (2013, 776, and 773, respectively).[7] And following Wildman, and again purely for the sake of argument, also assume that {Socrates} cannot exist unless it has Socrates as a member, and assume that Socrates cannot exist unless he originated from some gametes (although none in particular).[8] Then given these assumptions, one can capture the intuitive essentialist judgment that {Socrates} essentially have Socrates as a member (understood as ascribing the relation *has ___ as a member* rather than the relational property *has Socrates as a member*) as well as the intuitive essentialist judgment that Socrates originated from some gametes (understood as ascribing the relation *originated from* to some gametes rather than the relational property *originated from some gametes*).

Following Wildman, call the conjunction of SPM and SRM *sparse modalism* (specifying whether it is the fundamentalist or scientific strand when the context warrants). Sparse modalism summarized, I will spend the remainder of this paper arguing that it is no improvement over the simple modal account that it is intended to replace – and moreover, in at least one respect it does worse. Sparse modalism is not an improvement over MP because it is subject to variants of the counterexamples Fine used to refute MP. And sparse modalism does worse than MP because in addition to failing to specify what is *sufficient* for a property to be had essentially, unlike MP it also fails to specify what is *necessary*, since it cannot accommodate paradigmatic instances of essence involving abundant properties and relations.

2. Sparse modalism does not specify what is *sufficient* for essentiality

Here is a representative illustration of the problem. Recall that to capture the basic essentialist judgment that {Socrates} essentially has Socrates as a member, the sparse modalist must claim both that the relation *has ___ as a member* is a sparse one and that {Socrates} cannot exist unless it has Socrates as a member. But now let Φ_{prime} be the conjunctive (and presumably abundant) property:

x has $\Phi_{\text{prime}} =_{\text{def.}}$ x is Socrates and is such that there are infinitely many prime numbers.

Since {Socrates} cannot exist without having Socrates as a member, *and* cannot exist unless there are infinitely many prime numbers – trivially, since they *necessarily* exist – it follows that {Socrates} cannot exist unless it has something as a member that is both Socrates and is such that there are infinitely many prime

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numbers. So given condition (b) of SRM, it follows that it is *essential* to {Socrates} that it have something as a member that is Socrates and is such that there are infinitely many prime numbers. The problem, of course, is that this is precisely the kind of counterexample that Fine originally raised for simple modalism, and which sparse modalism was supposed to avoid. Citing facts about how {Socrates} is related to the prime numbers no more helps define {Socrates} or helps specify what it is to be the very thing it is than it does Socrates. SRM, just like MP, entails otherwise. Hence SRM is no advance over MP (at least along the dimension that the sparse modalist intends it to be).

An immediate response would be to claim that *has ___ as a member of* is not a sparse relation after all. In fact, although Wildman explicitly claims that it *is* (2013, 777), his method of handling one of Fine's key counterexamples to simple modalism within the sparse modalist framework directly entails the non-sparsity of this relation. According to Wildman, SRM is able to accommodate the basic essentialist judgment that it is not essential to Socrates to be distinct from the Eiffel Tower because *is distinct from* is an internal relation, and Wildman claims that internal relations are not sparse (2013 773–774). Yet similarly, since *is a member of* is an internal relation in the sense that Wildman has in mind – a non-empty set and its members cannot exist without the latter being members of the former – by Wildman's own reasoning it would also follow that *is a member of* is not a sparse relation either. As well, the non-sparsity of *has ___ as a member* is also suggested by Cowling, who tentatively suggests the more general claim that 'abstract objects are distinguished from concrete objects precisely because they lack natures', insofar as 'they bear no sparse properties' (2013, fn. 30). One would think that if this were true at all, it would also be true of the relations they bear, in particular set-theoretic relations such as *has ____ as a member*. Thus, anyone attracted to Cowling tentative thesis about what distinguishes abstract from concrete objects will face pressure to reject that *has ___ as a member* is a sparse relation.

There are two replies to make to this response. The first is that to deny that non-empty sets essentially have certain individuals as members (either because one keeps SRM but rejects that *has ___ as a member* is a sparse relation, or because – even more radically – one rejects SRM or that abstract objects have essential natures) seems far too great a departure from the Finean conception of essence under consideration, and that the sparse modalist aims to capture.[9] If the sparse modalist is unable to capture the basic essentialist intuition that it be essential to {Socrates} to have Socrates as a member, then the sparse modalist seems unsuccessful at stating what is necessary for essentiality. (I will return to this issue in Section 3.)

The second reply is that one can replicate the problem with *any* individual whatsoever, so long as it cannot exist without bearing *some* sparse relation to something else (or perhaps itself). For instance, take two other basic essentialist judgments concerning something that is clearly not an abstract object: namely,

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that any particular water molecule essentially have an oxygen atom as a part.[10] Let Φ^*_{PRIME} be the conjunctive (and presumably abundant) property:

> x has Φ^*_{PRIME} = def. x is an oxygen molecule and is such that there are infinitely many prime numbers.

Supposing that *has ___ as a part* is a sparse relation, one can reason as before that SRM entails, incorrectly, that it is essential to any particular water molecule that it have as a part something that is an oxygen molecule and is such that there are infinitely many prime numbers. Now of course, once again one might resist by claiming that *has ___ as a part* is *not* a sparse relation. Even if we ignore the fact that many maintain otherwise,[11] the basic problem still remains: one can replicate the same reasoning with any of the many other cases in which it seems essential to a concrete thing that it bear a given relation Ψ to something that has a given property Φ. (I provide further examples in Section 3.) For in any such case, the relevant thing also cannot exist unless it bears Ψ to something that has the conjunctive property *is* Φ *and is such that there are infinitely many prime numbers*, and so condition (*b*) of SRM will incorrectly embed the prime numbers into its essence, just as the simple modal account does.

A more promising method of response would be to somehow qualify *SRM* – for instance, by restricting the generic condition Φ that occurs within it so that properties such as Φ_{PRIME} and Φ^*_{PRIME} are excluded. That would block the line of argument presented just above. But the only obvious modifications – I can think of three – are all non-starters. First, one might respond that Φ be restricted to properties that are logical complexes of *sparse* properties and relations. To see why this will not do, first note that the sparse modalist should at least let *is an oxygen atom* and *is a human* be sparse properties (for if not, then the proposed modification would fail to count it as essential to any particular water molecule that it has an oxygen atom as a part, and would fail to count it as essential to Socrates that he be human). Let Φ_{HUMAN} be the disjunctive property *is either an oxygen molecule or a human.* Since Φ_{HUMAN} is a logical complex of sparse properties, the proposed modification would entail that it is essential to any particular water molecule that it has either an oxygen atom or a human as a part. But presumably, just as there is nothing in the essential nature of this water molecule that connects it to the prime numbers (to paraphrase Fine's turn of phrase: 1994, 5), nothing in its essential nature connects it to humans either. Yet the proposed modification to SRM entails otherwise.

Second, one might respond that not only the relation Ψ but also the generic condition Φ be sparse in order for a thing to be essentially related by Ψ to something that is Φ. Although this proposal excludes such properties as Φ_{PRIME}, Φ^*_{PRIME}, and Φ_{HUMAN}, it also excludes a number of paradigmatic cases of essential relatedness. For instance, it would entail that it is not essential to the set {Socrates, Plato} that it have as a member something that is either Socrates or Plato, and not essential to any particular water molecule that it has as a part something that is either an oxygen atom or a hydrogen atom as a part, given that

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disjunctive properties such as *being either Socrates or Plato* and *being either an oxygen atom or a hydrogen atom* are paradigmatically abundant under both the fundamentalist and scientific conceptions of sparsity. (I provide further examples of this sort in Section 3.) Hence, this modification to SRM will not do either.

A final, even sharper departure from SRM goes as follows. Recall that SRM states that if it is essential to x to bear Ψ to some y that is Φ, then Ψ must be a sparse relation. The proposed modification instead requires that the conjunctive relation $\lambda xy(\Phi y \,\&\, \Psi xy)$ be a sparse relation. An added theoretical benefit of the proposed modification of SRM is that its logical form is more in line with the sparse modalist's treatment of monadic properties, SPM.[12] Yet this modification does no better than the previous one: if *being identical to either Socrates or Plato* is not a sparse property, for instance, then the result of conjunctively combining it with a relation (even a sparse relation) would presumably fail to be sparse too. Hence just like the previous modification, the one under consideration produces false negatives.[13]

3. Sparse modalism does not specify what is *necessary* for essentiality

Thus far, I have only argued that sparse modalism fails to adequately capture what is *sufficient* for essentiality. To see why it also fails to adequately capture what is *necessary*, it suffices to show that there are cases in which an individual has one or more abundant properties essentially, or stands in one or more abundant relationships – and such cases seem commonplace. Take, for instance, human artifacts such as the Eiffel Tower, which essentially exemplifies various abundant properties (e.g., *being a tower*[14]) and essentially stand in abundant relations (e.g., the relation *was designed and constructed to perform such-and-such function by*, which it bears to some engineer or other, or perhaps to Gustave Eiffel in particular).[15] Similarly goes for entities such as smiles (the essential nature of which include facts about faces), holes (the essential nature of which include facts about perforated surfaces), tropes (the essential nature of which include facts about the particular things they 'inhere' in), and events (the essential nature of which include facts about the objects, properties and times that 'participate' in them), among others.[16] Clearly, properties and relations such as these are neither fundamental nor are they involved in our total scientific understanding of the world, and therefore sparse under neither the fundamentalist nor scientific conceptions of sparsity, respectively. And yet these are commonly treated as basic essentialist judgments, which the sparse modalist aims to capture, if any are.

A tempting response floated by Cowling is to appeal to some kind of deflationism about human artifacts (2013, fn. 37), which might extend to smiles, holes, tropes, events and so on. Yet even a deflationary conception of such things – at least one that is not outright and implausibly *eliminativist* rather than deflationist – would take them, even if conceived of in a deflationary way, to have at least some abundant properties essentially, if only category-level

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properties such as *is human artifact*, or *is a deflationary object*. Even a deflationary conception of human artifacts attempts to state what the Eiffel Tower *is* in terms of such properties and relations, and therefore such properties should still be included in the Eiffel Tower's essential nature under the Finean conception of essence at issue, their status as abundant notwithstanding.

Even setting this difficulty aside, the response under consideration would force one to take a deflationist attitude towards many other things that have abundant properties essentially and essentially stand in abundant relations. This includes, but is not limited to, such things as propositions (since it is essential to the proposition ⟨the Eiffel Tower is a tower⟩ that it is true iff the Eiffel Tower is a tower) and properties (since it is essential to the property *is a tower* that it is an abundant property, and that something has it iff that thing is a tower). These are plainly not *incidental* features of properties and propositions: they pertain to the very nature of these things that any adequate philosophical account of what they are must accommodate and illuminate. Part of what it *is* to be the property *being a tower* is that it is an abundant property, for example, and part of what *characteristically differentiates* it from other abundant properties is that a thing exemplifies it just in case it is a tower. A thing would not *be* the very property *is a tower* is if it were either not a property or not exemplified just when something is a tower. It would be ad hoc to simply reject these cases: essentialist-framed judgments about such cases as these are nearly as strong and prevalent as those the sparse modalist wants to preserve. Sparse modalism would lose much of its motivation – to capture the notion of essence that Fine and others are interested in wholly in terms of facts about modality and sparsity, but without rejecting basic essentialist intuitions en masse – if it were unable to capture them.[17]

Moreover, problems multiply further when one queries whether facts about identity and distinctness are included in the essences of things.[18] Recall from Section 3 that Wildman's sparse modalist denies that internal relations in general, and the relation of distinctness in particular, are sparse relations: otherwise SRM wrongly entails that it is essential to Socrates to be distinct from {Socrates}. But the identity relation is internal too; thus applying this strategy across the board would preclude Socrates from being essentially identical to himself.[19] Even if identity is allowed to be a sparse relation despite also being internal, pressure remains to allow distinctness be one too. As Fine notes, we make basic essentialist judgments not only about the *individual* things, but also about *pluralities* of things – including, but not limited to, the judgment that Socrates and {Socrates} are essentially distinct (c.f. 1995, 54). The most natural way to modify SRM is to say that this holds just in case distinctness is a sparse relation, one that Socrates and {Socrates} cannot both exist without exemplifying together. Although this allows the sparse modalist to say that it is essential to Socrates and {Socrates} *together* to be distinct, the sparse modalist is once again committed to saying that it is essential to Socrates *alone* that he is distinct from

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{Socrates}. The sparsity of distinctness allows her to capture the first basic essentialist judgment, but only by forcing her to flout the second.

I provided a number of apparent cases of essence in abundance. But appearances could be deceiving, of course. Can the sparse modalist offer any *general* reason for believing that sparsity and essentiality go hand in hand, contrary to our intuitive judgments in the cases above? In fact, Wildman offers such an argument (2013, 764). According to Wildman, an essential property *P* of a individual, *o* must be 'metaphysically significant' to *o*, in the sense that *P* 'plays a role in determining what *o* is' (2013, 764). Wildman's claim is of course undeniable, given that Fine stipulates that by 'essential properties' he just means to refer to the properties of an individual that play this individuative role (cf. 1994, 2). Rather, what I take issue with is Wildman's further claim that if the essential properties of an individual play this role, it follows that *P* must be a sparse property. According to Wildman, if *P* is metaphysically significant, then the following must hold:

> [...] any attempt to characterise the actual world without citing *P* would not fully determine what *o* is and would therefore be incomplete. As such, *P* is required to characterise things completely and without redundancy. And, since the sparse properties are those properties which characterise things completely and without redundancy, P must then be sparse.

I have the following two objections to Wildman's argument.

First, it is only under the narrow, Lewis-inspired *fundamentalist* conception of sparsity that a given sparse property is required in order to characterize things completely and without redundancy. But it is only if the sparse modalist opts for the broader, Schaffer-inspired *scientific* conception of sparsity that she is able to capture basic essentialist judgments such as that Socrates essentially be human. Since Wildman's argument presupposes the narrower conception of sparsity that precludes judgments such as these, it makes matters worse by diverging even further from the Finean conception of essence at issue.

Second, even if an abundant property plays *a* role in determining what some individual is, it does not follow that one *must* cite that property in order to characterize things completely and without redundancy. For this abundant property could just play a *redundant* role in determining what some individual is. Assume, as Wildman does, that the total distribution of sparse properties and relations fully determines how *all* things are: it leaves no individual uncharacterized. Then it would seem to follow that this total distribution also fully determines what the Eiffel Tower is in particular – namely, a tower. Thus even though the abundant property *is a tower* must play a role in determining what the Eiffel Tower in order to be essential to it, one need only cite the sparse properties and relations in order to characterize things completely and without redundancy, since these fully determine what it is – namely, a tower. Since Wildman's argument relies on invalidly inferring otherwise, it provides no good reason to reject what I have maintained in this section: that the essential properties and relations exemplified by things can also be abundant.

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4. Conclusion

Sparse modalism does not succeed in improving on the simple modal account of essence refuted by Fine. Just like the simple modal account, sparse modalism fails to specify what is sufficient for essentiality, and for precisely the same reason: both modal accounts bring irrelevant things and kinds into the essences of individuals. However, unlike the modal account, sparse modalism also fails to specify what is necessary for essentiality: individuals can have abundant properties essentially, and can essentially stand in abundant relationships. Lewis noticed many important tasks that the distinction between sparse and abundant properties can be put to in metaphysical theorizing. Resuscitating the simple modal account of essence – at least in the manner that I have considered at length in this article – does not appear to be one of them.[20]

Notes

1. Fine (1994) also criticizes two close cousins of (what I am calling) the simple modal account: one that claims that Φ is essential to $x =_{\text{def.}}$ necessarily, x has Φ (i.e., without conditionalizing on x's existence), and another that claims that Φ is essential to $x =_{\text{def.}}$ necessarily, if $x = x$, then x has Φ (i.e., conditionalizing on x's being identical to itself rather on x's existence). Call these the *unconditional* and *identity-conditional* simple modal accounts, respectively. For simplicity's sake, I focus on modifications to what could be called the *existence-conditional* simple modal account, although my arguments generalize to similarly modified versions of the other two.
2. For example, see Brogaard and Salerno (2007), Correia (2007), and Zalta (2006). An exception to the trend is the account proposed by Della Rocca (1996), which appeals to standard modal notions, yet employs them in a more complicated way than in the simple modal account. Alternatives to the simple modal account that predate Fine's article include Copi (1954), Barcan Marcus (1971), Dunn (1990), and Almog (1991).
3. Terminological note: in Cowling's article, 'essential property' is used to describe any property that satisfies the right-hand side MP, while any property that satisfies the right-hand side of SPM is said to 'lie within the nature' of the relevant individual. So strictly speaking, Cowling does not intend to offer SPM as an account of what he calls 'essential properties', and grants that *being a member of {Socrates}*, etc. are all (what he calls) essential properties of Socrates. Nonetheless, Cowling *does* intend to offer SPM as an account of what *Fine* calls 'essential properties', and denies that *being a member of {Socrates}*, etc. lie within Socrates's nature for the very same reasons that Fine denies that they are (what Fine calls) essential properties of Socrates. To make matters simple, I will stick to using 'essential property' in Fine's sense throughout, although one can substitute in Cowling's preferred expression where relevant.
4. I will continue to speak as though the sparse and abundant properties are non-overlapping classes. Those who instead take the sparse properties to be a *proper subset* of the abundant properties can substitute 'non-sparse abundant properties' whenever I say 'abundant properties' throughout.
5. A third conception worth mentioning is inspired by Denby (2014), who argues that Φ is an essential property of $x =_{\text{def.}}$ (i) necessarily, if x exists, x has Φ and (ii) Φ is an *intrinsic* property of x, which roughly has to do with whether 'its instantiation is

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insensitive to the state or nature of anything other than its instances' (Denby 2014, 91). Since not every intrinsic property is fundamental (e.g., *is made of tin*), and not every property described in science is intrinsic (e.g., *is a human*, arguably; see fn. 13), construing the sparse/abundant divide in terms of the intrinsic/extrinsic divide yields a third variant of SPM that differs from the two that Cowling and Wildman discuss. Call this *intrinsicality* SPM. Alternatively, one could treat this not as a version of sparse modalism, but rather as a rival way of understanding what it is for a property to 'really characterize' a individual (or to not be 'strange', 'artificial', and so on), and thus as a rival way of restricting the class of properties eligible for essentiality. Although I will continue to focus on fundamentalist and scientific SPM, at points I briefly explain how my arguments extend to modifications of the simple modal account that replace 'sparse' with 'intrinsic' (see fn. 10 and 13).

6. SRM is phrased differently in 'Modality, Sparsity, and Essence', but Wildman confirms this reading as faithful in personal communication.
7. It is typically a matter of controversy whether a property or relation is sparse under either conception, and (as an anonymous referee rightly points out) one might take issue in a number of ways with classifying these relations as sparse in particular. Nonetheless, I assume that they are in what follows since (i) if they are not, then SRM cannot even accommodate the intuitive essentialist judgments Wildman claims it can and (ii) I will eventually show that no matter which relations one takes to be sparse, my objections to sparse modalism go through.
8. Here again (see the previous footnote), one may take issue with these assumptions – e.g., Dorr (2007) questions whether sets exist, while Rosen (2006) questions whether sets must exist whenever all their members do – but I again grant them as friendly concessions and because my objections to sparse modalism do not hinge on them.
9. Linnebo (2008) offers further argument; for dissent, see Denby (2014).
10. Among many others, Lowe (2008) and Koslicki (2012) take facts about the internal constitution of chemical substances to be among the facts about their essential nature.
11. Eddon (manuscript), for instance, argues that parthood is a perfectly natural relation, which is presumably sufficient for it to be sparse under the fundamentalist conception (given that every perfectly natural relation is a fundamental relation on this conception) and the scientific conception (given that every fundamental relation will presumably be involved in our total scientific understanding of the world).
12. An anonymous referee proposed this further modification to SRM.
13. Replacing 'sparse' with 'intrinsic' in SRM (see fn. 5) also does not work, since it produces false positives. Suppose, as seems plausible, that *is set with infinitely many members* is intrinsic to any set containing the prime numbers as members. Since *is a member of* is presumably an intrinsic relation between Socrates and any set with Socrates and the prime numbers as members, and since *is a set with infinitely many members* is an intrinsic property of such a set, then replacing 'sparse' with 'intrinsic' in SRM implies, incorrectly, that it is essential to Socrates that he be a member of a set that has infinitely many members.
14. Compare Schaffer (2004, 94), who takes *is a kazoo* as an exemplar abundant property under the scientific conception of the sparse/abundant distinction.
15. See, e.g., Elder (2004, 131–162).
16. Koslicki (2012) offers these as paradigmatic examples of ontological dependence, which she takes to entail corresponding claims about the essential nature of the ontologically dependent thing at issue. However, I take these to be paradigmatic examples of the essential properties of things regardless of whether one acknowledges this link between ontological dependence and essence.
17. Matters are even worse if 'sparse' is exchanged for 'intrinsic' in SPM and SRM (see fn. 5). It is widely held that membership in a given biological kind is an extrinsic

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property: for example, Sutton (2012, 723–727) argues that this follows from the three most popular accounts of species in the current literature. So if 'sparse' is exchanged for 'intrinsic' in SPM and SRM, then the result entails, wrongly, that it is not even essential to Socrates that he is human.

18. Thanks to an anonymous referee for pressing me to explore this issue further.
19. Fine (1995, 54) and Correia (2005, 32), for instance, both take assume this to be a basic essentialist judgment. Although Denby argues that haecceitistic properties such as *being identical to Socrates* are not essential properties (2014, 28), his arguments do not extend in any obvious way to my claim here, which is that the relation of identity is one that Socrates essentially bears to himself. Unlike *is identical to Socrates*, the relation of identity is not "tied to any specific individual" (2014, fn. 26) either by its nature or in its instantiation profile, seems to be indispensible to our total understanding of the world and arguably perfectly natural (c.f. Sider 2011, 216–217), and we can have 'intuitive insight' (ibid., 98) into how it is distributed. So even if failing to have these features is a reason to reject that *being identical to Socrates* is essential to Socrates (although it should be noted that Denby does not explain why they would be), the relation of *being identical to* arguably possesses these features, and so no reason has been given for denying that Socrates essentially bears this relation to himself.
20. My thanks to Pablo Carnino, Fabrice Correia, Sam Cowling, Maya Eddon, Dana Goswick, Ghislain Guigon, Robert Michels, Kevin Mulligan, Jan Plate, Maria Scarpati, Tuomas Tahko, Barbara Vetter, Nathan Wildman, Justin Zylstra, and anonymous referees for *Canadian Journal of Philosophy* for their helpful comments and kind encouragement. This article was written in large part while funded by the Swiss National Science Foundation as a member of the research project 'The Nature of Existence: Neglected Questions at the Foundations of Ontology' (10012_150289), and I am grateful for its generous support.

References

Almog, J. 1991. "The What and The How." *The Journal of Philosophy* 88: 225–244.

Almog, J. 2003. "The Structure-In-Things: Existence, Essence, and Logic." *Proceedings of the Aristotelian Society* 103: 197–225.

Barcan, R. 1971. "Marcus, Essential Attribution." *The Journal of Philosophy* 68: 187–202.

Brogaard, B., and J. Salerno. 2007. "A Counterfactual Account of Essence." *The Reasoner* 4: 4–5.

Copi, I. 1954. "Essence and Accident." *The Journal of Philosophy* 51: 706–719.

Correia, F. 2005. *Existential Dependence and Cognate Notions*. Munich: Philosophia Verlag.

Correia, F. 2007. "(Finean) Essence and (Priorean) Modality." *Dialectica* 61: 63–84.

Cowling, S. 2013. "The Modal View of Essence." *Canadian Journal of Philosophy* 43: 248–266.

Della Rocca, M. 1996. "Essentialism: Parts I and II." *Philosophical Books* 37, 1–13 and 81–89.

Denby, D. 2014. "Essence and Intrinsicality." In *Companion to Intrinsic Properties*, edited by R. Francescotti, 87–109. Berlin: De Gruyter.

Dorr, C. 2007. "There are No Abstract Objects." In *Contemporary Debates in Metaphysics*, edited by J. Hawthorne, T. Sider, and D. Zimmerman, 32–63. Oxford: Blackwell.

Dunn, J. M. 1990. "Relevant Predication 3: Essential Properties." In *Truth or Consequences*, edited by J. M. Dunn and A. Gupta, 77–95. Dordrecht: Kluwer.

https://doi.org/10.1080/00455091.2015.1013173 Published online by Cambridge University Press

Eddon, M. manuscript. "Parthood and Naturalness."
Elder, C. 2004. *Real Natures and Familiar Objects*. Cambridge: MIT Press.
Fine, K. 1994. "Essence and Modality." *Philosophical Perspectives* 8: 1–16.
Fine, K. 1995. "Senses of Essence." In *Modality, Morality, and Belief: Essays in Honor of Ruth Barcan Marcus*, edited by W. Sinnott-Armstrong, 57–73. Cambridge: Cambridge University Press.
Gorman, M. 2005. "The Essential and the Accidental." *Ratio* 18: 276–289.
Koslicki, K. 2012. "Varieties of Ontological Dependence." In *Metaphysical Grounding: Understanding the Structure of Reality*, edited by F. Correia and B. Schnieder, 186–213. Cambridge: Cambridge University Press.
Lewis, D. 1983. "New Work For a Theory of Universals." *Australasian Journal of Philosophy* 61: 343–377.
Lewis, D. 1986. *On the Plurality of Worlds*. Oxford: Blackwell.
Linnebo, Ø. 2008. "Structuralism and the Notion of Dependence." *Philosophical Quarterly* 58: 59–79.
Lowe, E. J. 2008. "Two Notions of Being: Entity and Essence." *Philosophy* 83: 23–48.
Rosen, G. 2006. "The Limits of Contingency." In *Identity and Modality*, edited by F. MacBride, 13–38. Oxford: Oxford University Press.
Schaffer, J. 2004. "Two Conceptions of Sparse Properties." *Pacific Philosophical Quarterly* 85: 92–102.
Sider, T. 2011. *Writing the Book of the World*. Oxford: Oxford University Press.
Sutton, C. 2012. "Colocated Objects, Tally-Ho: A Solution to the Grounding Problem." *Mind* 121: 703–730.
Vetter, B. 2009. "Essence and Potentiality." , Presented at the Graduate Center of the City University of New York, available online at http://www.academia.edu/183665/Essence_and_Potentiality
Wildman, N. 2013. "Modality, Sparsity, and Essence." *The Philosophical Quarterly* 63: 760–782.
Zalta, E. 2006. "Essence and Modality." *Mind* 115: 659–694.

https://doi.org/10.1080/00455091.2015.1013173 Published online by Cambridge University Press