Modality and Essence in Contemporary Metaphysics

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I. Introduction

Essentialists hold that at least a certain range of entities can be meaningfully said to have natures, essences, or essential features independently of how these entities are described, conceptualized or otherwise placed with respect to our specifically human interests, purposes or activities. For quite some time, it was common among contemporary metaphysicians to regard essence as a modal notion: an essential truth, on this conception, is a modal truth of a certain kind (viz., one that is both necessary and *de re*, i.e., about a certain entity); and an essential property is a feature an entity has necessarily, if it is to exist. The essential truths, according to this approach, are thus a subset of the necessary truths; and the essential properties of entities are included among their necessary properties.

All this changed, however, with Kit Fine's pioneering work on essence in the 1990s. In this body of work, Fine mounts a sizeable attack on the modal conception of essence and advances an alternative non-modal approach which brings us closer again to an older Aristotelian notion of essence. According to Fine, a statement of the essence is a non-modal truth which gives a *real definition* of an entity or a plurality of entities; that is, it specifies *what it is to be* the entity or entities in question in a special definitional sense. The *de re* necessary truths, on this approach, are thought to follow in some way from the essential truths; and *de re* necessary features of objects, traditionally known as the "propria" or "necessary accidents", similarly are conceived of as in some way derivative from the essential features of objects. Thus, the

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explanatory direction, according to Fine, is reversed: rather than *being explained by* modality, the non-modalist holds that essence *explains* modality.

This chapter begins, in Section II, with a brief summary of Fine's challenge to the modal account, which centers on a series of frequently discussed alleged counterexamples. Section III considers a recent attempt by "sparse modalists" like Sam Cowling and Nathan Wildman to respond to Fine's counterexamples by adding a sparseness constraint to the "bare" modal account of essence. Section IV examines whether, and how, Fine's definitional approach can avoid his own counterexamples to the modal approach to essence. Section V concludes this chapter with some final thoughts concerning the theoretical roles ascribed to essence by modalists and non-modalists.

II. Fine's Counterexamples to the Modal Account of Essence

In his seminal paper, "Essence and Modality", Kit Fine distinguishes two types of approaches to essence. According to the first, essence is conceived of "on the model of definition", and in particular *real* (or *objectual*) definition, as opposed to *nominal* (or *verbal*) definition. The definitional approach, as Fine describes it, holds that:

> "... [J]ust as we may define a word, or say what it means, so we may define an object, or say what it is. The concept of essence has then [been] taken to reside in the 'real' or objectual cases of definition, as opposed to the 'nominal' or verbal cases."[1]

Thus, according to the definitional approach, the essence of an entity "resides" in its real

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[1] Kit Fine, "Essence and Modality", *Philosophical Perspectives* 8 (Logic and Language) (1994): 2.

definition and to define an entity (i.e., to state its essence) is to say what it is.

According to the second approach, essence is conceived of in modal terms. This approach, as Fine puts it, supposes that:

> "... the notion of necessity may relate either to propositions or to objects – that not only may a proposition be said to be necessary, but also an object may be said to be necessarily a certain way. The concept of essence has then been located in the 'de re', as opposed to the 'de dicto', cases of modal attribution."[2]

According to the modal account, to state the essence of an entity is to say what holds of the entity necessarily. As Fine points out, the modal account can be formulated in different ways, unconditionally or conditionally, and even the conditional modal account has different variants, depending on whether the necessity of a property is relativized to the existence or the identity of its bearer. According to the unconditional modal account, to state the essence of an entity is to say what holds of the entity necessarily simpliciter. According to the conditional modal account, to state the essence of an entity is to say what holds of the entity necessarily, if it is to exist or if it is to be identical to that very entity. Assuming, as Fine does, that the modal approach conceives of essences in terms of properties (or collections thereof), we arrive at the following characterization of a property's being essential to an entity, where (M) states the unconditional modal characterization, while (ME) and (MI) state the conditional modal characterization, relativized to existence and identity, respectively:

(M)   A property F is essential to an entity x iff necessarily x has F.

(ME)   A property F is essential to an entity x iff necessarily, if x exists, x has F.

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[2] Fine, "Essence and Modality," 2.

(MI)   A property F is essential to an entity x iff necessarily, if x=x, x has F.

Since the differences between these formulations will not concern us here, I will typically have

in mind the existentially relativized variant of the modal account in what follows, since this

formulation is most commonly adopted in the literature. Given (ME), and assuming that the

essence of an entity can be identified with the collection of its essential properties, we can state

the modal account of essence as follows:

(MAE) E is the essence of an entity x iff E is the collection of properties x has

necessarily, if x exists.[3]

As is well-known, Fine goes on to adopt the definitional conception of essence and urges

us to resist the contemporary assimilation of essence to modality:

"My point, rather, is that the notion of essence which is of central importance to the

metaphysics of identity is not to be understood in modal terms or even to be regarded as

extensionally equivalent to a modal notion. The one notion is, if I am right, a highly

refined version of the other; it is like a sieve which performs a similar function but with a

much finer mesh."[4]

The arguments Fine presents are by now quite familiar and feature a number of alleged

counterexamples which are intended to call into question the sufficiency of the modal account of

essence, while leaving intact its necessity, which Fine accepts. In particular, so Fine argues, the

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[3] It is not necessary, however, that the modal account of essence be formulated in terms

of properties; for instead of saying that a property F is essential to an entity, x, we can also say

that x is essentially F, where "F" is being used predicatively.

[4] Fine, "Essence and Modality," 3.

modal account of essence incorrectly classifies the following properties as essential to a

particular entity, viz., Socrates, when intuitively (in Fine's view) they should not be so classified:

(i)   the property of being a member of Socrates' singleton set;

(ii)   the property of being distinct from the Eiffel Tower (or from any other entity

whose nature is disconnected from Socrates' nature);

(iii)   the property of being such that there are infinitely many prime numbers (where

any other necessary truth may be substituted for "there are infinitely many prime

numbers");

(iv)   the property of being such that the Eiffel Tower is spatiotemporally continuous

(where any other essential truth concerning an entity whose nature is disconnected

from Socrates' nature may be substituted for "the Eiffel Tower is

spatiotemporally continuous"); and

(v)   the property of existing.

In each case, the property in question holds of Socrates necessarily, assuming that Socrates

exists, but it is implausible to think (so Fine reasons) that the property in question has any

bearing on what Socrates is, i.e., his essence or nature. After running through a series of

proposed fixes to the modal account, Fine concludes that it is unlikely that a modified

formulation of the modal account could be found which would avoid his alleged

counterexamples. For, in Fine's view, the modal account suffers from an underlying difficulty

which is fundamental, namely its inability to reflect the sensitivity of essentialist claims to the

source of their truth or falsity, viz., the identity of the entity or entities whose nature or essence is

under consideration.[5]

III. Responses to Fine's Counterexamples: Sparse Modalism

Nevertheless, Fine's discussion has spawned a considerable literature which attempts to

develop precisely the strategy whose chances of success Fine estimated to be low: the strategy of

formulating modified versions of the modal account which are designed specifically to avoid

Fine's counterexamples. In this vein, for example, Sam Cowling and Nathan Wildman have put

forward versions of modalism which supplement (MAE) with a sparseness constraint on

properties, while David Denby proposes to amend (MAE) with an intrinsicality constraint on

properties. Below, I briefly consider the sparse modalist response and argue, with Fine, that the

strategy of adding a "patch" to (MAE) that is designed specifically to avoid the alleged

counterexamples cited in (i)-(v) is unlikely to succeed.[6]

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[5] Concerning his use of the terms, "essence", "identity" and "nature", Fine writes: "In

general, I shall use the terms 'essence' and 'identity' (and sometimes 'nature' as well) to convey

the same underlying idea." Kit Fine, "Senses of Essence," in *Modality, Morality, and Belief:*

Essays in Honor of Ruth Barcan Marcus, ed. Walter Sinnott-Armstrong, et al. (New York:

Cambridge University Press, 1995), 69, n. 2. Regarding his use of the term, "definition", Fine

remarks: "... definitions, either nominal or real, might plausibly be taken to correspond to

statements of essence..." Kit Fine, "Unified Foundations for Essence and Ground," *Journal of the*

American Philosophical Association 1, no. 2 (Summer 2015): 308.

[6] Sam Cowling, "The Modal View of Essence"; Nathan Wildman, "Modality, Sparsity,

and Essence", "How (Not) To Be a Modalist About Essence" and "Against the Reduction of

In "The Modal View of Essence", Sam Cowling formulates the following two-pronged response to Fine's challenges on behalf of the modalist. Concerning (v), the property of existing, Cowling holds that modalists should recognize a distinction between necessary existence and essential existence: necessary existence can only be ascribed to entities, such as God or, possibly, numbers, which exist in all possible worlds if they exist at all, whereas essential existence can be ascribed to entities, such as Socrates, which exist in only some but not all worlds. Even though we may initially find it surprising to attribute essential existence to a contingent being like Socrates, so Cowling argues, all that is needed to overcome this reaction is some retraining on our part: for, given (ME), to say of Socrates that he has the property of existing essentially amounts to nothing more than to say of Socrates that he necessarily exists, if he exists, which of course sounds quite unobjectionable in its triviality.[7] Therefore, so Cowling reasons, the

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Modality to Essence"; and David Denby, in "Essence and Intrinsicality". For other modalist responses, see for example Gaétan Bovey, "Essence, Modality, and Intrinsicality"; Berit Brogaard and Joe Salerno, "A Counterfactual Account of Essence" and "Remarks on Counterpossibles"; Fabrice Correia, "(Finean) Essence and (Priorean) Modality"; Michael della Rocca, "Essentialism: Part 1" and "Essentialism: Part 2"; Thiago Xavier de Melo, "Essence and Naturalness"; Jonathan Livingstone-Banks, "In Defence of Modal Essentialism"; and Edward Zalta, "Essence and Modality". For critical discussion, see for example Kit Fine, "Response to Fabrice Correia"; Alexander Skiles, "Essence in Abundance"; Alessandro Torza, "Speaking of Essence"; and Justin Zylstra, "Essence, Necessity, and Definition".

[7] Sam Cowling, "The Modal View of Essence," *Canadian Journal of Philosophy* 43, no. 2 (2013): 250.

property of existing, when properly interpreted, does not present modalists with a genuine counterexample to their account.

Concerning the properties cited in (i)-(iv), however, Cowling recommends a different strategy. With respect to these cases, which in his view do genuinely make trouble for the unmodified modal account, Cowling advocates supplementing (MAE) with a sparseness constraint on properties. As a defender of the modal account, Cowling takes the essential properties of an entity to be just those properties the entity has necessarily, if it exists; or (using the possible worlds construal of the modal account, as Cowling does) those properties the entity has in every possible world in which it exists. In addition, however, Cowling adopts a conception of an entity's *nature* that is distinct from the entity's merely modal *essence*. According to his "Sparse Essence View of Natures" (SEN), a property, F, is part of the nature of an entity, x, just in case F is instantiated by x in every world in which x exists; and F is a sparse property.[8] (SEN) thus identifies an entity's nature with the intersection of its essential (i.e., necessary) and sparse properties. Although Cowling himself does not give a positive account of sparseness, he characterizes the sparse properties at least roughly as those which "figure into the causal-nomic joints of the world and ground relations of resemblance between things"; in contrast, he takes the merely abundant properties to be those which "play no significant role in the workings of nature; they are shared by gerrymandered collections of things".[9] As for the particulars of how to understand the notion of sparseness, Cowling holds that "several views are

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[8] Cowling, "The Modal View," 258.

[9] Cowling, "The Modal View," 255.

available, none of which we are forced to settle on here".[10] He cites the notion of naturalness advanced by David Lewis in "New Work for a Theory of Universals" and *On the Plurality of Worlds* and the conception of sparseness proposed by Jonathan Schaffer in "Two Conceptions of Sparse Properties" as possible contenders for approaches to sparseness which could be substituted into (SEN).

As Cowling himself notes, however, the strength and plausibility of (SEN) as a response to Fine's challenges to (MAE) depends crucially on the details of how a particular account of sparseness is developed. Suppose, for example, that sparseness is construed in terms of a Lewisian understanding of perfect naturalness and the sparse properties are the perfectly natural properties that are instantiated by entities belonging to the inventory of fundamental physics. Given such a conception of sparseness, (SEN) classifies the properties in (i)-(iv) as merely abundant, but only at the cost of denying that macroscopic entities like Socrates have natures at all. A conception of sparseness which privileges the microphysical, thus, does not yield the result that the property of being human, say, belongs to Socrates' nature, while the properties in (i)-(iv) do not. As it stands, therefore, it is unclear how, in the absence of a suitable account of sparseness, (SEN) actually yields the benefits Cowling claims for his account:

> "SEN delivers plausible answers to what-questions that square with the cases considered in Fine's challenge for the modal view of essence. For Fine, membership properties like being a member of singleton Socrates are not suitable answers to what-questions. According to SEN, these properties fall outside the nature of Socrates, since being a member of singleton Socrates is not a sparse property. The same goes for other properties

[10] Cowling, "The Modal View," 258.

of Socrates like being distinct from Aristotle, being such that Aristotle is essentially

human, and being such that 2+2=4. Since these properties are essential but not sparse,

none of them figure into Socrates' nature so Fine's challenge is handily avoided."[11]

Even if a more liberal conception of sparseness, such as that suggested by Jonathan

Schaffer, is substituted into (SEN), Cowling's account still does not seem to deliver the sought-

after classifications. According to Schaffer, sparse properties can be "drawn from all the levels

of nature – they are those invoked in the scientific understanding of the world";[12] these

properties, on Schaffer's construal, satisfy the following constraints: "(1) Similarity: sparse

properties ground objective similarities; (2) Causality: sparse properties carve out causal

powers";[13] and "(3') Primacy: sparse properties serve as the ontological basis for linguistic

truths".[14] Using Schaffer's broader conception of sparseness, Cowling's account will continue to

exclude large swaths of entities from having natures, if these entities fail to satisfy (1)-(3'): e.g.,

abstract entities (such as numbers or sets), logical operations (such as conjunction or disjunction)

as well as arguably the members of many social kinds, e.g., artifacts.[15] Thus, even with

Schaffer's broader conception of sparseness, (SEN) is still unable to capture the following sort of

asymmetry: that it is *not* part of Socrates' nature to instantiate the property of being a member of

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[11] Cowling, "The Modal View," 259.

[12] Jonathan Schaffer, "Two Conceptions of Sparse Properties," *Pacific Philosophical Quarterly* 85 (2004): 92.

[13] Schaffer, "Two Conceptions," 94.

[14] Schaffer, "Two Conceptions," 100.

[15] Cowling, "The Modal View," 265, n. 29 and 30.

Socrates' singleton set, while it *is* part of the nature of Socrates' singleton set to instantiate the property of having Socrates as its sole member. But the recognition of precisely such asymmetries is of course a crucial component of Fine's challenges to (MAE). Contrary to what Cowling's remarks above seem to imply, Fine does not hold that membership properties *tout court* are unsuitable to figure in real definitions; rather, when the entities under consideration are sets (e.g., Socrates' singleton set), then membership properties (e.g., the property of having Socrates as its sole member) are exactly what we would expect to find in an appropriate answer to a definitional "what it is?" question.

The account proposed by Nathan Wildman, in "Modality, Sparsity, and Essence", is in broad outline similar to Cowling's. Like Cowling, Wildman proposes to amend (MAE) by adding a sparseness constraint on properties: according to Wildman's "sparse property modalism" (SPM), a property, F, is essential to an entity, x, if and only if (i) necessarily, x has F, if x exists; and (ii) F is a sparse property.[16] Like Cowling, Wildman as well cites David Lewis and Jonathan Schaffer, when introducing the distinction between sparse and abundant properties, but notes that (SPM) as such is compatible with different approaches to sparseness: "... sparse modalism does not actually fix the sparse or modal facts; instead, it merely generates essentialist results from a sparseness conception and modal facts pairing".[17] Along the way, however, Wildman offers a variety of interesting choices not yet canvassed above to modalists wishing to formulate responses to Fine's alleged counterexamples. How a particular version of (SPM)

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[16] Nathan Wildman, "Modality, Sparsity, and Essence," *The Philosophical Quarterly* 63, no. 253 (October 2013): 765.

[17] Wildman, "Modality," 766.

proceeds will depend, for example, on whether the framework in question views existence as a property; and, if so, whether it is a property that everything has or a property that distinguishes the existent from the non-existent entities; whether entities can be said to have properties at worlds at which they do not exist; whether relational properties in general are viewed as abundant, even if their underlying relations are sometimes classified as sparse; and so forth. For reasons of space, although there is much to discuss in Wildman's defense of (SPM), I will focus in particular on his treatment of (i), the set-theoretic property of being a member of Socrates' singleton set, which turns out to be especially tricky for sparse modalists.

In responding to Fine's challenges, Wildman reaches the conclusion that, in all but one case, with the right conception of sparseness and supplementary apparatus in hand, modalists need not regard the properties in question as sparse and hence essential to the entity in question, viz., Socrates. The sole exception is (i), the set-theoretic property of being a member of Socrates' singleton set. In this case, Wildman proposes a different strategy: here, he argues that modalists should, so to speak, "bite the bullet" and accept that, contrary to initial appearances, the property in question *is* in fact essential to Socrates (or, rather, the underlying relation of *being a member of* is one that Socrates essentially bears to his singleton set). To counteract the initial implausibility of this result, Wildman offers a diagnosis of what might have led to our intuitive judgement in the first place that it is *not* part of Socrates' nature to be a member of Socrates' singleton set, while it *is* part of the nature of Socrates' singleton set to have Socrates as its sole member. The root cause of this apparent asymmetry in our plausibility judgments, in Wildman's view, is that we have taken the metaphors of "building" or "constructing" too seriously, and have thereby been misled into thinking that a set in some way "metaphysically depends on" its members or that its members are somehow "metaphysically prior to" the set. In fact, however,

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so Wildman argues, according to one widely accepted conception of sets (viz., the Platonic iterative conception of sets), when given an appropriately minimalist interpretation, such locutions as "building", "construction", "dependence" or "priority" can be read merely as a metaphorical shorthand for designating where in the set-theoretic hierarchy a given set or its members are located. In this way, Wildman takes himself not only to have explained what brought about our intuitive judgements concerning (i) in the first place, but also to have provided reasons for living comfortably with the result that, contrary to initial appearances, it *is* in fact essential to Socrates after all to be the sole member of his singleton set.

I want to highlight two features in particular in Wildman's treatment of (i) which are of special importance given our present concerns. First, in order to reach the conclusion that, contrary to initial appearances, Socrates in fact essentially bears the membership relation to his singleton set, Wildman, unsurprisingly, finds himself forced to give up any proclaimed neutrality and commit to a particular stance concerning the sparseness (or abundance) of the set-theoretic relation, *being a member of.* As noted above, sparse modalism, as such, is a general position which fixes essentialist facts, only once a particular conception of sparseness is substituted into (SPM). Secondly, in order to reach an assessment concerning the sparseness or abundance of the membership relation, Wildman is required to engage directly with the metaphysical question of what sets are: for it is only when the sparse modalist settles on a particular approach to the metaphysics of sets, so Wildman notes, that the membership relation can be classified as sparse or abundant, according to (SPM).

How, then, does Wildman arrive at the determination that, given the Platonic iterative conception of sets under the minimal interpretation, the membership relation should be classified as sparse, and not abundant? The following passage is revealing in this connection:

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"Now, given the sparse/abundant distinction, it seems that a necessary condition for metaphysical significance is sparseness – in other words, abundant properties cannot bear, in the metaphysically significant sense of the phrase, upon what an object is. Suppose that an abundant property P is metaphysically significant to an actually existing object o, such that P plays a part in determining what o is. Because P is metaphysically significant to o, 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. This, however, contradicts the initial assumption regarding P's abundance. So either P is not metaphysically significant or P is a sparse property, which is logically equivalent to the claim that being sparse is a necessary condition for being metaphysically significant."[18]

In Wildman's view, a property is "metaphysically significant" to an entity when this property plays a role in determining what it is to be the entity in question: in other words, the "metaphysically significant" properties, according to Wildman, are just those properties which would be classified as *essential* to an entity, according to Fine's definitional account, viz., those properties that have a bearing on what the entity in question is, in the "metaphysically significant sense". The "metaphysically significant" properties instantiated by an entity are, so Wildman reasons, sparse (i.e., sparseness is a necessary condition for a property that is instantiated by an entity to count as "metaphysically significant" to that entity), because the sparse properties are

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[18] Wildman, "Modality," 764.

needed to characterize the actual world "completely and without redundancy". As he puts it

elsewhere, using the familiar metaphor, the sparse properties are those which "carve nature at the

joints".[19] When the entities under consideration are sets, then membership facts must be

included in a complete and non-redundant characterization of the actual world: "... because sets

are taken to be sui generis entities of which membership is the primary characterising relation,

membership seems to be a sparse relation."[20]

It is thus to be expected that, when we attempt to give a "complete and non-redundant"

characterization of what it is to be Socrates' singleton set (i.e., when, in Wildman's terms, we

specify those properties and relations that are "metaphysically significant", in the relevant sense,

to Socrates' singleton set), we find ourselves appealing to membership facts; and, for this reason,

it makes sense that, when the entities at issue are sets, the membership relation is classified as

sparse. But *Socrates* is not a set, even though (as long as the conception of sets at issue is an

impure one) he appears as one of the ur-elements at the bottom level of the infinite set-theoretic

hierarchy from which the remaining sets are, so to speak, "built up". What happens when,

instead of engaging with the question of what is "metaphysically significant" to Socrates'

singleton set, we ask what sorts of properties and relations are "metaphysically significant" to

Socrates? Suppose, for the sake of the argument, that an accurate answer to the question of what

it is to be Socrates includes the fact that he is a human being. Then, in order to determine what

properties and relations are "metaphysically significant" to Socrates, sparse modalists would

need to engage with the metaphysical question of what it is to be a human being, and only then

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[19] Wildman, "Modality," 768.

[20] Wildman, "Modality," 776.

could they take a stand on what the "genuinely characterising" sparse properties and relations are concerning human beings which would need to be included in a "complete and non-redundant characterisation of the actual world". But whatever these properties or relations might be – whether they concern the evolutionary origin of the biological species, *homo sapiens*; language-use; consciousness; agency, morality, free will, or what have you– we can be quite sure (and this is of course precisely Fine's point regarding (i)) that a "complete and non-redundant characterisation" of that component of the actual world which concerns human beings in particular will not single out the set-theoretic membership relation as a "primary characterising relation" governing members of the kind, human being. Thus, Wildman's account incorrectly predicts a certain *clash* between different ways of settling the question of which properties and relations are to be classified as "genuinely characterising", and hence as "metaphysically significant" to different sorts of entities. Because membership is a "genuinely characterising relation" for sets, and Socrates is, as we would like to say, only *accidentally* swept up in the set-theoretic hierarchy by being a member of some sets without himself being a set, Wildman's account incorrectly predicts that being a member of Socrates' singleton set is partially indicative of what it is to be Socrates. But other components of a "complete and non-redundant characterisation of the actual world" single out different properties and relations as "genuinely characterising" for entities like Socrates (e.g., properties or relations involving evolutionary lineages or speciation events, language-use, consciousness, agency, morality, free will, or what have you): if we take our lead from these accounts, then being a member of Socrates' singleton set will play no part in a characterization of what it is to be Socrates.

What seems to have gone wrong here is that Wildman's sparse modalist response to Fine's challenges has perhaps focused too much on the specific details of Fine's

counterexamples and, in the course of doing so, lost sight of the underlying deficiency which Fine's objections to the modal account are meant to bring out: namely the inability of the modal account (modified or not) to reflect the *source-sensitivity* of modal truths to the identity of the entity or entities whose nature or essence is under consideration. In formulating his "patch", Wildman's sparse modalism attempts to use source-*insensitive* notions like sparseness and abundance to do the work that ultimately can only be done by a source-*sensitive* notion like Fine's non-modal conception of essence or Wildman's own notion of "metaphysical significance". In order to avoid competing classifications of what does or does count as "metaphysically significant" to a particular entity, Wildman's account in effect would need to make room for the possibility that the sparseness or abundance of a particular property or relation can be *relativized* to particular entities or types of entities which instantiate the property or relation at issue, thus permitting us to say for example that the membership relation is "genuinely characterising" or "metaphysically significant" when it comes to entities like Socrates' singleton set, but not when it comes to entities like Socrates which are members of sets without themselves being sets, even though the membership relation holds of the pair, Socrates and Socrates' singleton set, and it does so necessarily. But once we find ourselves having to *relativize* the sparseness or abundance of a property or relation to particular entities or types of entities instantiating the property or relation, we might as well avoid the detour through sparse modalism altogether and opt directly for an explicitly source-sensitive account of essence like Fine's definitional approach.

Finally, the strategy by means of which Wildman reaches a determination concerning the sparseness or abundance of a particular property or relation also raises circularity worries. As noted above, in trying to determine whether a particular property or relation should be classified

as sparse or abundant, Wildman seems to appeal to what in effect amounts to independently

accessed essentialist information, viz., in this case, an answer to the question of what sets are in

the "metaphysically significant", i.e., definitional, sense. But if essentialist input must be fed

into (SPM), in order for this account to yield a determination concerning the sparseness or

abundance of a particular property or relation, then we wonder of course whether sparse

modalism is able to deliver essentiality judgments, as advertized, based purely on modal facts

together with an allegedly independently given classification of properties and relations as sparse

or abundant.[21]

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[21] The account of naturalness given by Thiago Xavier de Melo, in "Essence and

Naturalness", promises to address at least some of the objections raised here against sparse

modalism by offering a notion of naturalness that is relativized both to kinds and (in the case of

relations) to slots. Thus, according to de Melo, we can say, for example, that the relation, being

a member of, which holds between Socrates and Socrates' singleton set, is natural relative to the

kind, set, and relative to the slot occupied by Socrates' singleton set, but not relative to the kind,

human being, and the slot occupied by Socrates. It is doubtful, however, that a relativized

account of naturalness along the lines developed by de Melo can in fact yield a classification of

properties and relations as either essential or non-essential to an entity without at least implicitly

appealing to facts about the essences of those entities of which the properties or relations in

question hold. Moreover, the resulting account of naturalness seems so far removed from the

original motivations driving the Lewisian notion of naturalness, as yielding an independently

given classification of properties and relations, that we may wonder whether de Melo's

relativized notion still exhibits the other theoretical benefits that were supposed to be associated

IV. Fine's Definitional Approach to Essence

This brings us to our next question: how exactly does it follow on Fine's own definitional approach to essence that the properties in (i)-(v) are *not* essential to Socrates? Fine' approach proceeds differently from sparse modalism in evaluating the question of whether it is essential to an entity, a, to instantiate a property, F, or to stand in a relation, R, to an entity, b. In particular, given that essentialist claims are treated as source-sensitive, Fine's framework at least in principle has the resources to make room for the possibility that a's bearing R to b might be essential to a, but not to b (or vice versa), even in cases in which the fact that Rab holds necessarily. Unlike sparse modalism, Fine's approach does not assume that the question of how a particular property or relation is to be classified should be settled first, before it can be determined whether it is essential to an entity to instantiate the property or relation. Rather, Fine's definitional approach instructs us to look directly to the nature or essence of the entity or entities under consideration to answer the question at hand, without the detour through an allegedly independently given classification of properties and relations. Thus, to determine whether, on Fine's definitional approach, it is essential to Socrates to instantiate the properties cited in (i)-(v), we would need to inspect Socrates' real definition and determine whether these properties figure in a statement of his essence. But what *is* Socrates' essence, in Fine's view? And can we be confident that the supposedly "extraneous" material cited in (i)-(v) does not in

with the idea of naturalness. A relativized notion of intrinsicality is developed in Gaétan Bovey, "Essence, Modality, and Intrinsicality."

fact figure in a statement of Socrates' essence?[22]

We can begin to see how a proponent of Fine's definitional approach might answer these questions by noting first, in a negative fashion, what we should *not* expect to find in a real definition or statement of Socrates' essence. First, as a contingently existing concrete particular object, facts concerning Socrates' existence or non-existence will not figure in his essence: given that Socrates exists at some times and in some worlds, but not others, his existence or non-existence is not determined by his nature alone, but rather depends on specific circumstances that can be expected to vary from one time to another and from one world to another.[23] Secondly, given that Fine understands essence non-modally, Socrates' real definition should not be expected to make reference to facts concerning what is necessary or possible for a being like Socrates; for, according to Fine, Socrates' modal profile should "flow from" his essence and it would therefore be inappropriate for a statement of Socrates' essence to refer to his modal

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[22] The notion of essence at issue here must be construed as Fine's narrow notion of "constitutive" essence and not as the more expansive notion of "consequential" essence, which is closed under logical consequence. For the distinction between constitutive essence and consequential essence, see for example Kit Fine, "Ontological Dependence," *Proceedings of the Aristotelian Society* 95 (1995): 276-280. For critical discussion, see for example Kathrin Koslicki, "Varieties of Ontological Dependence," in *Metaphysical Grounding: Understanding the Structure of Reality*, ed. Fabrice Correia and Benjamin Schnieder (Cambridge: Cambridge University Press, 2012): 191-5.

[23] Kit Fine, "Necessity and Non-Existence," in *Modality and Tense* (Oxford: Clarendon Press, 2005), 348-49.

features: "... one should not appeal to an object's modal features in stating what the object is, since they could not then be seen to flow from what it is".[24] (As we will see shortly, given the conception of essence advanced in Fine's "Necessity and Non-Existence", what goes for Socrates' modal profile also goes for his temporal profile in a particular world.) Thirdly, since Socrates, in Fine's view, is a substance and therefore may plausibly be taken to be ontologically independent, we should not expect objects numerically distinct and disjoint from Socrates to figure in his essence or real definition: for an entity, x, is ontologically dependent on an entity, y, just in case y is a constituent in x's constitutive essence; and "... a substance may be taken to be anything that does not depend upon anything else or, at least, upon anything other than its parts; ...".[25] Thus, as a contingently existing ontologically independent concrete particular object, Socrates' real definition should not be expected to make reference to his existence or non-existence; his temporal-modal profile; or to objects numerically distinct and disjoint from Socrates.

But what can be said, in a more positive fashion, about what *is* to be included in a real definition or statement of Socrates' essence? When we inspect Fine's earlier and more recent writings on essence, we can extract at least the following *partial* answer to this question: the

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[24] Fine, "Necessity," 348.

[25] Fine, "Ontological Dependence," 269-70. If it turns out that it is part of Socrates' essence to have had a certain causal origin, then Socrates would, in that respect, not be completely ontologically independent of all entities numerically distinct and disjoint from himself. Socrates' ontological dependence on his causal origin would thus undermine his status as a substance.

essence of a contingently existing ontologically independent concrete particular object like Socrates can be partially specified by subsuming the object in question under a "substance-sortal",[26] to which Fine variously refers, more often than not, as "man" and, occasionally, as "person". When Fine classifies Socrates as a man, I take it that he does not have in mind Socrates' sex or gender, since presumably the possibility should be left open that Socrates might have self-identified as a woman or undergone a sex-change operation. Fine also cautions us to keep in mind that this example is chosen for illustrative purposes only; thus, anyone who has "substantive doubts about whether it is of the nature of Socrates to be a man" should keep in mind that "person" can be substituted for "man", and that "Felix" and "cat" can be substituted for "Socrates" and "man".[27] Exactly what is involved in Fine's classification of Socrates as a man, however, is a tricky question and we should be careful not to jump to any unwarranted conclusions as to what else might be built into Fine's subsumption of Socrates under the "substance-sortal", "man". For one thing, Fine assumes that "man" is itself a defined term, in the sense that an answer to the further question of what it is to be a man is at least in principle available: "The only plausible non-modal definition of 'man' is one that classifies the object under a sort; to be a man is to be an F (where this is the sort) differentiated in such and such a way".[28] Although the details of this further definition are not completely specified, Fine at least entertains the possibility that it is in the nature of men that they are "fleshy animals",[29] where the

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[26] Fine, "Necessity," 346.

[27] Fine, "Necessity," 328.

[28] Fine, "Necessity," 348.

[29] Fine, "Necessity," 348.

combination of "fleshy" and "animal" should be construed in a "non-predicational" way.[30]
(More on this below.)

In addition, Fine's subsumption of Socrates under the "substance-sortal", "man", should be read in light of his distinction between "worldly" and "unworldly" sentences:

> "... [T]he transcendental essence of an object constitutes a kind of skeletal 'core' from which the rest of the essence can be derived. We therefore arrive at the view that the identity of an object is independent of how things turn out, not just in the relatively trivial sense that the self-identity of the object is independent of how things turn out and not just in the relatively trivial sense that the identity of the object is something that will hold of necessity. Rather it is the core essential features of the object that will be independent of how things turn out and they will be independent in the sense of holding *regardless* of the circumstances, not *whatever* the circumstances. The objects enter the world with their identity predetermined, as it were; and there is nothing in how things are that can have any bearing on what they are."[31]

As the passage just cited brings out, Fine construes a statement like "Socrates is a man", in which a contingently existing ontologically independent concrete particular object is subsumed under a "substance-sortal", as an "unworldly" or "transcendental truth", which holds *regardless* of the circumstances that obtain in a particular world or at a particular time. Such objects, as Fine puts it, "enter the world with their identity predetermined, as it were";[32] and what they are,

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[30] Fine, "Necessity," n. 27.

[31] Fine, "Necessity," 348-49.

[32] Fine, "Necessity," 348-49.

in the definitional sense, is thus "subject to the vicissitudes neither of the world nor of time".[33]

In the case of some entities, Fine holds that a *full* specification of their essence can be given in "transcendental" terms, namely when the real definition in question makes reference only to sortal classifications and to what Fine calls "formal relations", e.g., the relation between a set and its members, between an aggregate and its parts, or between a proposition and its constituents.[34] For example, the essence of an ontologically dependent abstract entity like Socrates' singleton set can be fully specified in "transcendental" terms, in Fine's view, first, by subsuming the entity in question under the relevant sort (viz., set) and, secondly, by specifying its members (viz., Socrates). The resulting real definition, "Socrates' singleton set is a set whose sole member is Socrates", accomplishes two tasks: first, it *classifies* the entity in question by stating the kind, viz., set, to which it belongs; secondly, it *differentiates* this particular set from all the other sets by mentioning its members, viz., Socrates. Both tasks, in this case, can be accomplished in purely "transcendental" terms, since neither the sortal classification nor the appeal to the membership relation require reference to particular circumstances that can be expected to vary from one time or world to another.[35]

But a full specification of the essence of an entity in purely "transcendental" terms is not always possible. In the case of a contingently existing ontologically independent concrete particular object like Socrates, the "transcendental" specification of the essence is only partial and accomplishes only the first *classificatory* task, but not the second *differentiating* task: the

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[33] Fine, "Necessity," 341.

[34] Fine, "Necessity," 344-45.

[35] Fine, "Necessity," 348.

sortal truth, "Socrates is a man", classifies Socrates by stating what kind of object he is; but it does not differentiate Socrates from all the other members of the same kind.[36]

Fine's more recent work, in which he explores the connections between essence and ground, provides further elucidation on how to construe statements of the essence. Thus, Fine's project in "Unified Foundations for Essence and Ground" and "Identity Criteria and Ground", for example, is to formulate a unified treatment of essence and ground, which views each notion as contributing its own proprietary type of metaphysical explanation. The key to seeing how statements of essence and statements of ground can be brought into a common framework, according to Fine, is to take notice, first, of the fact that both notions involve an element of *genericity*, which Fine analyzes by appeal to his earlier theory of arbitrary objects as presented in *Reasoning with Arbitrary Objects*. Secondly, Fine proposes that statements of ground and statements of essence should be regarded as aiming at a single explanandum, but from two different directions, so to speak, with statements of ground contributing "constitutively *sufficient*" conditions and statements of essence contributing "constitutively *necessary*" conditions for the explanandum in question. Here, the notions of "constitutively necessary" and "constitutively sufficient" conditions are not to be regarded as mere converses of each other, since both are "determinative" in nature.[37] Thus, in light of these developments, the partial "transcendental" specification of Socrates' essence given by the sortal truth, "Socrates is a man", can be read as stating a "constitutively *necessary*" condition that must be met by an *arbitrary* individual, x, if x is to be identical to Socrates.

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[36] Fine, "Necessity," 348-49.

[37] Fine, "Unified Foundations," 306-7.

With these various components of Fine's definitional approach to essence in place, we can now return to our original question and ask whether the partial "transcendental" specification of Socrates' essence at which we have arrived so far is sufficient to establish that the properties cited in (i)-(v) are *not* essential to Socrates. One might expect that, strictly speaking, only a *full* specification of Socrates' essence can put to rest conclusively any lingering doubts we may have as to whether the "extraneous" material mentioned in (i)-(v) does not somehow make its way into Socrates' real definition. Since, according to Fine, "the transcendental essence of an object constitutes a kind of skeletal 'core' from which the rest of the essence can be derived",[38] a fully expanded specification of Socrates' essence would need to include not only the "transcendental" sortal truth, "Socrates is a man", but also whatever else can be derived from the "constitutively necessary" condition, "x is a man", that is contained within it. As I will suggest in a moment, however, Fine may be able to offer us a substitute, in lieu of a fully expanded statement of Socrates' essence, by means of which the challenge at hand can be put to rest at least by approximation.

How, then, would a partially specified statement of Socrates' essence be expanded beyond its "transcendental" "skeletal 'core'"? A natural place to look for further instructions is Fine's neo-Aristotelian theory of embodiment as presented in "Things and Their Parts", an early formulation of which can be found in the theory of "qua-objects" in "Acts, Events and Things".[39]

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[38] Fine, "Necessity," 348.

[39] See also Fine's "A Puzzle Concerning Matter and Form", "Compounds and Aggregates", "A Counter-Example to Locke's Thesis", "The Non-Identity of a Material Thing and its Matter", "Coincidence and Form", and "Towards a Theory of Part".

I will not explore Fine's mereology and hylomorphism in detail here (but see my "Towards a Neo-Aristotelian Mereology" and *The Structure of Objects*, especially Chapter 4, for an extended discussion). For present purposes, it will suffice to focus only on how these independently developed aspects of Fine's broader metaphysical framework can contribute to specific questions of essence, in this case by appeal to a theory that is designed to "give an adequate account of the identity of [...] material things in general",[40] including their existence, part-whole structure, location in space and time, as well as their modal and non-modal character.

According to the theory of embodiment, developed in "Things and Their Parts", concrete particular objects are analyzed either as "rigid embodiments" or as "variable embodiments", depending on whether these objects have their material parts timelessly or in a temporary way. A ham sandwich, for example, may be regarded as a rigid embodiment, $<a, b, c, ... /R>$, where a, b, and c are themselves objects (and hence subject to the theory of embodiment), viz., the material parts (two slices of bread and a slice of ham) which timelessly compose the ham sandwich; R is the relation of betweenness; and '/' denotes the sui generis composition relation of rigid embodiment. A variable embodiment, /F/, embodies a principle of variable embodiment, F, which selects a series of "manifestations", f_t, at those times, t, at which the variable embodiment, /F/, exists. The principle, F, of a variable embodiment, /F/, is described by Fine as any "suitable" function from times to objects.[41] For example, a river may be viewed as a variable embodiment, /F/, whose principle of variable embodiment, F, selects at each time, t, at

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[40] Kit Fine, "Acts, Events and Things," *Proceedings of the 6th International Wittgenstein Symposium* ("Language and Ontology") (Vienna: Hölder-Pichler-Tempsky, 1982): 100.

[41] Kit Fine, "Things and Their Parts," *Midwest Studies in Philosophy* 23 (1999): 69.

which the river exists a manifestation, f_t, viz., the particular quantity of water which constitutes the river at t. Depending on the case at hand, the manifestation, f_t, selected by a principle of variable embodiment, F, at a time, t, at which the variable embodiment, /F/, exists may itself be a rigid embodiment or a variable embodiment, resulting in a potential hierarchical arrangement of rigid and variable embodiments. Although the theory of embodiment describes two irreducibly distinct composition relations, viz., rigid embodiment and variable embodiment, an implicit understanding of these primitive notions, as well as their interconnections, in Fine's view, can be derived from a series of postulates which specify conditions for an embodiment's existence, location, identity, part-whole structure as well as its modal and non-modal character.

Following this exceedingly brief excursion into Fine's theory of embodiment, we can now expand on the previously given statement of the "transcendental" "skeletal 'core'" of Socrates' essence as follows. As a composite concrete particular object capable of persisting through changes with respect to his material parts, it is part of Socrates' nature to be identical to a variable embodiment, /S/, whose principle of variable embodiment, S, selects at each time, t, at which Socrates exists a manifestation, s_t. Perhaps (though this is not necessary) we may think of the manifestation, s_t, selected by Socrates' principle of variable embodiment, S, at each time, t, at which Socrates exists, as rigid embodiments of the form, <a, b, c, ... /H>, whose objectual components, a, b, c, ..., are the "fleshy animal" parts that are characteristically associated with a being like Socrates (e.g., a torso, a head, arms, legs, a heart, eyes, and the like) and whose relation, H, reflects the characteristically human arrangement that must be exhibited by these material parts that compose Socrates at each time at which he exists. Socrates' characteristically human "fleshy animal" parts, a, b, c, ..., in turn, may themselves be regarded as variable embodiments, i.e., concrete particular objects whose material parts may vary over time, thus

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resulting in a hierarchical arrangement of variable and rigid embodiments. Given the various postulates governing rigid and variable embodiments, the characterization of Socrates as a variable embodiment just stated also serves to determine conditions for Socrates' existence, location in space and time, part-whole structure, as well as his modal and non-modal character. (For further details as to how such a proposed "derivation" might work, the reader is referred to Fine's "Coincidence and Form", where the theory of embodiment is invoked in formulating a response to the so-called "Grounding Problem", i.e., the problem of what grounds the modal and non-modal differences between numerically distinct spatiotemporally coincident objects, such as an alloy statue and the piece of alloy constituting it.)

We can now combine the "transcendental" sortal classification of Socrates as a man with the "non-transcendental" characterization of Socrates as a variable embodiment as follows: in order for an arbitrary individual, x, to be identical to Socrates, it is "constitutively necessary" for x to be a man, where this condition requires x to be a variable embodiment whose principle of variable embodiment (following our assumptions above) selects at each time at which x exists a rigid embodiment composed of some characteristically human "fleshy animal" parts, arranged in a characteristically human manner. Presumably, the specification of Socrates' essence just given is still not complete, if (as seems reasonable) we may assume that at least some of the terms that would occur in it, if all the details that are currently still left open were to be filled in, are themselves defined (e.g., "animal", "heart", etc.).[42] Suppose, however, that these further

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[42] If the "worldly" terms that would be mentioned in a fully expanded specification of Socrates' essence are not understood predicatively, then perhaps the contrast drawn here between sets (whose essence can be specified fully in "transcendental" terms) and persons (whose essence

definitions –if they were to be spelled out– appeal only to material that is already covered either by Fine's "transcendental" conception of essence or by his theory of embodiment. Then, even in the absence of a fully expanded statement of Socrates' essence, Fine may nevertheless argue that enough has been said to show how the challenge at hand can be met, at least by approximation. For by inspecting the *methods* by which new material can be introduced into an existing definition, it can be established that only material that is of the same *type* as the material we have already encountered (viz., in this case, "transcendental" sortal classifications, "formal" relations or terms designating the various principles or components of rigid or variable embodiments) can make its way into a real definition that is expanded beyond its "transcendental" "skeletal 'core'". Moreover, new material can only enter into an existing definition if it can be, so to speak, "pulled out" of a statement of the essence of an entity that is already mentioned in the original specification of the essence to begin with, e.g., by way of a specification of what it is to be an animal or a heart, say.[43] (Of course, if an existing definition can be expanded by other means

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can be specified only by appeal to both "worldly" and "unworldly" material) is not as pronounced as indicated. The predicates, "is a sphere" and "is spherical", for example, can be understood both in a "worldly" manner (viz., when we say of an object that it has a certain spherical shape) and in an "unworldly" manner (viz., when we say of an object that it belongs to a certain kind, namely the geometrical kind, sphere).

[43] The formal analogue in Fine's logic of essence of the method described here informally is the principle of "Chaining", which states that "if the objects y_1, y_2, ... are 'linked' by dependence to the objects x_1, x_2, ..., then any proposition true in virtue of the linking objects y_1, y_2, ... is also true in virtue of the linked objects x_1, x_2, ..." Kit Fine, "The Logic of Essence,"

besides those already discussed, then it would still need to be demonstrated that these additional methods are no less "conservative" than the methods we have already encountered.) In this way, then, the definitionalist may claim that, even in the absence of a fully specified statement of Socrates' essence, we can rest assured that the properties in (i)-(v) turn out *not* to be essential to Socrates, since no opening has been provided by means of which "extraneous" material disconnected from Socrates' nature could make its way into a fully expanded specification of Socrates' essence, if such a specification could ever be given.[44]

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[44] Is it possible, in Fine's view, to arrive at "constitutively *sufficient*" conditions for an arbitrary individual's identity with Socrates? As Fine states in the following passage, he allows for the possibility that a "reductive" definition, i.e., a definition which specifies both "constitutively necessary" and "constitutively sufficient" conditions, is not available in all cases:

> "But a statement may lack a sufficient condition though still admitting of some (though not all) necessary conditions. That x is a man, for example, may be constitutively necessary for x to be Socrates (i.e., Socrates may be essentially a man) even though there is no constitutively sufficient condition for x to be Socrates, or truth may be constitutively necessary for knowledge even though there may be no constitutively sufficient condition for knowledge of which truth is a part. Similarly, x being a man may imply all necessary conditions for x to be Socrates without itself being a sufficient condition for x to be Socrates." (Fine, ""Unified Foundations," 307)

Whether a "constitutively sufficient" condition can be given in the particular case of an arbitrary individual's identity with Socrates in part depends on whether an appeal to Socrates' causal

As we observed earlier in the case of sparse modalism as well, in order to determine the status of the properties in (i)-(v) within Fine's system, one must appeal not only to material that is drawn from the definitional approach to essence itself, but also to certain "first-order" metaphysical doctrines, in this case Fine's theory of embodiment. For as a contingently existing ontologically independent composite concrete particular object capable of persisting through changes with respect to his material parts, the particular entity under consideration, viz., Socrates, is analyzed by Fine as a variable embodiment and therefore falls under those aspects of Fine's broader metaphysical framework which are meant to give an account of the identity of material things in general, including their existence, part-whole structure, spatiotemporal location, and character. But this feature is of course not unique to the two approaches to essence we have considered; rather, we would expect that *any* approach to essence requires a certain amount of "out-sourcing" in order to settle specific questions of essence, viz., a direct engagement with the metaphysics of the particular type of entity under consideration. Unlike sparse modalism, however, Fine's definitional approach to essence is specifically set up in such a way that "first-order" metaphysical information concerning the nature of the entity or entities under consideration can enter into a statement of its essence in a non-circular fashion. Given the source-sensitivity of Fine's approach, fine-grained mechanisms are available, in this framework,

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origins is built into a specification of Socrates' essence and, if so, whether such an appeal in fact provides a "constitutively sufficient" condition for an arbitrary individual's identity with Socrates. I argue against the sufficiency of sameness of original matter for crossworld identity in my *Form, Matter, Substance* (Oxford: Oxford University Press, 2018): 89-103; see also Kathrin Koslicki, "Essence and Identity".

to allow for the possibility of scenarios in which an entity, a's, standing in a relation R to an entity, b, might be essential to a, but not b (or vice versa), even when the fact that Rab obtains necessarily. In order to determine whether such a scenario obtains in a particular case, however, one must take a stand on metaphysical questions that are not exclusively settled by the theory of essence itself, but require direct engagement with broader metaphysical questions concerning the identity of the entities under consideration.

V. Concluding Thoughts: The Theoretical Roles of Essences

This chapter has focused on the question of whether and how Kit Fine's well-known challenges to the modal account of essence can be adequately addressed by modified modal approaches, in particular Sam Cowling's and Nathan Wildman's sparse modalism, as well as by Fine's own definitional approach to essence. An important topic which has so far stayed in the background, however, concerns the theoretical roles that are ascribed to essences or definitions, i.e., statements of the essence, by modalists and non-modalists. Our preceding discussion highlighted three contenders for such theoretical roles in particular: that of (a) explaining modality (see Section I, "Introduction"); (b) classifying an entity by specifying the kind to which it belongs; and (c) differentiating an entity from other entities belonging to the same kind (see Section IV, "Fine's Definitional Approach to Essence"). As a proponent of a non-modal approach, Fine accepts (a) as being among the primary responsibilities of essences or their linguistic/propositional counterparts, viz., definitions. And although Finean definitions also in general seem to satisfy (b), the same cannot be said for (c): definitions, for Fine, may be, but

"need not [...] be individuating."[45]

The question of which theoretical roles should be ascribed to essences or definitions, however, is itself controversial; and the controversy in this case, at least to some extent, crosscuts the dispute between modalists and non-modalists. For while modalists and non-modalists of course take opposing positions concerning (a), these theorists can agree or disagree with one another on whether the explanatory work done by essences or definitions includes one or both of (b) and (c), independently of their particular take on the connection between essence and modality.[46] And the three theoretical roles emphasized so far certainly do not exhaust the range of possible job descriptions that have been proposed for essences or definitions in one context or another. Aristotle, in *Met.* Z. 17 and *Met.* H.6, for example, points to the form or essence of a matter-form compound not only as the cause of its being what it is, but also as (d) its principle of unity. Moreover, as Paul Teller puts it, an Aristotelian essence is also expected to yield (e) "a unifying causal and scientific explanation of an entity's other properties".[47] The theoretical roles

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[45] Fine, "Ontological Dependence," 275.

[46] For an argument in favor of individual forms on the grounds that the essences of concrete particular objects should satisfy (c) and serve as principles of crossworld identification, see my *Form, Matter, Substance* (Oxford: Oxford University Press, 2018): 89-103; see also Kathrin Koslicki, "Essence and Identity".

[47] Paul Teller, "Essential Properties: Some Problems and Conjectures," *Journal of Philosophy* 72, no. 9 (May 8, 1975): 248. To account for the role of essence in giving causal scientific explanation of the non-fundamental properties of an entity in Fine's framework would require an appeal to his distinction between metaphysical and natural necessity as drawn in "The

cited in (a)-(e) are by no means intended as a complete list of possible explanatory

responsibilities associated with essences or definitions; but they do give us an indication of the

multitude and diversity of options which arise in this context. It is only by developing a clearer

grasp of the explanatory work that is done by essences or definitions that we can in turn also

arrive at a more fine-tuned understanding of what sort of material we should expect to find in the

specification of an entity's essence or definition.[48]

Varieties of Necessity".