In *Modality and Explanatory Reasoning*, Boris Kment argues that a single notion of essence can be used to play two distinct theoretical roles. He thinks there is an important connection between essence and metaphysical necessity, on the one hand, and between essence and metaphysical explanation, on the other.

In this paper I will argue that it is not clear that a single notion of essence should be used to perform both these jobs. For whereas project of giving metaphysical explanations requires a notion of essence that distinguishes between truths that are more or less “fundamental” in a metaphysical sense, the project of shedding light on metaphysical necessity does not.

# Two Theoretical Projects

Let me begin by saying a few words about Kment’s two projects.

**Metaphysical Necessity**

The first project is that of establishing a connection between essence and metaphysical necessity. Kment’s proposal is a variant of the view, famously articulated by Kit Fine, that:

> we should view metaphysical necessity as a special case of essence. For each class of objects, be they concepts or individuals or entities of some other kind, will give rise to its own domain of necessary truths, the truths which flow from the
nature of the objects in question. The metaphysically necessary truths can then be identified with the propositions which are true in virtue of the nature of all objects whatever. (Fine 1994)

Thus, if it is part of the essence (or nature) of Socrates that he be human, then the necessity of Socrates’s being human might be said to “flow” from the essence of Socrates. And if it is part of the essence of the property of being human that humans be mammals, then the necessity of humans being mammals might be said to “flow” from the essence of the property of being human.

There are different ways of understanding the relationship between essential truths and the necessary truths that “flow” from them. On the simplest proposal, the relationship is identity: there is no difference between Socrates’s being necessarily human and its being essential of Socrates that he be human. But one could also hold that the relationship falls short of identity. On Kment’s view, the fact that Socrates is necessarily human is distinct from the fact it is essential of Socrates that he be human, but the former is “grounded” on the latter.

It seems to me that there is something attractive about the Finean program of taking metaphysical necessity to flow from essence. I will say more about my preferred way of spelling out the details below.

**Metaphysical Explanation**

The second of Kment’s projects is that of establishing a connection between essence and what he calls “metaphysical explanation”.

What is metaphysical explanation? Here is one of Kment’s examples:

I point to one of the atoms labeled as gold, and ask: “So, that one’s a gold atom? What makes it so?”. It seems natural and correct for you to answer: “It’s a gold atom because it’s an atom with atomic number 79 and because that’s what it is
Kment thinks that the speaker’s interlocutor provides a metaphysical explanation of the fact that a particular atom \( a \) is a gold atom. She does so by supplying two pieces of information:

1. She identifies a *ground* for the explanandum.

   (In this case: the fact that \( a \) is an atom with atomic number 79.)

2. She identifies a *truth about essence* which establishes a connection between the explanandum and its ground.

   (In this case: the proposition that it is essential to being a gold atom that gold atoms have atomic number 79.)

More generally, Kment’s notion of metaphysical explanation presupposes a hierarchical picture of the world. According to this picture, “entities are arranged in strata by their degrees of relative metaphysical fundamentality”, and “facts about more fundamental things give rise to facts about less fundamental ones in accordance with the laws of metaphysics” (Kment 2014, §6).

To supply a metaphysical explanation, Kment thinks, is to explain how facts about about more fundamental things “ground” (or “give rise to”) facts about less fundamental things. Accordingly, the task of metaphysically explaining a given fact \( f \) can usually be divided into two parts: (1) one identifies a ground for \( f \); and (2) one identifies metaphysical principles that establish a connection between the ground and \( f \).

Kment labels the relevant metaphysical principles “laws of metaphysics”, but he thinks that, in a typical case, a law of metaphysics is simply a truth about essences. So, on Kment’s view, there is an important connection between essence and metaphysical explanation.

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1It goes without saying that Kment is not the only philosopher to defend a hierarchical paper of the world. For a canonical source, see Fine 2001. Other influential texts include Schaffer 2009 and Sider 2012.

2Kment notes that there are broader and narrower ways of thinking about essence, and argues that, on the narrower conception of essence that he prefers, one may find that one needs to go beyond the truths about essence to carry out the theoretical projects we are considering here. It is for this reason that he formulates his proposal using the broader notion of a metaphysical law (§6.2.3). For discussion of the different notions of essence, see Rosen 2006.
2 The Plan

I have given a brief description of Kment’s two theoretical projects: (1) the project of establishing a connection between essence and metaphysical necessity, and (2) the project of establishing a connection between essence and metaphysical explanation.

In this paper I will argue that there is a crucial difference between these two projects: whereas the latter is inextricably linked to a hierarchical picture of the world—a picture whereby the “less fundamental” is “grounded” in the “more fundamental”—the former is not.

I will proceed by developing a non-hierarchical conception of essence: a conception of essence whereby the asymmetrical relation that holds between an entity and its essential features is totally independent from the asymmetrical relation that friends of the hierarchical picture see as holding between the more and the less fundamental. I will suggest, moreover, that the resulting conception of essence can be used to establish a connection between essence and metaphysical necessity.

3 Metaphysical Fundamentality

My main motivation for distinguishing between the asymmetry of essence and the asymmetry of metaphysical fundamentality is to do with intellectual hygiene: I think that keeping the asymmetries separate affords a more perspicuous picture of the underlying philosophical terrain.

There is, however, a secondary motivation. It seems to me that the hierarchical picture of the world is potentially problematic, and might be resisted. Someone who chooses to resist the picture will thereby give up on the idea that there is sense to be made of metaphysical explanation. But as long as she distinguishes between the asymmetry of essence and the asymmetry of metaphysical fundamentality, she won’t also have to give up on the idea that there is sense to be made of essence, or on the idea that there is an important connection
between essence and metaphysical necessity.

The aim of this section is to say a few words about why I think the hierarchical picture is potentially problematic.

Let me begin with an analogy. Suppose your neighbor claims that ascots are “objectively elegant”: elegant in a way that transcends the tastes of some community or other. You should presumably resist your neighbor’s position. But, in so doing, you should do more than simply counter your neighbor’s view with the claim that ascots are objectively inelegant, while conceding that there is sense to be made of a distinction between the objectively elegant and the objectively inelegant: you should be skeptical of the very idea that there is sense to be made of the distinction.

One reason it is problematic to countenance a distinction between the objectively elegant and the objectively inelegant is that it generates an epistemological predicament: we must either take facts about objective elegance to be beyond our cognitive reach, or face the challenge of explaining how we could possibly come to know whether or not something is objectively elegant.

The most straightforward way of addressing such a challenge would be to postulate a connection between objective elegance and elegance with respect to the standards of some community or other. But in doing so one would generate a certain kind of tension. For there are two basic ways of spelling out the connection: the first option is to claim that the standards of the relevant community are somehow built into the property of objective essence; the second option is to reject the first option but insist that the relevant community is nonetheless able to reliably track objective elegance. Neither of these views seems particularly promising. The former threatens the supposed objectivity of objective elegance; the latter leaves us with the awkward task of describing a mechanism that could explain how the relevant community is able to track objective elegance.

I would like to suggest that analogous problems arise for someone who is prepared to countenance a distinction between more and less metaphysically fundamental objects or
properties— as opposed to a distinction between more and less fundamental roles that objects or properties play in our cognitive lives. In particular, it seems to me that one is left in an difficult epistemological position merely by countenancing such a distinction. For, as before, one must either take facts about metaphysical fundamentality to be beyond our cognitive reach, or face the challenge of explaining how we could possibly come to know which objects and properties enjoy greater metaphysical fundamentality.

As before, the most straightforward way of addressing such a challenge would be to postulate a connection between metaphysical fundamentality and fundamentality relative to the theoretical tools of a particular community. But in doing so one would again create a certain kind of tension. For there are two basic ways of spelling out the connection: the first option is to claim that the theoretical standards of the relevant community are somehow built into the property of objective fundamentality; the second option is to reject the first option, but insist that the theoretical tools of the relevant community are nonetheless reliable indicators of objective fundamentality. Again, neither of these views seems particularly promising. The former threatens the supposed objectivity of objective fundamentality; the latter leaves us with the awkward task of describing a mechanism that could explain how our theoretical tools are able to track objective fundamentality.

I do not mean to suggest that we have decisive grounds for refusing to countenance distinctions of metaphysical fundamentality. The point is simply that there is a price to be paid for allowing such distinctions into our theoretical toolbox. So they had better be fruitful enough to earn their keep.

There has been a lot of interesting work on metaphysical fundamentality in recent years, and many philosophers are increasingly sanguine about the fruitfulness of the distinction. But recent work has also shown that one can easily tie oneself into knots by theorizing about metaphysical fundamentality—knots that were not there to begin with: they arise only on the assumption that there is sense to be made of distinctions of metaphysical fundamentality.

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3Relevant texts include Sider 2012, Rosen typescript and the references therein.
Sider (2012), for example, considers the question of what grounds facts about grounding.\footnote{Sider defends a principle of “purity”, according to which “fundamental truths involve only fundamental notions” (Sider 2012). This principle entails that truths about what grounds what cannot count as fundamental, since they must bring in non-fundamental notions in order to establish a link between the fundamental and the non-fundamental. It is perhaps worth noting that Sider would not state his proposal in terms of grounding. He instead suggests a linguistic account, according to which one specifies the connection between fundamental and non-fundamental truths by supplying a “metaphysical semantics” for non-fundamental truths: a semantics that explains how each (factual) sentence containing non-fundamental vocabulary “fits into fundamental reality” by pairing it with truth-conditions stated in purely fundamental terms. (The quotation is from Sider 2013.) There is an interpretation of this proposal—though perhaps not the interpretation Sider has in mind—on which one is barred from claiming that non-fundamental truths are explained by fundamental truths. Let $\phi$ be a sentence involving non-fundamental vocabulary, let $\phi^\dagger$ be a sentence containing only fundamental vocabulary, and assume that $\bar{\phi}$ is true if and only if $\phi^\dagger$ is a theorem of one’s metaphysical semantics (where $\bar{\phi}$ is a name for $\phi$). On the interpretation of the proposal I would like to consider, this assumption is understood as entailing that $\bar{\phi}$ and $\phi^\dagger$ have the same truth-conditions, in the following sense: what the truth of $\bar{\phi}$ demands of the world is precisely what the truth of $\phi^\dagger$ demands of the world. One way to put this point in the material mode is to assert “there is no difference between its being the case that $\phi$ and its being the case that $\phi^\dagger$”. But the truth of such an assertion entails that “its being the case that $\phi$ is explained by its being the case that $\phi^\dagger$” must be false, on the grounds that nothing can explain itself. (Compare: Hesperus’s being bright cannot be explained by Phosphorus’s being bright. For if Hesperus is Phosphorus, there is no difference between Hesperus’s being bright and Phosphorus’s being bright.)} Bennett (2011) suggests an answer: a ground grounds not just the grounded fact itself, but also the fact that the grounded fact is grounded by its ground. Regardless of one’s stance on the issue, it should be agreed on all sides that it concerns a philosophical problem that arises entirely as a result of postulating distinctions of metaphysical fundamentality, and using them to develop a hierarchical picture of the world. A generation from now, philosophers may think of the problem as a tricky but legitimate theoretical issue—like we now think of the problem of identifying the value of the cosmological constant—but they may also come to think of it a consequence of interesting but ultimately faulty theoretical assumptions—like we now think of the problem of identifying one’s velocity relative to the luminiferous aether.

4 Towards an Alternative Picture

I have been suggesting that there is a price to be paid for adopting a hierarchical picture of the world, and, more specifically, for countenancing distinctions of metaphysical fundamen-
tality. But what is the alternative? Proponents of the hierarchical picture are clearly on to something when they suggest that being composed of water is, in some sense, nothing over and above being composed of H₂O. Are we to give up on this important insight?

There is no need to do so. In this section I will argue that one can give a satisfying account of the connection between being composed of water and being composed of H₂O without making distinctions in metaphysical fundamentality.

The proposal couldn’t be simpler. Rather than making the hierarchical claim that facts about water are, in some sense, “grounded” on facts about H₂O, one takes the relevant facts to be one and the same. So, in particular:

There is no difference between there being water in the glass and there being H₂O in the glass.

In order to develop this sort of proposal in further detail, it will be useful to introduce a “no difference” operator, “≡”, and read $\Gamma \phi \equiv \psi \setminus$ as $\Gamma$ there is no difference between its being the case that $\phi$ and its being the case that $\psi$. Accordingly, what it takes for $\Gamma \phi \equiv \psi \setminus$ to be true is for it to be the case that what is required of the world by the truth of $\phi$ is precisely what is required of the world by the truth of $\psi$. (More colorfully: when God made the world, what she would have had to do to verify $\phi$ is precisely what she would have had to do to verify $\psi$.)

Unlike the grounding relation, which is supposed to be anti-reflexive and anti-symmetric, “≡” is an equivalence relation. So, in particular, it satisfies:

**Symmetry:** $\phi \equiv \psi \rightarrow \psi \equiv \phi$

[Read: If there is no difference between its being the case that $\phi$ and its being the case that $\psi$, then there is no difference between its being the case that $\psi$ and its being the case that $\phi$.]

Attention so far has focused on statements of the form $\Gamma \phi \equiv \psi \setminus$ where $\phi$ and $\psi$ are closed sentences. But one can also use “≡” to capture identities between properties. One might say, for instance,
Water\( (x) \equiv_x H_2O(x) \)

[Read: There is no difference between being composed of water and being composed of H\(_2\)O.]

More generally, one can read \( \forall F(x) \equiv_x G(x) \) as \( \forall \) there is no difference between being \( F \) and being \( G \), and take the occurrence of “\( x \)” in “\( \equiv_x \)” to bind the occurrences of “\( x \)” in \( \forall F(x) \) and \( \forall G(x) \).

When one sets forth a statement like “Water\( (x) \equiv_x H_2O(x) \)”, one captures the thought that water-facts are nothing over and above H\(_2\)O-facts. But one does so without presupposing a hierarchical picture of the world. For suppose it is true that there is no difference between being composed of water and being composed of H\(_2\)O. Then being composed of water can be neither more nor less metaphysically fundamental than being composed of water: they are one and the same. (Compare: Hesperus, the object itself, is neither more nor less metaphysically fundamental than Hesperus, the object itself. They are one and the same.)

\[ \text{5 Essence Without Fundamentality} \]

In this section I will argue that the no-difference operator “\( \equiv \)” can be used to characterize an interesting notion of essence.

The first thing to note is that even though “\( \equiv \)” is itself a symmetrical operator, it can be used to define an antisymmetric “semi-identity” operator. Intuitively, the semi-identity operator corresponds to the English phrase “part of what it is to be . . . is to . . .”. For instance:

\[ \text{Part of what it is to be composed of water is to contain hydrogen atoms.} \]

[In symbols: Water\( (x) \gg_x \text{Hydrogen}(x) \)]
To see how “≫” might be defined in terms of “≡”, it is useful to remember that the material conditional can be defined using conjunction and the material biconditional:

$$
\phi \rightarrow \psi \equiv df \phi \leftrightarrow (\phi \land \psi)
$$

Similarly, one can define the semi-identity operator “≫” using conjunction and “≡”:

$$
\phi \gg \psi \equiv df \phi \equiv (\phi \land \psi)
$$

and, more generally:

$$
F(x) \gg_x G(x) \equiv df F(x) \equiv_x (F(x) \land G(x))
$$

So, for instance, the semi-identity statement “Water(x) ≻_x Hydrogen(x)”, which I will continue to read “part of what it is to be composed of water is to contain hydrogen atoms”, can be treated as a syntactic abbreviation for:

$$
\text{Water}(x) \equiv_x (\text{Water}(x) \land \text{Hydrogen}(x))
$$

[Read: there is no difference between being composed of water and being such that one is both composed of water and contains hydrogen atoms.]

Here is an intuitive way of wrapping one’s mind around this definition. When God created the world and made it the case that the glass was filled with water, she thereby made it the case that the glass was both such that it was filled with water and such that in contained hydrogen atoms. Why? Because part of what it is to be composed of water is to contain hydrogen atoms.

An immediate consequence of our definition is that the semi-identity operator “≫” is reflexive, transitive and anti-symmetric, and so a partial order. And once one is equipped with the semi-identity operator, it is straightforward to characterize a notion of essence.

Following Fine (1995), I will introduce an essence operator “⌜□z⌝”. Like Fine, I will read “⌜□zφ⌝ as “⌜φ is true in virtue of the essence (or nature) of z⌝; unlike Fine, I will treat “⌜□zφ⌝ as a syntactic abbreviation for the following formula (where φx is the result of replacing all occurrences of “z” in φ by occurrences of “x”):
\[ x = z \gg_x \phi_x \]

[Read: part of what it is to be \( z \) is to be such that one is \( \phi \)]

For instance, the claim that it is in virtue of Charles’s essence that Charles has Elizabeth as a parent,

\[ \Box_{\text{Charles}}(\text{Parent}(\text{Elizabeth}, \text{Charles})) \]

will be treated as a syntactic abbreviation for:

\[ x = \text{Charles} \gg_x \text{Mother}(\text{Elizabeth}, x) \]

[Read: part of what it is to be Charles is to be such that one has Elizabeth as a parent]

It is worth emphasizing that the essence-operator “\( \Box_x \)” was explicitly defined on the basis of the no-difference operator “\( \equiv \)” Since “\( \equiv \)” does not presuppose distinctions of metaphysical fundamentality, this means that it is possible to define an essence-operator in a way that does not presuppose distinctions of metaphysical fundamentality.

One might think, for example, that although it is essential to Charles that he have Elizabeth as a parent, it is not essential to Elizabeth that she be Charles’s parent. An important feature of our notion of essence is that it allows one to capture this difference: \( \Box_{\text{Charles}}(\text{Parent}(\text{Elizabeth}, \text{Charles})) \) does not entail \( \Box_{\text{Elizabeth}}(\text{Parent}(\text{Elizabeth}, \text{Charles})) \). This means that the asymmetry of essence need not be construed as presupposing the asymmetry of metaphysical fundamentality.

I would like to suggest, moreover, that our non-fundamentalist essence-operator is well-suited to carrying out the first of Kment’s two theoretical projects: that of establishing a connection between essence and metaphysical necessity. A little more carefully: I see no reason to doubt that “\( \Box_x \)” (together with its second-order analogue “\( \Box_F \)”\(^5\)) can be used to

\[^{5}\text{Here is a generalization of the proposal to the second-order case:} \]

\[ \Box_F \phi =_{df} \forall x (x \prec xx \leftrightarrow F(x)) \gg_{xx} \phi_{xx} \]
cash out the Finean idea that “the metaphysically necessary truths can . . . be identified with
the propositions which are true in virtue of the [essence] of all objects whatever”.

6

6 Socrates’s Singleton

There is an influential argument due to Fine (1994) which purports to show that the notion
of essence is more fine-grained than the notion of metaphysical necessity. I think the argument
is related to our present discussion in interesting ways, and would like to say a few
words about it before bringing this paper to a close.

The argument is based on two assumptions:

**Assumption 1** There is an asymmetry between Socrates and his singleton: whereas it is
 essential to his singleton that Socrates exists, it is not essential to Socrates that his
 singleton exists.

**Assumption 2** There is a necessary connection between Socrates and his singleton: necessarily, if one of them exists, then so does the other.

These assumptions are then used to show that the notion of essence cannot be adequately
captured in terms of metaphysical necessity. For suppose otherwise: suppose that for it to
be essential to \(x\) that \(\phi\) is for it to be the case that, necessarily, \(\phi\) is true if \(x\) exists. Then
[Assumption 2] entails:

\[(\text{it is essential to Socrates that his singleton exists}) \text{ if and only if } (\text{it is essential to}
\text{his singleton that Socrates exists}),\]

which contradicts [Assumption 1].

---

6 My preferred way of developing this idea is spelled out in chapter 5 of Rayo 2013.
I would like to suggest that this argument is in tension with a certain way of developing Fine’s idea that a necessary truth is a proposition that is true in virtue of essences. The version of Fine’s view I have in mind might be captured by the slogan: *metaphysical possibility is limited only by essence*. It won’t be necessary for present purposes to spell out this idea in detail, but I will assume that the slogan is read so as to entail the following:

**Principle of Maximality**

Select any objects you please. Unless there is an inconsistency between the objects’ essences, on the one hand, and the assumption that all and only those objects exist, on the other, it is metaphysically possible for the world to consist of all and only those objects.

It follows from the Principle of Maximality that [Assumption 1] and [Assumption 2] cannot both be true. For suppose that [Assumption 1] is true, and therefore that it is not essential to Socrates that his singleton exist. Now consider the set \( S \), which consists of precisely those objects whose existence is essential to Socrates. \( S \) will certainly contain Socrates, but it may also contain Socrates’s parents and his parents’ parents, or the particular egg and sperm that gave rise to Socrates, or Socrates’s right half. On the assumption that essence is transitive, it follows form the Principle of Maximality that it is metaphysically possible that all and only the objects in \( S \) exist. But we know that \( S \) does not contain Socrates’s singleton, since we know that is not essential to Socrates that his singleton exist. So [Assumption 2] must be false.

If this is right, then the Principle of Maximality is incompatible with the conjunction of [Assumption 1] and [Assumption 2]. Both of these assumptions tend to go unquestioned in the literature, so it is tempting to resolve the incompatibility by keeping the assumptions and giving up on the idea that possibility is limited only by essence—at least insofar as it is construed as entailing the Principle of Maximality. It seems to me, however, that there are other ways of resolving the incompatibility, and that we shouldn’t be too quick to dismiss
them.

I will describe two different pictures of the philosophical terrain. Both pictures are compatible with the general idea that possibility is limited only by essence, and with the Principle of Maximality in particular. The first picture resolves the incompatibility by preserving [Assumption 1] but identifying principled reasons to reject [Assumption 2]; the second picture resolves the incompatibility by rejecting [Assumption 1] altogether.

**Picture 1**

Our first picture is a version of the view that Rosen (2006) attributes to a fictional community he calls “the Others”. On the version of the view we will consider here, one takes it to be metaphysically impossible that Socrates’s singleton exists without Socrates, on the grounds that it is essential to the singleton that Socrates exist. But one takes it to be metaphysically possible that Socrates exists without his singleton, on the grounds that it is not essential to Socrates that his singleton exist, and that possibility is limited only by essence.

It certainly goes against current orthodoxy to countenance the metaphysical possibility of a world containing Socrates without his singleton. But it seems to me at this is because of the particular way in which orthodoxy thinks about essence, and about the connection between essence and possibility. I will argue that someone who endorses the non-hierarchical conception of essence we have been considering here, and who thinks that possibility is limited only by essence, can make room for the view that a world in which Socrates exists without his singleton ought to be counted as metaphysically possible.

It is a consequence of the conception of essence I have been defending that to contradict an object’s essence is to lapse into *absurdity*. Suppose, for example, that although Socrates fails to be human, being human is part of his essence:

\[ \Box_{\text{Socrates}}(\text{Human}(\text{Socrates})) \]

On a non-hierarchical conception of essence, this amounts to the following:
\[ x = \text{Socrates} \implies_x \text{Human}(x) \]

[Read: part of what it is to be Socrates is to be human.]

So what we are supposing is that Socrates—an object part of what it is to be is to be human—fails to be human. In other words: we are supposing that there is a non-human part of what it is to be is to be human. And that is absurd.

If metaphysical possibility is limited only by essence, the connection between essence and absurdity motivates an arresting view: to go beyond metaphysical possibility is to lapse into absurdity. According to this view, when one claims that Socrates’s singleton couldn’t have existed without Socrates, one is, in effect, claiming that a world with the singleton but not Socrates would be absurd. And when one claims that Socrates could have existed without his singleton one is, in effect, claiming that there would be no absurdity in a world with Socrates but not his singleton.

Here is the moral of our discussion. On the view that possibility is limited only by essence, the truth of [Assumption 1] entails the falsity of [Assumption 2]. But when the non-hierarchical conception of essence is added to the mix, the result is a picture according to which the [Assumption 2] is rightly denied. For, on this picture, [Assumption 1] is seen as capturing the thought that it would be absurd for Socrates’s singleton to exist without Socrates, but not for Socrates to exist without his singleton. And [Assumption 2] is seen as presupposing—falsely—that the absurdity of a world with Socrates but not his singleton would entail the absurdity of a world with the singleton but not Socrates.

**Picture 2**

The second picture I would like to consider does not take a stand on the connection between possibility and essence, but it agrees with the first picture in presupposing a non-hierarchical conception of essence.

Proponents of the second picture think that the existence of Socrates’s singleton is noth-
ing over and above the existence of Socrates, in the following sense:

\[ \exists x (x = \text{Socrates}) \equiv \exists x (x = \{\text{Socrates}\}) \]

[Read: There is no difference between its being the case that Socrates exists and its being the case that Socrates’s singleton exists.]

It is no part of the picture that Socrates is identical to his singleton. (That would contradict the standard axioms of set theory by allowing for a set that is a member of itself.) Informally put, the picture concerns identity between facts, not identity between sets. More precisely, the picture tells us that what would be required of the world for it to be the case that Socrates exists is precisely what would be required of the world for it to be the case that his singleton exists. (Or, to return to an earlier image: when God made the world, and brought it about that Socrates existed she thereby brought it about that his singleton existed; and when she brought it about that Socrates’s singleton existed she thereby brought it about that Socrates existed.)

This way of thinking about sets is closely connected to the view, set forth by Frege (1892, 1884) and further developed in the neo-Fregean literature, that a single content can be “carved up” in more than one way. Thus, one might think that “Socrates exists” and “Socrates’s singleton exists” describe the very same feature of reality, but that in doing so they “carve up” reality in different ways.

Suppose that some version of this picture is correct, and that \[ \exists x (x = \text{Socrates}) \equiv \exists x (x = \{\text{Socrates}\}) \] is true. Then it is an immediate consequence of our definition of \( \Box_x \) that the following essence-statements are both true:

\[ \Box_\text{Socrates} (\exists x (x = \{\text{Socrates}\})) \]

[Read: it is essential to Socrates that his singleton exist.]

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7In generalizing this idea to other sets, one must be careful to proceed in a way that avoids the set-theoretic paradoxes. For my preferred development of the idea, see Chapter 4 of Rayo 2013.

8The canonical neo-Fregean texts are Wright 1983, Hale & Wright 2001.
\[\square_{\text{Socrates}} (\exists x (x = \text{Socrates}))\]

[Read: it is essential to Socrates’s singleton that Socrates exist.]

So [Assumption 1] must be incorrect.

I have argued that by combining a broadly neo-Fregean conception of set with a non-hierarchical conception of essence, one gets a picture of mathematical reality according to which there is no reason to draw an asymmetry between Socrates’s essence and his singleton’s. Although I myself find this picture attractive, I am not trying to argue for it here. All I wish to do is illustrate the fact that there are sensible ways of thinking about sets on which it is not clear that one should agree with [Assumption 1].

**Back to Fine’s Argument**

Fine’s argument is sometimes seen as a refutation of the idea that the notion of essence can be adequately captured by the notion of metaphysical necessity. But I think it is better to see it as bringing out a tension between the idea that metaphysical possibility is limited only by essence, on the one hand, and [Assumption 1] and [Assumption 2], on the other.

The orthodox way of eliminating the tension is by not being fully resolute about the idea that metaphysical possibility is limited only by essence. This allows one to preserve [Assumption 1] and [Assumption 2], along with the Finean idea that essence is more fine-grained than metaphysical necessity. The aim of this section has been to suggest that the orthodoxy is not mandatory. For, as we have seen, there are pictures of the philosophical terrain that allow one to cast doubt on Fine’s assumptions while remaining steadfast in one’s commitment to the idea that possibility is limited only by essence.

**7 Conclusion**

My main concern in this paper has been to show that there is an interesting conception of essence that does not rely on distinctions of metaphysical fundamentality. I have argued
that such a conception can be constructed on the basis of the no-difference operator “≡”, and suggested that although it is unsuitable for the project of establishing a connection between essence and metaphysical explanation, it is well-suited to the project of establishing a connection between essence and metaphysical necessity.

If this is right, it shows that one can do justice to the idea that metaphysical possibility is limited only by essence, without thereby committing oneself to the potentially problematic idea that some facts are more fundamental than others, metaphysically speaking.
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