

Modal Logicism and *De Re* Necessity

Tobias Wilsch

Tübingen University

Abstract

This article introduces Logicism about Necessity as a competitor to the currently popular Essentialism. The main point of contention between the two views concerns the ultimate source of metaphysical necessity. Essentialists take essences to ultimately ground metaphysical necessity, Logicists take logic to play that role. I provide some support for the claim that one of these two views is correct, and I use recent material from Fabrice Correia and Alex Skiles to develop a specific version of Logicism in some detail. The main ambition of the article is to present an argument against Logicism. I argue that Logicists do not provide a successful account of *de re* necessity.

Keywords: Necessity, Essences, Modal logicism, Generalized identity.

1. Introduction

Modality was crucial to the revival of metaphysics in the 20th century. After a long period of domination by anti-metaphysical outlooks like positivism and pragmatism, groundbreaking work on modality, by Saul Kripke, David Lewis, and others, brought metaphysics back into focus. Possible worlds were their key to such modal notions as necessity, possibility, counterfactuals, dispositions, and supervenience, which still pervade philosophical inquiry today. What has changed, however, is that we no longer trust possible worlds as a guide for the metaphysics of modality. The currently most popular view on the metaphysics of modality is *hyperintensionalism*, the view that necessity and possibility derive from more fine-grained phenomena like essences, laws, and logic. Focusing on so-called “metaphysical necessity”, the most popular view among modal metaphysicians today is that it is grounded in essence or, as I will put it, that essence is the source of metaphysical necessity.

A hyperintensionalist alternative to this *Essentialism about (metaphysical) Necessity* is beginning to crystalize in the literature on modality. Several authors have recently developed views which allows us to construe logic as the ultimate ground of metaphysical necessity. We can contrast this alternative with Essentialism. Essentialists ground the necessity of essential truths in essence, and they use logic to extend necessity to the logical consequences of essential truth. *Logicists about (metaphysical) Necessity*, or *Modal Logicists*, on the other hand, ground

the necessity of logical truths in logic and use essences to extend that necessity from logical truths to essential truths. Whereas Essentialists consider essence the ultimate source of necessity, Logicians consider logic its ultimate source.

Logicians promise to demystify the notion of essence and the grounding of necessity. The gist of their promise is that logic is overall less problematic than essence and that the step from logical truth to necessity is less puzzling than the Essentialist's step from essence to necessity. The aim of this article is to spell out a version of Logicism and to develop an argument against that view. I will argue that Logicians cannot give a satisfactory account of necessity *de re*. However, although I hope that my argument is at least intriguing, it is far from providing a knock-out blow against the view. My goal here is to initiate a debate about Logicism, not to put it to rest. Since there is a whole family of Logicist views, I will focus on one specific version that I will build in large parts from recent work by Fabrice Correia and Alex Skiles.

Here is what I will do. In section 2, I introduce Essentialism and Logicism, and I motivate the disjunctive claim that one of them is correct. In section 3, I give the details of the version of Logicism that I will discuss. In section 4, I present my argument against Logicism to the effect that Logicians cannot account for necessity *de re*. I discuss responses in sections 5, and I explain why Essentialists can resist an analogous argument in section 6. Section 7 concludes.

2. Creation and Propagation Views

The question that I will discuss concerns the source of metaphysical necessity. It arises in the framework of hyperintensionalism, which presupposes that necessity-facts are not fundamental but that we can explain them in terms of suitable phenomena like essence or logic. The following discussions do not only make sense in this framework, but it will be useful to assume the hyperintensional stance. For, from within this stance it makes perfect sense to ask what the sources of metaphysical necessity are. Kit Fine's influential view on the matter is that we can explain all metaphysical-necessity facts with the essence of all things. But essence is only one of several candidate sources. A list of alternatives might include logical consequence, laws, numerical identities, and powers. I will set most of these options aside to focus on two of them: which of essence and logical consequence is better suited to ground metaphysical necessity?

I begin with the observation that *essential truths*, such as "You are human if you exist", and *logical truths*, such as "Peter is Peter if he exists", are necessary. As hyperintensionalists, we need to assign sources for these necessities and for the necessity of essential and logical truths in general. On what may be the most obvious assignment, essences explain the necessity of essential truths and logic explains the necessity of logical truths: Peter is necessarily human because he is essentially human, and it is necessary that Peter is Peter because it is a logical truth that Peter is self-identical. Isn't that just obvious?

But this natural assignment of sources conflicts with two principles that I would like to accept. The first principle (*local modal monism*) says that the necessity of essential truths is the same as the necessity of logical truths. Support for this principle comes from the observation that there is no genuine sense of "possible", such that essence-violating scenarios are possible. Point-sized guitarists, for instance, or egg-shaped human beings, are *absolutely impossible*. It is in no way a matter of chance that such creatures have not come to be! But if there is a

distinctive kind of necessity that applies only to logical truths, then there is also a corresponding kind of possibility that would apply to essence-violations, since they are not logical contradictions.¹

The second principle that I like (the *individuation thesis*) says that distinct sources of necessity exert distinct kinds of necessity. The individuation thesis entails, for instance that if essences and laws of nature are sources of necessity, then they exert two distinct kinds of necessity, namely metaphysical and natural necessity. My reasoning for the individuation thesis relies on commitments that I won't defend here. I use a primitive generic notion of necessity and I individuate kinds of necessity in terms of that generic notion and the exerting source. Natural necessity, for instance, is (generic) necessity exerted by laws of nature. From this principle of individuation, which I defend in Wilsch (2018, manuscript), it follows that distinct sources exert distinct kinds of necessity. However, here I only say that the individuation thesis looks quite plausible.

The conjunction of local modal monism and the individuation thesis conflicts with the obvious assignment of sources to the necessity of essential and logical truths. For, if essence were the source of the necessity of essential truths, and if logic were the source of the necessity of logical truths, then essential truths would (as per the individuation thesis) not have the same kind of necessity as logical truths. And that would contradict our local monism. That's why I will investigate alternative assignments. But I hasten to add that even if you don't find the argument thus far very convincing, I still hope that you might find a discussion of the two alternative views worthwhile.

What I want to suggest is that we give up the "Dual Source" conception of the modal roles of essence and logic, and that we look for a different way to divide their modal labour instead. I collect alternatives to the Dual Source conception under the label "Creation and Propagation": one of essence and logic "creates" necessity, in the sense of accounting for an initial stock of necessity-facts, and the other one "propagates" necessity, in the sense that it extends the initial stock of necessities to all remaining necessity-facts that need accounting for.

There are two candidate Creation and Propagation views. One assigns the creating role to essence and the propagating role to logic, the other one switches these roles around. I call the first sort of view *Essentialism about Necessity*, and the second one *Logicism about Necessity*.² There are, in fact, several Essentialist and Logicist views. As Essentialism is more familiar, I will first present some versions of it with the intention to give you a feel for the view. Expounding Logicism will take up more space, and so I postpone that to the next section. But let me pause to formulate the big-picture question that I address in this article: Is logic or is essence the ultimate source of metaphysical necessity?

¹ I agree with Rayo's (2013) assessment that such essence-violations are absurd and hence are not possible in any genuine sense. The question of what "genuine" means here is difficult to answer in general. A primitivist about necessity, for instance, could say that a kind of possibility is genuine only if we can define it in a sufficiently straightforward manner from a primitive notion of necessity.

² I take the label from Stang (2016), who explains that Logicism used to be popular prior to Kant. Rayo uses the similar label "Modal Logicism" for the view "that a metaphysical possibility is just a non-absurd way for the world to be" (2020: 1). Rayo's view is close in spirit to Logicism about Necessity.

Essentialism is familiar from Fine (1994a), Hale (2013), Lowe (2008), and others. The view says that every essential truth is necessary because it is an essential truth (the Essentialist *creation clause*) and that every logical consequence of some necessary truths is necessary because it's a logical consequence of some necessary truths (the Essentialist *propagation clause*). Logical truths are necessary on this view because they follow logically from any other necessity. We can express Essentialism as follows, where “N” is necessity and “ \rightarrow ” has a suitable explanatory reading:

(Essence as Source)	p is an essential truth	\rightarrow	Np
(Logical Closure)	Np & (p = q)	\rightarrow	Nq.

The two principles work together in the manner of a recursive definition. The creation clause Essence as Source acts as the base-clause, and the propagation clause Logical Closure is the recursion clause. Proper Essentialists will add a “nothing else” clause, which says that we can account for every (metaphysical-) necessity-fact in terms of the two clauses. That said, Essentialism is neutral on whether these principles give a (reductive) definition of necessity, or whether they specify substantive explanations of necessity-facts. They are compatible, for instance, with “Moorean” views about necessity, on which necessity is primitive but necessity-facts are grounded in facts about hyperintensional sources (Wilsch 2017, manuscript).³

Fine's own view differs in letter from this template in at least two ways. First, he uses logical consequence not to close the notion of necessity, but to close the notion of essence: the consequential essence of an object is (roughly) the logical closure of its constitutive essence (Fine 1994b). And secondly, Fine thinks that logical truths are constitutively essential to certain logical concepts, and so their necessity would seem to be over-determined by the constitutive essences of logical concepts and the logical closure of essence (Ibid.). (It might be comforting that logical truths would still be necessary, even if no other truths were.) I conclude that Fine accepts Essence as Source as creation clause. He also accepts Logical Closure as propagation clause, and he explains Logical Closure with another closure principle concerning essences. I will not be concerned with any of these details of Essentialism here. What matters to us is that according to Essentialists, essence is the ultimate source of necessity and logic propagates necessity via Logical Closure.⁴

3. Logicism about Necessity

In chapter 1 of *Kant's Modal Metaphysics*, Nick Stang explains that metaphysical rationalists, including Leibniz and his successors up to Kant, were Logicists: they thought that necessity was ultimately grounded in logic or, as they preferred to put it, in the principle of non-contradiction. The reason that anything is

³ These views are “Moorean” because they are structurally analogous to G.E. Moore's view that goodness is a primitive constituent of facts that are grounded in non-normative facts.

⁴ Correia (2012), Fine (1994b), and Hale (2013) all seem to think that we can reduce logical consequence to the notions of essence, logical constant, and (logical) rule of inference. These extremist Essentialists would, for better or worse, reduce logic's propagation-role to essence.

metaphysically necessary is, according to Modal Logicism, that certain facts are logical truths and their negations logical contradictions.

This view looks initially quite odd because garden-variety essential truths like “Peter is human if he exists” are not logical truths, and their negations are not logical contradictions. Logicism seems to entail that such essential truths are not necessary. But Logicists would reply that although “Peter is not human” is not a logical contradiction, it still ‘amounts to’ a logical contradiction, and that this becomes clear when we analyze Peter into its essential constituents. For, if humanity is essential to Peter, then we can analyze Peter into a collection of properties, including the property of humanity. Peter is, in his essential core, a bundle of humanity and other properties. To say then that Peter is not human is to say that a bundle consisting, among other things, of humanity, is not human. And that does sound very much like saying “the thing which is human and ... is not human”. Contradiction!

Setting talk of “analysis” and “bundles” aside, we can also frame Logicism with the notion of definition. Think of Quine’s conception of analyticity, on which a truth is analytic just in case it can be transformed into a logical truth by substitution of *definiens* for *definiendum*.⁵ Thus, if we define “husband” as “married male”, then the sentence “Every husband is married” is analytic because it can be transformed into the tautological sentence “Every married male is married” by substituting “married male” for “husband”. And if we define “Peter” as “the F”, then the sentence “Peter is F” is analytic because we can transform it into the tautology “The F is F” by the same kind of substitution. We can glean a version of Modal Logicism from the Quinean foil simply by replacing Quine’s nominal definitions with Fine’s real definition, and by replacing analyticity with necessity: a truth is necessary just in case we can transform it into a logical truth by substitution via real definitions.⁶

The Quinean formulation of Logicism fits the Creation and Propagation mold: logic makes logical truths necessary, and real definitions merely “pass on” the necessity to further truths. If all goes well, definitions pass on necessity to all essential truths. With suitable notions of real definition and of substitution in hand, we could define a propagation-clause: if p is necessary and if the operation of substitution as applied to p and the real definitions yields q, then q is also necessary.

I could proceed by trying to make the notion of a real definition precise, and by articulating a suitable substitution-operation. But this is challenging work. Moreover, this project faces a difficulty concerning objects whose definition is merely partial. Consider Carla, who is essentially human and whose humanity exhausts her essence; she’s got only this one essential property (aside perhaps from such general properties as ‘being a material object’). How do we turn “Carla is human if she exists” into a logical truth, and what would it mean to replace “Carla” with her definition in “Carla is human”? The replacement might yield “some human is human” or “anything human is human”. But these transformations do not match the initial idea of inserting *definiens* for *definien-*

⁵ He uses that conception in his “Truth by Convention” (1936) and “Two Dogmas of Empiricism” (1951).

⁶ James Van Cleve (2018) notes a similar analogy between Quine and Fine.

dum. A proper characterization of the substitution-operation needs to account for cases of this sort.

Fortunately, Correia and Skiles (2019) have recently done much of the work for us. They argue for a systematic connection between essences and identities which the Logician can exploit. We can use these identities to explain how the necessity of logical truths is propagated to essential truths. Correia and Skiles argue that every essence-fact entails corresponding property-identities and fact-identities. (They cast these entailments in terms of “generalized identity”. But since the “objectual” notion of numerical identity is more familiar, I will use that notion for the sake of simplicity. The generic/objectual distinction strikes me as orthogonal to my purposes here and to some of their own purposes as well.) To illustrate these entailments, I will focus on paradigmatic essence-claims concerning the essential properties of objects.

I begin by introducing two essences that I will use as examples throughout this article. I distinguish individual essences of objects from partial essences:

(Individual Essence)	Peter is essentially the F
(Partial Essence)	Carla is essentially G.

Peter’s individual essence supplies a modally necessary and sufficient profile for being Peter; Carla’s partial essence specifies an essential property, which is modally necessary but not sufficient for being Carla. It will be useful to think of G as Carla’s only essential property.

Correia and Skiles point out that individual and partial essences of objects entail definitions of properties, namely of the property of being the object who is the essence’s bearer. Peter’s individual essence, for instance, entails a definition of the property of being Peter or, as they suggest, of being identical to Peter. And if the property of being identical to Peter is defined as the property of being the F (I henceforth drop “the” for simplicity), then the former property is identical with the latter. I use \square [...] as property abstraction, where \square binds the variable z . The following reads “the property of being identical to Peter is identical with the property of being F”:

(Being Peter)	\square [Peter = z] = \square [Fz].
---------------	---

My Logician claims that Peter’s Individual Essence entails the property-identity Being Peter. Moreover, not only individual essences entail property-identities, but partial essences do, too. This is not obvious in the case of Carla, as the property *being Carla* is distinct from the property *being G*. But Correia and Skiles point out that we can identify *being Carla* with the conjunctive property of being Carla-and-G:

(Being Carla)	\square [Carla = z] = \square [Carla = z & Gz].
---------------	---

The redundant conjunct on the right looks strange at first, but it makes sense on reflection. For, if Carla is essentially G, then being G is “contained in” or “part of” being Carla. Thus, if we add “being G” to “being Carla”, we don’t get anything in addition to “being Carla”. Compare the mereological fusion of Carla and her arm: since the arm is part of the woman, fusing the two simply returns the woman. What goes for the arm vis-à-vis the woman goes for *being G* vis-à-vis *being Carla*.

If individual and partial essences entail property identities in this way, then they also entail various fact-identities, where facts are the “portions of reality” that correspond to true propositions. (I am using a coarse-grained, worldly no-

tion of fact.) Many facts survive substitution of identical properties. An atomic fact $[Fa]$, for instance, is identical with the fact $[Ga]$ if the properties F and G are identical or if, in our idiom, $\Box [Fz] = \Box [Gz]$. Hence, Being Peter entails that the fact that something is identical to Peter is identical to the fact that something is F . And Being Carla entails that the fact that something is identical to Carla is identical to the fact that something is identical to Carla and G . More identities follow, if we consider facts involving Peter as identical to facts involving something that is identical to Peter: $[H(\text{Peter})] = [\exists x(\text{Peter} = x \ \& \ Hx)]$, and if we accept analogous fact-identities for Carla: $[H(\text{Carla})] = [\exists x(\text{Carla} = x \ \& \ Gx \ \& \ Hx)]$. With these assumptions about fact-identities in place, Logicists reject the distinction between singular and qualitative facts, at least for entities with individual (i.e. not merely partial) essences. According to our version of Logicism, singular facts involving objects with individual essences are identical to qualitative facts. Peter-facts are identical to facts about the F .⁷

These entailments from essences to fact-identities are the backdrop for Logicism. For, if the entailments do in fact hold, then it turns out that every essential truth, which corresponds to an individual or partial essence, represents the same fact as some logical truth. To see this, consider the essential truth that Peter is F if he exists. We can formalize this truth as $\forall x(\text{Peter} = x \supset Fx)$. Next consider the following sequence:

1. $[\forall x(\text{Peter} = x \supset Fx)]$
2. $\Box [\text{Peter} = z] = \Box [Fz]$
3. $[\forall x(Fx \supset Fx)]$.

The fact in line 1 is the fact corresponding to our essential truth. The property identity in line 2 is Being Peter and (according to Logicists) follows from Peter's Individual Essence. Since facts survive replacement of identical properties, the fact in line 1 is identical to the fact in line 3, which we can express with the logical truth " $\forall x(Fx \supset Fx)$ ". The essential truth *Peter is F if he exists* expresses the same fact, or has the same "factual content" as, a logical truth; it is a logical truth in disguise. Similar reasoning will show that the essential truth "Carla is G if she exists" has the same factual content as the logical truth $\forall x(\text{Carla} = x \ \& \ Gx \ \supset \ Gx)$. Generalizing from these cases, our Logicist will claim that every essential truth is a logical truth in disguise.

My version of Logicism requires the property-identities and fact-identities that I have assumed above. I will be happy to grant these identities for now, as I will object to Logicism on different grounds. I also find the proposed entailments from essences to these property-identities and fact-identities quite plausible. The case of individual essences is especially convincing. Why wouldn't we identify the fact that Peter exists with the fact that the F exists (and similarly the fact that Peter has some property with the fact that the F has some property)? That essences entail *some* identity-facts seems to follow from their connection to

⁷ My brief presentation of Logicism glosses over the distinction between generic and objectual essences, which Correia (2006) introduces and Fine (2015) takes on board. Correia and Skiles (2019) analyze objectual essence in terms of generic essence, which they analyze in terms of (generalized) identity. My Logicist is neutral with respect to these analyses. A more thorough study of Logicism than I can provide here would benefit from a discussion of the relationship between objectual and generic essence.

real definitions. For, definitions have the function of “tagging” or “identifying” the defined entity: in defining Peter, I say that Peter is *that thing*, or that being Peter is *that property*, or that Peter-facts are *those facts*.⁸ We should, therefore, expect that essences entail identities. The identities in Being Peter and Being Carla, moreover, are pretty good candidates.

We can now articulate a version of Logicism in terms of a creation clause and a propagation clause. The creation clause, Logic as Source, says that logical facts explain the necessity of logical truths. The propagation clause, Transparency, says that necessity is closed under (or “transferred across”) factual identity:

$$\begin{array}{ll} \text{(Logic as Source)} & (\models p) \rightarrow Np \\ \text{(Transparency)} & (Np \ \& \ [p] = [q]) \rightarrow Nq. \end{array}$$

If we give these clauses an explanatory reading, we can reason as follows: Since logic makes logical truths necessary, and since every essential fact is identical to some logical fact, the necessity of logical truths accounts for the necessity of all essential truths. This is the view that I will call *Logicism about Necessity*.⁹ The two principles work together in a recursive manner, and proper Logicists should add that they account for all (metaphysical-) necessity-facts.

It remains to be seen whether Logicism is plausible. It will be difficult to criticize its creation clause directly. Essentialists, who use logic only as a propagator of necessity, will reject the creation clause, but they do so for highly theoretical reasons. There is nothing wrong with that clause on its face, as logical truths *are* necessary on account of being logical truths. Transparency might seem more controversial, but I don’t think that it is especially problematic. There are two ways in which Transparency might be construed. One natural view on Transparency is that necessity is (akin to) a property of (coarse-grained worldly) facts. This would explain why “Np” and “Nq” have the same truth-value if $[p] = [q]$, because it would follow that the necessity-facts $[Np]$ and $[Nq]$ are identical if $[p]$ and $[q]$ are. A second construal of Transparency denies the inference from $[p] = [q]$ to $[Np] = [Nq]$. On that view, necessity is (akin to) a property of propositions, not of facts. $[p] = [q]$ does not entail $[Np] = [Nq]$ on this view, because the propositions $\langle p \rangle$ and $\langle q \rangle$ might be distinct. On this second view, Transparency is a more substantive principle, as it does not follow from general claims about the identity-conditions of facts. Either way, there is a certain parity among Logicism and Essentialism. Essentialists use logical consequence to propagate necessity, and Logicists use fact-identity to propagate necessity. I don’t see a general reason for deeming one more problematic than the other.

Even if we don’t take issue with Logic as Source and Transparency, we might resist Logicism on different grounds. We could deny the claim that essen-

⁸ One might respond that tagging and identifying are features of nominal definitions only, not of real definitions. But I don’t know what would justify that restriction.

⁹ Correia and Skiles (2021) offer accounts of metaphysical necessity that are *not* Logicistic. Their accounts also have the recursive creation-and-propagation structure, but the creating phenomenon is identity. In the language of objectual identity, the creation clauses they consider are $[p] = [q] \rightarrow N(p \equiv q)$ and $[p] = [q] \rightarrow N([p] = [q])$. We could consider their accounts as versions of Essentialism or as an Essentialism-leaning third alternative, which considers identity as the source of metaphysical necessity, instead of logic or essence. I think that Logicism fits better with other views they hold, but that’s a different issue.

tial truths have the same factual content as logical truths by rejecting the identification of Peter-facts with being-Peter-facts, or by rejecting the identification of being-Peter-facts with facts about the F. We might, for instance, claim that Peter-facts are not identical with F-facts, but with facts of the form “The thing which is essentially the F is thus and so”. But it is one thing to see how we can resist Logicism, and it is another thing to show why we should resist it. Logicists can assume a defensive position and wait for their opponents to produce reasons against the fact-identity claims that they rely on.

Another line of attack on Logicism concerns its scope. I have only used relatively simple essential truths that concern essential properties of objects. But there are also essential truths about properties, relations, laws, logical constants, necessity, essence, existence, etc. It is far from clear that Logicists can apply the same treatment to all such essential truths. (It would be interesting to see whether Logicists are committed to certain restrictions on the notion of essence.) One interesting case involves *generative principles*, which are material conditionals that take us from truths about more fundamental entities to truths about less fundamental entities. Paradigm examples include set-theoretic and mereological principles, which regulate the existence of sets and sums based on the features of members and parts. I have not found a convincing way to turn such principles into logical truths, and I believe that if such principles are indeed essential—which Fine (2010) claims and Rosen (2006) denies—then Essentialists have an easier way to account for their necessity.^{10, 11}

These issues aside, Logicism seems quite attractive because its creation clause might face fewer problems than the Essentialist creation clause. Some authors have recently suspected that there is a “gap” between essence and necessity, and that it is mysterious how essences would manage to make essential truths necessary.¹² The step from logic to necessity seems so very tight that no analogous concern could arise. Similarly, some have wondered how essences could give rise to necessity without presupposing their own necessity. This challenge might be less concerning for Logicists if logic’s own necessity is easier to explain than the necessity of essences.¹³ One might, finally, be uncomfortable with Fine-style essences and might prefer a “thinner” notion of essence that only fixes identities, but which does not itself wield a modal power. The Logicist conception of the role of essence vis-à-vis necessity might make essences more palatable. But even if none of these reasons turn out to be decisive, Logicism seems hard to resist. For, we have seen that the step from essences to identity-

¹⁰ Consider the principle that if the *os* satisfy condition C, then they compose object *c*. Assume that this principle is essential to *c*. Logicists will derive the identity $\Box [c = z] = \Box [c = z \ \& \ (C(\text{the } os) \supset z \text{ exists})]$. But that identity does not help to transfer “if C(the *os*), then *c* exists” into a logical truth. If we replace “*c* exists” with “ $\exists x(\Box [c = z \ \& \ (C(\text{the } os) \supset z \text{ exists}]x))$ ”, we get “If C(the *os*), then $\exists x(c = x \ \& \ (C(\text{the } os) \supset x \text{ exists}))$ ”, which is not a logical truth.

¹¹ The interested reader should consult section 5.6 in Rayo (2013) for some important work on the question of scope.

¹² For a discussion of this gap-problem, see Mackie 2020, Romero 2019, and Leech 2018, and for a discussion of the role of logic in addressing it, see Leech 2021 and Correia & Skiles 2021.

¹³ Hale 2002 is a classic source for the problem. See Wallner and Vaidya 2020 and Bovey (forthcoming) for discussion of the difficulty of explaining the necessity of essences.

facts is very plausible on its face. And once we agree that every essential truth is a logical truth in disguise, it gets difficult to resist the thought that the necessity of essential truths has something to do with logic! Logicism at the very least merits our attention.

4. The Challenge from *De Re* Necessity

I will next develop a challenge to Logicism. Unfortunately, this challenge rests on controversial claims about necessity *de re* and might seem a bit ambitious. It would be useful to find more direct challenges to Logicism that carry less theoretical baggage. But we've got to start somewhere! Anyways, I will argue that even if Logicists can account for the necessity of singular propositions, they cannot account for necessity *de re*, because to have a property necessarily requires more than the necessary truth of a singular proposition. I will develop this argument and will then explain why essences are better suited than logic to account for necessity *de re*.

We often characterize the distinction between *de dicto* and *de re* necessity in terms of propositions: *de dicto* necessity applies to qualitative or quantificational propositions, and *de re* necessity applies to singular propositions, propositions that we can express with the help of individual constants. Now, I will draw the distinction in a different, although principled, way. I will call a necessity *de dicto* if it is of the form $N(p)$, and thus if we can read it as applying necessity to a proposition, any proposition. I contrast this with *de re* necessity in the narrow sense I will be using here, the sense of ascribing a modal property to an object. Thus, if we say that it is necessary that Peter is human, then this counts as *de dicto*, as it assigns necessity to the proposition (the dictum) that Peter is human. But if we say that Peter is necessarily human, then this counts as *de re* necessity, as we ascribe to Peter the modal property of being necessarily human.

Necessity *de dicto* (in my use) concerns Fregean and Russellian propositions. The necessity of a *Fregean proposition*, an abstract structured complex composed from abstract concepts, is akin to the necessary inclusion of one concept in another. Thus, if the Fregean proposition $\langle Fa \rangle$ is necessarily true, then it is necessary that the extension of $\langle a \rangle$ is in the extension of $\langle F \rangle$. The necessity of a *Russellian proposition*, in contrast, does not involve concepts but objects and properties. If the Russellian proposition Fa , which is composed from F and a , is necessary, then it is necessary that a is F , never mind what concepts we use to represent this. On my use of the expression, necessity applied to either Fregean or Russellian propositions is necessity *de dicto*.

Necessity *de re* concerns objects, not propositions. The canonical expression for necessity *de re* is adverbial: a is *necessarily* F . The term “necessarily” expresses a modification of the way in which a instantiates F , and “being necessarily F ” expresses a modal property. We can often force the *de re* reading of an operator with the “true of” locution: it is true of a that it is necessarily F . I will express such *de re* readings in terms of property abstraction. To say of a that it is F , we can say that a has the property of being F : $\square [Fz]a$. Similarly, the *de re* reading of the necessity operator as applied to a and F amounts to $\square [N(Fz)]a$, which means that a has the property of being necessarily F .

I will use the bare expression “ $N(\dots)$ ” to express *de dicto* necessity, and I will use property abstraction to express necessity *de re*. Thus, “ $N(Fa)$ ” expresses

the necessary truth of the proposition Fa , and “ $\Box [N(Fz)]a$ ” says that a is necessarily F . I will use “it is necessary that” for *de dicto* and “necessarily” for *de re* necessity in what follows. These are just terminological stipulations. The controversial claim that I will argue for is this: $N(Fa)$ is not the same as and does not account for $\Box [N(Fz)]a$, whether “ Fa ” expresses a Fregean or a Russellian propositions. We will see that if this claim is correct, then Logicism does not account for necessity *de re*. For, the Logicists’ creation clause generates only *de dicto* necessity, and if that cannot account for necessity *de re*, then the Logicist cannot account for necessity *de re*.

Whether *de dicto* necessity even entails *de re* necessity depends in part on the kinds of propositions in play, as the entailment seems implausible for Fregean propositions. For, the necessity of the Fregean proposition $\langle Fa \rangle$ amounts to the fact that it is necessary that what is in the extension of $\langle a \rangle$ is also in the extension of $\langle F \rangle$. But that by itself does not guarantee that the object a is necessarily in the extension of $\langle F \rangle$. To reach that result, we must also presuppose that a is necessarily in the extension of $\langle a \rangle$ (and thus that the concept $\langle a \rangle$ is a “rigid designator”). For, if a were only contingently in the extension of $\langle a \rangle$, then an implication from “being in $\langle a \rangle$ ” to “being in $\langle F \rangle$ ” would not guarantee that a is necessarily in the extension of $\langle F \rangle$. Only the necessity of the Fregean proposition $\langle Fa \rangle$ together with the *de re* necessity “ a is necessarily in the extension of $\langle a \rangle$ ” would secure that a is necessarily F . So, we would have to put *de re* necessity in to get *de re* necessity out; the *de dicto* necessity of $\langle Fa \rangle$ does not by itself account for $\Box [N(Fz)]a$.

Things appear different for Russellian propositions. For, if the proposition Fa , which consists not of concepts but of the object a and the property F , is necessarily true, then that necessity seems to establish a relationship between the object and the property directly: a is necessarily F . It would thus seem as though *de dicto* necessity applied to Russellian propositions, $N(Fa)$, entails necessity *de re*, $\Box [N(Fz)]a$. If this is correct, we can account for necessity *de re* in terms of necessity *de dicto* as follows:

- $\Box [N(Fz)]a := N(Fa)$
(a is necessarily F just in case it is necessary that a is F)
- $\Box [P(Fz)]a := P(Fa)$
(a is possibly F just in case it is possible that a is F).

I will call this account the “reductive account” of *de re* necessity. This account has been extremely popular since Kripke’s *Naming and Necessity*.¹⁴

The reductive account runs into difficulties which resemble those difficulties that undermine the inference from the necessity of Fregean propositions to

¹⁴ A historical note: Burgess (1997) explains that Quine considered and discarded this account, based on the observation that “ $N(Fa)$ ” is an opaque context (for “ a ”). For, assuming that a is the G , and hence that “ a ” and “the G ” are co-extensional, we cannot replace “ a ” in “ $N(Fa)$ ” with “the G ” *salva veritate*. This is the point of Quine’s famous “number of planets” example. Since “ $\Box [N(Fz)]a$ ” is *not* opaque (for “ a ”), we cannot reduce it to “ $N(Fa)$ ”. The crucial response to this argument by neo-Russellians was to modify the account in terms of “genuine names”: Where “ A ” is any referring expression, “ $\Box [N(Fz)]A$ ” reduces to “ $N(Fa)$ ”, where “ a ” is a genuine name that is co-referential with “ A ”. Many have taken this response to put Quinean qualms about the intelligibility of necessity *de re* to rest. My own qualms below are in the Quinean spirit.

necessity *de re*. That inference requires *de re* modal information about the designation of objects by concepts (*a* is necessarily in the extension of $\langle a \rangle$). For Russellian propositions, the inference requires *de re* modal information about the identity of objects. To see this, assume that the Russellian proposition Fa is necessary, and hence that *a is F* obtains at every possible world. Does this entail that *a* is necessarily F? Not if *a* fails to be (identical to) *a* in one of these possible worlds! For, if our actual *a* is in fact *b* in world w_{17} , and if *b* is not F in that world, then *a* is not necessarily F, even though Fa obtains in every world. Put differently, if it was possible for *a* to be something else, then $N(Fa)$ would not entail that *a* is necessarily F.

To be clear, I don't think that it is possible for an object to be something else. I believe that everything is necessarily itself: $\forall x(\Box [N(x = z)]x)$. My point is that necessary self-identity plays an essential role in the step from $N(Fa)$ to $\Box [N(Fz)]a$. For, we must assume that *a* is necessarily *a*, and not possibly some other thing, to conclude that *a* is necessarily F. If *a* could have been *b*, which may fail to be F, then *a* wouldn't be necessarily F, even if it was necessary that *a* is F. What we need to assume then is that our *a* is *a* in every world, and hence that it is necessarily *a*. So, $N(Fa)$ does not explain $\Box [N(Fz)]a$ all by itself; *only* $N(Fa)$ and $\Box [N(a = z)]a$ taken together explain $\Box [N(Fz)]a$. We need to add the *de re* necessity of identity to get from *de dicto* to *de re* necessity.

Consider temporal necessity for another instance of the same reasoning. Peter will grow up eventually. Sadly, he must grow up, and, in fact, every possible future contains Peter who grows up there. Although he is fully aware of this fact, desperate Peter finds an escape. He could just become someone else, like Tom, who will be 8 years old when the time comes. (The case is complicated by the fact that Peter would have to switch identities every time before the new "host" is about to grow up.) To get from "It will certainly be the case that Peter grows up" to "Peter will certainly grow up", we need to foreclose the possibility that Peter becomes someone else; we must presuppose that Peter will certainly (remain to) be Peter. Thus, to get from a *de dicto* inevitability to the corresponding inevitability *de re*, we must assume the *de re* inevitability of identity. Reading "N" this time as inevitability, we can say that $N(\text{Peter grows up})$ entails $\Box [N(z \text{ grows up})]\text{Peter}$ only if we also assume that $\Box [N(\text{Peter} = z)]\text{Peter}$. We must add *de re* necessity in to get *de re* necessity out.

Once again, I do not claim that *a* or Peter could be or could become someone else, but merely that $N(Fa)$ does not by itself explain $\Box [N(Fz)]a$. For, if $N(Fa)$ explains $\Box [N(Fz)]a$ at all, then that explanation is merely partial, as we can complete the explanation by adding $\Box [N(a = z)]a$ to the explanans. I call this the *explanatory intuition*, and I will use it to challenge Logicism. If we take the explanatory intuition seriously, which I think we should, we must reject the reductive account. For, the reductive account says that *de dicto* necessities concerning singular Russellian propositions suffice to account for their *de re* correlates, and that directly conflicts with the explanatory intuition, which I hope you find as forceful as I do.¹⁵

¹⁵ The explanatory intuition suggests that necessity *de re* is "more than" necessity *de dicto*. If that is correct, we should find ways to characterize those notions independently. One intuitive difference might be the following: Necessity *de re* settles what is possible *for a* thing; it generates "individual possibility spaces". Necessity *de dicto*, in contrast, concerns

This result is a problem for Logicism because Logicists require the reductive account or something like it. For, Logicists start with the notion of logical truth, and they generate *de dicto* necessity on that basis. They need to bridge the gap from *de dicto* to *de re* necessity in an explanatory step, and that step will have to invoke something like the reductive account. Without the account, the gap seems unbridgeable and the Logicist explanation of metaphysical necessity will remain incomplete. (I have not explained yet why Essentialists do not face the same challenge; I will get to that in section 6 below).

5. Responses to the Challenge from *De Re* Necessity

Logicists can respond to my argument in one of two ways. Their first option is to accept the explanatory intuition and to provide a separate account of the *de re* necessity of identity. They could then use the *de re* necessity of identity to account for other facts involving necessity *de re*. Note, however, that they cannot account for the *de re* necessity of identity by appeal to the tautological status of $a = a$. For, $\models(a = a)$ only accounts for the *de dicto* necessity of $a = a$. And if we follow the explanatory intuition, then we can only get from $N(a = a)$ and $\Box[N(a = z)]a$ taken together to the associated *de re* necessity $\Box[N(a = z)]a$, which gets us nowhere. Thus, if Logicists wish to respect the explanatory intuition, they need to explain the *de re* necessity of identity altogether differently.

Their second option is to reject the explanatory intuition and to accept the reductive account of *de re* necessity. If there is a compelling argument for the reductive account, then we must accept that the explanatory intuition is misleading. One such argument proceeds from the view that “a” in “N(Fa)” has a “purely referential occurrence” in Quine’s sense from *Word and Object*: “the term is used purely to specify its object, for the rest of the sentence to say something about” (Quine 1960: 177). If “a” has a purely referential occurrence in “N(Fa)”, then “N(F_)” says something about a ; and what could that be other than that it is necessarily F? Moreover, since I grant that “a” is a genuine name, “a” has no semantic function other than to supply its referent. So, it seems plausible that “a” has a purely referential occurrence in any context (other than the context of quotation), including “N(Fa)”.

I believe that something like this argument is partly responsible for the reductive account’s popularity. But the argument does not work. For, even if we agree that “N(Fa)” says something about a , this does not settle what exactly it says about a . In particular, “N(Fa)” might say about a that it features in a proposition, Fa , which is necessarily true. This would amount to the *de dicto* interpretation of “N(Fa)” and would thus not force its *de re* interpretation. Another way to resist the argument is this: that “a” has no semantic function other than supplying its referent, does not entail that, as Quine puts it, “the rest of the sentence” says something about the referent of “a”. Perhaps *only part* of the rest of the sentence says something about a , and the remainder says something about what was said so far. In this vein, “Fa” might say of a that it is F, and the “N”

what is possible for the world at large. The former sort of necessity is local, the latter global. If this was correct, $N(Fa)$ would not settle whether $\sim F$ might still be a *possibility* for a , locally speaking, as there might be some global requirements entail that everything is F. Anyways, I remain open to different independent characterizations.

might add that this fact obtains necessarily. Either way, there is no direct route from the pure referentiality of “*a*” to the claim that $N(Fa)$ entails $\Box [N(Fz)]a$.

The other important reason for the popularity of the reductive account emerges from Kripke’s work on possible worlds. Kripke (1980: 44) offers his famous piece of advice to think of the inhabitants of possible worlds as “*stipulated, not discovered by powerful telescopes*”. I take this to entail that we can construe possible worlds as collections of Russellian propositions. For, if we stipulate a world to contain *a*, we want *a* itself and not some doppelgänger to be part of that world. And if we say that *a* is *F* at the world in question, we want *a*’s being *F* included in that world. We can capture this with the idea that the Russellian proposition *Fa* is part of the relevant world. If we follow Kripke’s lead, we should thus accept a *Russellian pluriverse*, and we should say that $N(Fa)$ obtains just in case the proposition *Fa* is part of every world of that pluriverse. (The Russellian pluriverse is not like Lewis’. Accepting Russellian propositions does not involve accepting concrete worlds other than our own.)

I find it plausible that we should be able to understand modality *de re* in terms of the Russellian pluriverse. (The possible worlds model has been remarkably successful after all). But how should we make sense of *de re* modality in that framework? Kripke’s own proposal is quite simple: *a is necessarily F* just in case *a* is *F* at every possible world, which means that every possible world contains the proposition *Fa*. And *a is possibly F* just in case some possible world contains the proposition *Fa*. This world-theoretic treatment of modality *de re* in the Russellian pluriverse secures the inference from $N(Fa)$ to $\Box [N(Fz)]a$ with ease. For, it reduces the *de re* necessity of *a*’s being *F* to the corresponding *de dicto* necessity by assigning the truth-conditions of “ $N(Fa)$ ” as truth-conditions for “ $\Box [N(Fz)]a$ ”. Kripke’s proposal is nothing other than a world-theoretic version of the reductive account of necessity *de re*.

Anyone who is even a little bit impressed by the explanatory intuition should begin to doubt whether Kripke’s proposal is particularly plausible. If a *de dicto* necessity is not enough to explain its *de re* correlate, then how could we define *de re* necessity as some proposition being part of every world? We might have independent reasons to accept Kripke’s proposal. For, we could argue that we must make sense of *de re* necessity within the Russellian pluriverse somehow, and that Kripke’s proposal is the only way or at least the best way to get this done. If this reasoning is sound, then we should reject the explanatory intuition. But I doubt that Kripke’s proposal is really the best, let alone the only, way of fitting *de re* necessity into the Russellian pluriverse.

I don’t doubt that we can give satisfactory truth-conditions for statements of modality *de re* in terms of the Russellian pluriverse. Worlds have proven to be a very fruitful and resilient metaphor for matters of modality. But why should we think that Kripke’s proposal is the only viable option? This question is not rhetorical. Some have thought that Kripke’s treatment of *de re* modality in the framework of Russellian worlds is obvious. Lewis (1986), for instance, discusses Kripke’s Russellian worlds in his famous chapter “Counterparts or Double Lives”. Since these worlds contain actual entities, they “overlap” with our world and in that sense allow for genuine cross-world identity. Lewis thinks that it is obvious how such “overlapping” worlds represent actual objects *de re*, namely “by identity”: for *w* to present *a* as being *F* is for *w* to contain something identical to *a*, which is *F*. For *a* to be possibly *F* is, thus, for there to be a world in

which a is F. This is precisely the Kripkean view, and it is the one that Lewis thinks we should use if worlds overlap. (Lewis' own worlds do not overlap. That's why he uses counterpart theory for *de re* modality).

But Lewis should also be the first to admit that nothing forces the proponents of "overlapping worlds" to employ this analysis of modality *de re*. Lewis' own counterpart-theoretic machinery allows us to ask of some actual object a , and some possible world w , which object a is in w . For Lewis, a world represents a as being F, not by containing a but by containing an F that stands in the counterpart-relation to a . All that is familiar. What I wish to add is that we can use a similar relation even if our Russellian worlds overlap, i.e. even if they contain actual objects. Using "R" for the Lewis-style relation, we can analyze that a is possibly F just in case there is an object, x , and a world, w , such that Fx is true in w and $R(a, x, w)$, which means that a bears the relation R to x relative to w . Thus, whether a is F according to w does not depend on the a -involving Russellian propositions in w , but it depends on whether some proposition Fx is included in w , where $R(a, x, w)$.¹⁶

It would be misleading to call the relation R the "counterpart relation". For once, I do not suggest that R is selected by features of the conversational context. And I don't presuppose that R has anything to do with resemblance. It might be possible for me to be someone else in some other possible world only if there is some degree of resemblance between that otherworldly thing and myself. My own view is the much more restrictive orthodox view that a can bear R only to a . But these are substantive claims that do not concern the logic of the relation. A better name for the relation R would be the "location relation", as it locates actual objects at objects in other worlds. But from a technical point of view, R is much like a counterpart-relation and features in the truth-conditions for statements of modality *de re* in just the same way: you are possibly F if you are located at an object in some world, which is, in that world, F.

I agree that we should make sense of *de re* necessity in the Russellian pluriverse. But there are at least two strategies that accomplish this. There is Kripke's proposal and there is the location-based proposal. Kripke's proposal contradicts the explanatory intuition because it entails that $N(Fa)$ suffices to explain $\Box [N(Fz)]a$. On the location-based proposal, in contrast, $N(Fa)$ and $\Box [N(a = z)]a$ together explain $\Box [N(Fz)]a$. For, $\Box [N(a = z)]a$ is true, on the location-based model, if a is located only at a in other worlds. So, $N(Fa)$ and $\Box [N(a = z)]a$ combined entail that a is located only at objects that are F. And this entails that a is necessarily F. Any force that the explanatory intuition might have, therefore, counts in favour of the location-based model.

Do we have independent reasons to prefer Kripke's proposal? One might prefer that proposal on the grounds that it is simpler than the location-based proposal, or because the location-relation smacks of obscurity. But I am not impressed by either one of those reasons. Kripke's reductive proposal is simpler. But simplicity is not much of an advantage if it leads to counterintuitive results.

¹⁶ We need to world-relativize that relation R: " $R(a, x, w)$ " says that a is x in w . This is relevant if we want to allow, as I think we should, that a is x in w , but is not x in w^* , even though x exists in both worlds. Lewis doesn't seem to need this complexity, as his counterparts are "world-bound". Although I won't discuss this here, that added complexity might matter to the discussion below.

The explanatory intuition suggests that the reduction-base of Kripke's proposal is too austere. Moreover, in the context of metaphysics (as opposed to logic or semantics) we should think of worlds as an elaborate metaphor for modality, not as a theory of modality. Our job in metaphysics is to fit necessity and possibility into reality; worlds only act as a model or picture aiding our theorizing about necessity and possibility. If reflections on modality *de re* suggest a certain complexity within the metaphor of worlds, so be it. The mere simplicity of the metaphor does not count for very much. And the extension of Kripke's proposal to a view, on which actual entities are also located in various worlds, strikes me as no less elegant or natural a development of the metaphor, despite the additional complexity.

But isn't the location-relation, which says who I am in a given world, utterly obscure? What does it *mean* to say that the actual *a* is *b* and not *a* in world *w*? I can personally report to have a fairly good grasp of that notion. But it doesn't really matter. For, facts about worlds are secondary to modal facts and are settled by them. Facts about the constitution of worlds are determined by *de dicto* modal facts; and facts about the location-relation are determined by modal facts *de re*. If I am located at myself in every world, then this is so because I am necessarily me. And if I am you in world *w*, then this is so because I am possibly you. *De re* modal facts determine the location facts; that's why we can use the location-relation to model *de re* modality in the Russellian pluriverse. We, therefore, do not require an independent grip on the location-relation.

Summing up, I don't think that the reductive account of *de re* necessity, which seems counterintuitive on its face, can be supported in terms of direct referentiality or in terms of possible worlds. There might be other reasons in favour of the reductive account, which I have not considered here. But I don't know what these reasons would be. Without the reductive account, Logicists don't get from *de dicto* necessity to necessity *de re*; their account captures only half of what they intended to capture.

6. Logic Is *De Dicto* and Essence Is *De Re*

There might be another response to the challenge, one which respects the explanatory intuition. Couldn't we give an independent account of the *de re* necessity of identity? Once we secure for all *x* that *x* is necessarily *x*, we get the remaining *de re* necessities for free. And perhaps Kripke never thought that $\Box [N(a = z)]a$ is irrelevant for grounding *a*'s *de re* modal properties, but rather that $\Box [N(a = z)]a$ is trivial, and hence that its grounding is somehow easy or automatic.

One suggestion along those lines is that $\Box [N(a = z)]a$ is itself a logical truth. Logic would then explain $\Box [N(a = z)]a$ in the way in which $\models A$ explains *A*. However, this claim is plausible, only if we add that it is a truth of *modal logic*. This is the case within Kripke's own modal logic, which assigns to " $\Box [N(a = z)]a$ " the tautological truth condition that $a = a$ is part of every possible world. But this assignment of truth-conditions is an instance of the reductive account that reduces necessity *de re* to necessity *de dicto*. Since the explanatory intuition suggests that we should not choose a model theory for *de re* modal claims which amounts to the reductive definition, it also conflicts with Kripke's modal logic.

A more ambitious strategy takes $\Box [N(a = z)]a$ to be grounded not in modal logic, but in logic. This strategy also seems to conflict with the explanatory intuition. For, if we accept the intuition, then there is no feasible route from $\models (a =$

a) to $\Box [N(a = z)]a$, because we simply don't get from the *de dicto* $N(a = a)$ to the *de re* $\Box [N(a = z)]a$. It therefore looks as though $\Box [N(a = z)]a$ couldn't be grounded in logic. This reasoning, however, relies on our creation clause from section 3, Logic as Source, which establishes an explanatory connection from logic-facts to *de dicto* necessity:

(Logic as Source) $(\models p) \rightarrow Np$.

Logicists could try to forge a direct connection between logic and *de re* necessity, one that doesn't take a detour through *de dicto* necessity. Such a direct connection seems implausible for the notion of logical truth, which grounds *de dicto* necessity of logically true propositions. But we can distinguish logical truth, which is itself a *de dicto* notion (it applies to propositions), from a *de re* notion of logic. If there are *de re* logical facts of the form "a is logically F", then such facts might directly ground the modal *de re* fact "a is necessarily F". Specifically, if a is logically $\Box [a = z]$, then this might ground the *de re* necessity $\Box [N(a = z)]a$. We could thus supplement or replace Logic as Source with such a *de re* principle, which says that if a is logically F, then a is thereby necessarily F:

(De Re Logic as Source) $a \models F \rightarrow \Box [N(Fz)]a$.

This strategy, however, has two significant problems. The first problem is that one might expect only "tautological predicates" to be logically satisfied: if a is logically F, then $\forall x(Fx)$ is a logical truth. Since $\Box [a = z]$ is not a tautological predicate in that sense, a is not logically $\Box [a = z]$.¹⁷ The second problem is that we commonly take logic itself to be thoroughly *de dicto*. Logic as we know it today centers around the notions of logical truth and logical implication. That's why it is so natural for Logicist to construe a direct connection between logic and necessity *de dicto*. To think of logic as supplying a separate route to necessity *de re*, and perhaps even to think of logical satisfaction as not reducible to logical truth, might deform our current *de dicto* conception of logic beyond recognition. (Something like this might be the core of Quine's concern that logical necessity *de re* is unintelligible).¹⁸

This point is pertinent for us because it highlights that contrast between logic and essence that is central for our topic. Whereas logic seems thoroughly *de dicto* (logical truth, not logical satisfaction is the central notion), the clearest uses of essence are *de re*: *a is essentially F*. (The *de re* construal of essence sounds more natural than the *de dicto* construal "It is an essential truth that ...". Fine's *de dicto* construal of essence was a surprising discovery). Essentialists can simply craft a creation clause that gets us from essence to *de re* necessity directly: If a is essentially F, then a is necessarily F.

(De Re Essence as Source) $E_a(F) \rightarrow \Box [N(Fz)]a$.

¹⁷ Schwarz (2013) explains this point in more detail. Fine (2005a) experiments with an "object-sensitive" notion of logical satisfaction, which vindicates that $\langle a, b \rangle$ logically satisfy 'x = y' and that a logically satisfies 'a = x'. But Fine seems inclined to reduce this notion of satisfaction to logical truth.

¹⁸ We can define notions of logical satisfaction in terms of logical truth (see Fine 2005a, Schwarz 2013). But I doubt that a defined notion would generate modal facts in addition to those generated by facts involving logical truth. If we want logical satisfaction to give us additional modal facts, we should not reduce it to logical truth. That's where things would get dubious, however.

The difference to the case of logic is that such *de re* uses of essence can “stand on their own”; they don’t collapse into a *de dicto* use. There is, therefore, nothing wrong with the proposal that essences provide a direct route to *de re* necessity; one that (in some cases) does not go through *de dicto* necessity.

To be sure, this does give rise to thorny questions about the exact shape of the Essentialist creation clause and about the relationship between *de re* and *de dicto* necessity. Do we need both Essence as Source and De Re Essence as Source, or do we get one from the other? Do we ground *de dicto* necessities in *de re* necessities, or how else do they interact? But these questions are not our concern here. The bottom line is that Logicians struggle to account for necessity *de re* without doing violence to *de re* necessity or to logic itself. Essentialists, on the other hand, don’t seem to struggle, as they can craft a creation clause that leads directly from essences to necessity *de re*.¹⁹

7. Conclusion

I have argued that we must choose between Essentialism and Logicism: the ultimate source of metaphysical necessity is either essence or logic, not both. I have then presented and motivated a version of Logicism, according to which every necessary truth is a logical truth in disguise. Although there are several potential points of attack, Logicism is *prima facie* an appealing view about the source of metaphysical necessity. I have offered a principled argument against that view, which claims that Logicism cannot account for *de re* necessity because the necessity of propositions does not suffice for explaining the necessary instantiation of a property. If my argument is sound, we need to ground *de re* necessity in other *de re* phenomena. Since essence is, and logic is not, itself a *de re* phenomenon, we can only use essence to ground *de re* necessity. Whether or not the reader is impressed by this argument, I hope to have shown at least that the debate over Logicism and Essentialism is one worth having.²⁰

References

- Burgess, J. 1997, “Quinus ab Omni Nævo Vindicatus”, *Canadian Journal of Philosophy*, 27, 25-65.
- Bovey, G. (forthcoming), “Essence, Modality, and Circularity”, *Philosophical Studies*.
- Correia, F. 2006, “Generic Essence, Objectual Essence, and Modality”, *Noûs*, 40, 4, 753-67.

¹⁹ In his (2005b) “Necessity and Non-Existence”, Fine argues that “It is essential to *a* that *a* is F” entails “It is necessary that *a* is F”. He then offers a perplexing explanation of how “*a* is F” can be necessary even though “*a* exists” is contingent. An interesting alternative would have it that “It is essential to *a* that *a* is F” only implies “*a* is necessarily F”, and that this does not entail “It is necessary that *a* is F” or that the existence of *a* is necessary (*de dicto* or *de re*). This attractive option is available if we combine a rejection of the reductive account with something like De Re Essence as Source.

²⁰ I would like to thank Thomas Sattig, Martin Glazier, Robert Michels, Jonas Werner, an anonymous referee for this journal, and participants at the Eidos Seminar and the Tübingen Modality Workshop 2021 for comments and discussion.

- Correia, F. 2012, "On the Reduction of Necessity to Essence", *Philosophy and Phenomenological Research*, 84, 3, 639-53.
- Correia, F. and Skiles, A. 2019, "Grounding, Essence, and Identity", *Philosophy and Phenomenological Research*, 98, 3, 642-70.
- Correia, F. and Skiles, A. 2021, "Essence, Modality, and Identity", *Mind*, DOI: 10.1093/mind/fzab017.
- Fine, K. 1994a, "Essence and Modality", *Philosophical Perspectives*, 8, 1-16.
- Fine, K. 1994b, "Senses of Essence", in Sinnott-Armstrong, W., Raffman, D. & Asher, N. (eds.), *Modality, Morality and Belief: Essays in Honor of Ruth Barcan Marcus*, Cambridge: Cambridge University Press, 53-73.
- Fine, K. 2005a, "The Problem of *De Re* Modality", Id., *Modality and Tense: Philosophical Papers*, Oxford: Oxford University Press, 40-104.
- Fine, K. 2005b, "Necessity and Non-Existence", in Id., *Modality and Tense: Philosophical Papers*, Oxford: Oxford University Press, 321-54.
- Fine, K. 2010, "Towards a Theory of Parts", *Journal of Philosophy*, 107, 11, 559-89.
- Fine, K. 2015, "Unified Foundations for Essence and Ground", *Journal of the American Philosophical Association*, 1, 2, 296-311.
- Hale, B. 2002, "The Source of Necessity", *Noûs*, 36, 299-319.
- Hale, B. 2013, *Necessary Beings: An Essence on Ontology Modality, and the Relations Between Them*, Oxford: Oxford University Press.
- Kripke, S. 1980, *Naming and Necessity*, Cambridge, MA: Harvard University Press.
- Leech, J. 2018, "Essence and Mere Necessity", *Royal Institute of Philosophy Supplement*, 82, 309-32.
- Leech, J. 2021, "From Essence to Necessity via Identity", *Mind*, 130, 519, 887-90.
- Lewis, D. 1986, "Counterparts or Double Lives", Id., *On the Plurality of Worlds*, Oxford: Wiley-Blackwell, 192-263.
- Lowe, J. 2008, "Essentialism, Metaphysical Realism, and the Errors of Conceptualism", *Philosophia Scientiae*, 12, 1, 9-33.
- Mackie, P. 2020, "Can Metaphysical Modality Be Based in Essence?", in Dumitru, M. (ed.), *Metaphysics, Meaning, and Modality: Themes from Kit Fine*, Oxford: Oxford University Press, 247-64.
- Quine, W.V.O. 1936, "Truth by Convention", in *Philosophical Essays for A.N. Whitehead*, London: Longmans, Green & Co., 90-124.
- Quine, W.V.O. 1951, "Two Dogmas of Empiricism", *Philosophical Review*, 60, 1, 20-43.
- Quine, W.V.O. 1960, *Word and Object*, Cambridge, MA: MIT Press.
- Romero, C. 2019, "Modality is Not Explainable by Essence", *Philosophical Quarterly*, 69, 121-41.
- Rosen, G. 2006, "The Limits of Contingency", in MacBride, F. (ed.), *Identity and Modality*, Oxford: Oxford University Press, 13-39.
- Rayo, A. 2013, *The Construction of Logical Space*, Oxford: Oxford University Press.
- Rayo, A. 2020, "On the Open-Endedness of Logical Space", *Philosophers' Imprint*, 20, 1-21.
- Schwarz, W. 2013, "Contingent Identity", *Philosophy Compass*, 8, 5, 486-95.
- Stang, N. 2016, *Kant's Modal Metaphysics*, Oxford: Oxford University Press.

- Van Cleve, J. 2018, "Brute Necessity", *Philosophy Compass*, 13, 9, e12516.
- Wallner, M. and Vaidya, A. 2020, "Essence, Explanation, and Modality", *Philosophy*, 95, 4, 419-45.
- Wilsch, T. 2017, "Sophisticated Modal Primitivism", *Philosophical Issues*, 27, 1, 428-48.
- Wilsch, T. 2018, "Genuine Violations of Laws", *Australasian Journal of Philosophy*, 96, 4, 806-21.
- Wilsch, T. (manuscript), *The Sources of Necessity: Essence, Laws, and Logic*.