

The “Reduction” of Necessity to Non-Modal Essence

Abstract:

Non-modalists about essence reject the idea that metaphysical modality is prior to essence, e.g., in the sense that the latter can be reduced to or defined in terms of the former. On the contrary, according to these theorists, the explanation, if anything, proceeds in the opposite direction: metaphysical modality does not explain, but is instead explained in terms of, essence. Thus, for non-modalists like Aristotle, Kit Fine and E. J. Lowe, one of the primary theoretical roles of essence is to provide an explanatory basis for metaphysical necessity and possibility. This chapter explores a range of different types of explanatory connections which raise the question of how the non-modalist’s program of explaining metaphysical modality in terms of essence is best carried out. The considerations advanced in this chapter suggest that non-modalists must proceed by way of a non-logical case-by-case engagement with specific cases, since no logical “one-size-fits-all” strategy appears to be available.

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I. Introduction

Non-modalists about essence reject the idea that metaphysical modality is prior to essence, e.g., in the sense that the latter can be reduced to or defined in terms of the former. On the contrary, according to these theorists, the explanation, if anything, proceeds in the opposite direction: metaphysical modality does not explain, but is instead explained in terms of, essence.ⁱ Thus, for non-modalists like Aristotle, Kit Fine and E. J. Lowe, one of the primary theoretical roles of essence is to provide an explanatory basis for metaphysical necessity and possibility. When Lowe speaks of essences, in this connection, he has in mind a doctrine he calls “serious essentialism”, according to which essences are not further entities, distinct from the entities whose essences they are; essence precedes existence; and essences are the ground of all metaphysical possibilities and necessities, not only of existing things but also of non-existing things (Lowe 2008: 45-46). Kit Fine famously argues against the contemporary assimilation of essence to modality and instead adopts an Aristotelian, definitional conception of essence. According to Fine, a statement of the essence is a non-modal truth which specifies *what it is to be* an entity; the entity’s modal profile, in turn, is thought to “flow from” its essence (Fine 2005b: 348).ⁱⁱ

This chapter explores a series of as of yet unanswered questions which appear to be central to the non-modalist’s program of explaining metaphysical modality in terms of essence. We begin, in Sections II.1-2, by considering cases in which the proposition embedded within the metaphysical necessity operator (“It is metaphysically necessary that ...”) is either the same as, or logically entailed by, the proposition embedded within the essence operator (“It is part of the essence of ___ that ...”). Next, in Sections II.3-5, we take up cases from several domains (viz.,

mathematics, metaphysics, and natural science), in which the proposition embedded within the necessity operator is neither the same as nor logically entailed by the proposition embedded within the essence operator. In each case, it turns out that, in order to derive a metaphysically necessary truth from a statement of essence, additional facts concerning the essences of related entities must be brought in that go beyond those explicitly appealed to in the initial essentialist premise-set. Our discussion in Sections III.1-2 of extant proposals indicates that no logical “one-size-fits-all” strategy of widening the relevant class of essentialist facts appropriately appears to be feasible. Rather, non-modalists must proceed by means of a non-logical case-by-case engagement with specific cases, if they hope to fill this important lacuna in the non-modalist’s proposed explanation of metaphysical necessity in terms of essence.

II. Explanatory Connections between Essence and Metaphysical Modality

II.1 The Simple Caseⁱⁱⁱ

Let’s begin our survey of the different types of explanatory connections which may obtain between essence and metaphysical modality with what I will call “the simple case”, as illustrated in (1) and (2):^{iv}

(1) $\Box_{\text{Socrates}}(\text{Socrates is human})$

(2) $\Box(\text{Socrates is human})$

In the simple case, the proposition that is embedded within the essentialist operator is the same as the proposition that is embedded within the modal operator.^v Thus, according to (1), it is part of Socrates’ essence to be human, while (2) states that Socrates is necessarily human.

(1) concerns the essence of just a single object, viz., Socrates. But we can also generalize the simple case to allow for instances in which the essentialist truth in question is a collective

claim concerning the essences of a plurality of entities, taken together, as illustrated in (3) and (4):

(3) \Box Socrates, the Eiffel Tower[(Socrates is human) & (the Eiffel Tower is a tower)]

(4) $\Box((\text{Socrates is human}) \& (\text{the Eiffel Tower is a tower}))$

(3) states that it is part of the essence of Socrates and the Eiffel Tower, taken together, that Socrates is human and the Eiffel Tower is a tower. According to (4), the same conjunctive proposition, viz., that Socrates is human and the Eiffel Tower is a tower, holds necessarily. In this case, the collectivity in (3) can be factored out into two separate essentialist claims concerning Socrates and the Eiffel Tower, individually, viz., that it is part of the essence of Socrates to be human and that it is part of the essence of the Eiffel Tower to be a tower.

However, we may allow for the possibility that some statements concerning the essences of a plurality of entities taken together are ineliminably collective. Moreover, even in cases like (3) and (4), where the collectivity can be factored out, only certain ways of pairing metaphysically necessary truths with essentialist claims are available. For example, the metaphysically necessary truth that Socrates is human must be paired with the essentialist claim that it is part of Socrates' essence to be human, rather than with the essentialist claim that it is part of the essence of the Eiffel Tower to be a tower; and similarly for the second conjunct of (3) and (4).

With respect to the simple case, non-modalists commonly (though not universally) accept that a one-way entailment holds between the essential truth at issue and the corresponding metaphysically necessary truth, i.e., in this case, between (1) and (2).^{vi} Thus, (Fine 1994), for example, remarks as follows:

“My objection to the modal accounts will be to the sufficiency of the proposed criterion, not to its necessity. I accept that if an object essentially has a certain property then it is

necessary that it has the property (or has the property if it exists); but I reject the converse.” (Fine 1994: 4)^{vii}

We can thus, for now, proceed on the assumption that, in the simple case, the inference from the essentialist claim to the corresponding metaphysically necessary truth is thought to be licensed by way of a general one-way entailment principle of the form stated in (EN) (where “EN” abbreviates “Essence-Necessity”):

(EN) One-Way Entailment from Statements of Essence to Metaphysically Necessary Truths:^{viii}

$$\Box_{x,y,\dots}A \vdash \Box A$$

If (EN) itself is thought to hold necessarily, then non-modalists are presumably committed to the idea that the source of the necessary truth of (EN) can in turn be located in the essences of some entities. We will return to this issue below.

II.2 Logical Connections

But what happens in a case in which the proposition that is embedded within the essence operator is not the same as the proposition that is embedded within the necessity operator and yet the necessary truth in question is nevertheless thought to follow in some way from the corresponding essentialist claim?^{ix} Scenarios of this kind can arise in a variety of different ways. One such possibility is what I will call “the logical case”, illustrated here by means of (6) and (7):

(6) $\Box_{\text{Socrates' singleton set}}(\text{Socrates is a member of Socrates' singleton set})$

(7) $\Box(\text{Socrates' singleton set contains some member or other})$

According to (6), it is part of the essence of Socrates' singleton set that Socrates is a member of

Socrates' singleton set. (7) states that Socrates' singleton set necessarily contains some member or other. In this case, while the proposition that is embedded within the essence operator in (6) (viz., that Socrates is a member of Socrates' singleton set) is not the same as the proposition that is embedded within the necessity operator in (7) (viz., that Socrates' singleton set contains some member or other), the second proposition is logically entailed by the first proposition.^x

One way in which non-modalists might understand the explanatory connection between essence and metaphysical necessity in the logical case is by reference to a distinction Fine draws between “constitutive essence” and “consequential essence”:^{xi}

“A property belongs to the constitutive essence of an object if it is not had in virtue of being a logical consequence of some more basic essential properties; and a property might be said to belong to the consequential essence of an object if it is a logical consequence of properties that belong to the constitutive essence (a similar account could be given for the case in which the essence is conceived in terms of propositions rather than properties). Thus the property of containing Socrates as a member will presumably be part of the constitutive essence of singleton Socrates, whereas the property of containing some member or another will presumably only be part of its consequential essence.” (Fine 1995c: 276)

Assuming that it is part of the *constitutive* essence of Socrates' singleton set that it has Socrates as a member, as stated in (6'), it will thus be part of the *consequential* essence of Socrates' singleton set that it has some member or other, as stated in (8) (where “ $\Box_{\text{CONST}:x,y,\dots}$ ” abbreviates “it is part of the constitutive essence of x, y, ...” and “ $\Box_{\text{CONSEQ}:x,y,\dots}$ ” abbreviates “it is part of the consequential essence of x, y, ...”):

(6') $\Box_{\text{CONST}:\text{Socrates' singleton set}}(\text{Socrates is a member of Socrates' singleton set})$

(8) $\square_{\text{CONSQ}} \text{Socrates' singleton set} (\text{Socrates' singleton set contains some member or other})$

At this point, we have arrived at a situation in which the proposition that is embedded within the consequential essence operator in (8) is the same as the proposition that is embedded within the necessity operator in (7). As long as the one-way entailment between statements of essence and metaphysically necessary truths in (EN) can be assumed to hold for statements concerning both constitutive and consequential essence, the logical case can thus be assimilated to the simple case.

The assimilation of the logical case to the simple case, however, requires additional assumptions: for the derivation of the consequential essence of an entity from its constitutive essence itself turns on the fact that the proposition embedded within the consequential essence operator is logically entailed by the proposition embedded within the constitutive essence operator. In response to the question of how this connection itself might be justified, Fine offers the following comments:

“... [W]e should think of the nature of the logical concepts (or the meanings of the logical terms) as being given, not by certain logical truths, but by certain logical inferences.

Thus what properly belongs to the nature of disjunction is the inference from p to $(p \text{ or } q)$ rather than the fact that p implies $(p \text{ or } q)$. (Thus this is a case in which one might want to think of the nature of something as being nonpropositional in character). That Socrates is a man or a mountain will then follow from certain propositions by means of certain rules.

The concept of consequence is not presupposed but is already built into the rules.” (Fine 1995b: 58)

Applying this idea to the particular case at hand, then, the derivation of (8) from (6') can, in part, be traced to the fact that it lies in the nature of the existential quantifier to license the inference

from the proposition that Socrates' singleton set contains Socrates as its sole member to the proposition that Socrates' singleton set contains some member or other. In this way, the logical connection which underlies the derivation of the consequential essence of an entity from its constitutive essence is itself explained by reference to the essences of certain entities, viz., in this case, the logical operations that are relevant to the inference in question.^{xii}

II.3 Mathematical Connections

Next, consider the following mathematical example discussed by E. J. Lowe (Lowe 2012: 105-107):

- (9) An ellipse is the locus of a point moving continuously in a plane in such a fashion that the sum of the distances between it and two other fixed points (viz., the ellipse's foci) remains constant.
- (10) An ellipse is the closed curve of intersection between a cone and a plane cutting it at an oblique angle to its axis greater than that of the cone's side.

According to Lowe, (9) gives a real definition or statement of the essence of an ellipse: it specifies what it is to be an ellipse by capturing its "generating principle", i.e., by revealing what it takes for an ellipse to come into being (ibid., 105). In contrast, (10) provides a necessary but non-essential characterization of an ellipse as a type of conic section. We can thus rephrase (9) as (9') and (10) as (10'):

- (9') $\Box_{\text{CONST:Ellipse}}$ (An ellipse is the locus of a point moving continuously in a plane in such a fashion that the sum of the distances between it and two other fixed points remains constant)
- (10') \Box (An ellipse is the closed curve of intersection between a cone and a plane cutting

it at an oblique angle to its axis greater than that of the cone's side)

(9') makes explicit that it is part of the constitutive essence of an ellipse to meet the condition specified in (9), while (10') states that the condition described in (10) applies to ellipses necessarily. In this case, the proposition embedded within the constitutive essence operator in (9') is not the same as the proposition embedded within the necessity operator in (10'); nor is the second logically entailed by the first. Thus, the mathematical connection between (9') and (10') cannot be assimilated to the simple case, even with an additional appeal, as in the logical case, to the natures of the relevant logical operations. Nevertheless, the overall success of the non-modal program of explaining metaphysical necessity in terms of essence would seem to require that the necessary truth concerning ellipses specified in (10') can in some way be derived from the specification of what it is to be an ellipse stated in (9'), perhaps in conjunction with additional truths concerning the essences of other relevant entities.

In response to the question of how the necessary truth concerning ellipses stated in (10') might be traced to its proper essentialist source, Lowe argues, in effect, that the proposition embedded within the necessity operator in (10') does not itself express an essential truth concerning ellipses, since it “characterises an ellipse in terms that are *extrinsic to its nature* as the particular kind of geometrical figure that it is” (Lowe 2012: 105). In order to trace the necessary truth in (10') to its proper essentialist source, so Lowe argues, facts concerning the essences of other relevant entities, viz., in this case, cones, must also be taken into consideration. But even when these are added into the mix, the proposition embedded within the necessity operator in (10') itself still cannot be understood as expressing an essential truth: for it is neither part of the essence of ellipses or cones alone that they satisfy the condition specified in (10'); nor is it part of the essences of ellipses and cones, taken together, that they satisfy the condition

specified in (10'). The most we can say about this case, in Lowe's view, is that the necessary truth in (10') "holds *in virtue of*" (or "because of" or "is *grounded* in") the relevant essential truths concerning ellipses and cones. The mathematical case therefore exhibits an explanatory connection *of some sort* between statements of essence and necessary truths, but not one that can be assimilated either to the simple case or to the logical case. The details of how non-modalists might approach the explanatory connection encountered in the mathematical case remain yet to be filled in.

II.4 Metaphysical Connections

Explanatory connections between necessary truths and statements of essence can also occur in metaphysical contexts, as can be illustrated, for example, by the following instance of what is known as "the Grounding Problem":^{xiii}

- (11) a. $\Box_{\text{CONST:Lumpl}}(\text{Lumpl is a lump of clay})$
- b. $\Box_{\text{CONST:Goliath}}(\text{Goliath is a statue})$
- (12) a. $\Box(\text{Lumpl can survive being squashed})$
- b. $\Box(\text{Goliath cannot survive being squashed})$

According to (11.a) and (11.b), it is part of the constitutive essence of Lumpl to be a lump of clay and part of the constitutive essence of Goliath to be a statue. (12.a) and (12.b) bring out a particular difference between Lumpl's and Goliath's persistence conditions, which can be assumed to hold of these objects necessarily, namely that the former can, while the latter cannot, survive being squashed. The Grounding Problem more generally asks how objects that are apparently numerically distinct but spatiotemporally coincident, such as a statue and the lump of clay that constitutes it, can differ from one another with respect to their modal, temporal, or other

characteristics, despite the fact that they are otherwise so alike.

How (if at all) can the necessary truths concerning Lumpl and Goliath in (12.a) and (12.b), respectively, be derived from the partial statements of their constitutive essence in (11.a) and (11.b)? Presumably, any such derivation would have to take recourse to additional premises which spell out further why it is incompatible with Goliath's nature, as a statue, but compatible with Lumpl's nature, as a lump of clay, to take on the sort of shape an object acquires as a result of being squashed. Suppose, for example, as stated in (13), that it is part of the constitutive essence of a lump of clay to be composed of clay parts arranged in the shape of a lump:

- (13) $\square_{\text{CONST:Lumps of clay}}$ (A lump of clay is composed of clay parts arranged in the shape of a lump)

Moreover, for the sake of simplicity, let's assume that nothing further is required of the material parts of a lump-shaped object than that these material parts are in close spatial vicinity to one another. (14) describes this condition as being part of the constitutive essence of the shape-property, being lump-shaped:

- (14) $\square_{\text{CONST:Being lump-shaped}}$ (The material parts of a lump-shaped object are in close spatial vicinity to one another)

Now, given (13) and (14), it is easy to see why Lumpl, as a lump of clay, can survive being squashed: for even after an object has been squashed, its material parts may still be in close spatial vicinity to one another; and this (so we are assuming) is the only kind of arrangement that Lumpl's material parts are required to exhibit as part of Lumpl's nature. The compatibility in question is therefore explained in part by reference to the fact that the general determinable shape-property, being lump-shaped, has among its manifestations some of the determinate shape-properties objects can acquire as a result of having been squashed.

Without entering too far into the complex question of what might be constitutively essential to Goliath, as a statue, we can safely assume that, on any plausible essentialist conception of artworks, Goliath's nature will require more of its material parts than merely that they are in close spatial vicinity to one another. It is therefore natural to expect that, if Goliath were to be squashed, its material parts would no longer meet these more stringent requirements, whatever they are, and Goliath would go out of existence as a result of being squashed. To see how the incompatibility in question can arise, let's assume, for the sake of specificity, that it is constitutively essential to Goliath (the statue) that its material parts are arranged in such a way as to represent Goliath (the Philistine biblical giant allegedly slain by David), as stated in (15):

- (15) $\square_{\text{CONST:Goliath-the-statue}}$ (Goliath-the-statue is composed of material parts arranged in such a way as to represent Goliath-the-biblical-giant)

And let's assume further, for the sake of simplicity and specificity, that in order for an object to have the power to represent Goliath-the-biblical-giant, it must at least resemble Goliath-the-biblical-giant in certain relevant respects (leaving open what these relevant respects might be). The presumed connection between representation and resemblance is stated in (16) as a general claim concerning the constitutive essence of the representational property, representing Φ :

- (16) $\square_{\text{CONST:Representing } \Phi}$ (An object that represents Φ resembles Φ in relevant respects)

And while these assumptions are of course only intended as a "toy theory" concerning the nature of artworks and representation, they do serve to bring out how, with the help of additional essentialist premises, the incompatibility in question might arise between Goliath's nature, as a statue, and its ability to take on the sort of shape an object acquires as a result of having been squashed: for an object that has been squashed presumably loses its ability to resemble in the relevant respects, and therefore to represent, Goliath-the-biblical-giant. Again, as in the case of

Lumpl, the explanatory connection at issue between the necessary truth concerning Goliath-the-statue's persistence conditions in (12.b) and the partial statement of its constitutive essence in (11.b) has been traced in part to facts concerning the essences of other relevant entities, viz., in this case, the representational, resemblance and shape-properties that are pertinent to the case at hand. In the present instance, the incompatibility in question is thought to arise from the fact that the determinate shape-property an object might acquire as a result of having been squashed is not among the determinate shape-properties an object might manifest if it is to resemble, and therefore to represent, a certain object, viz., in this case, Goliath-the-biblical giant. As noted, deriving the necessary truths concerning both Lumpl's and Goliath-the-statue's persistence conditions in (12.a) and (12.b) from the respective partial statements of their constitutive essence in (11.a) and (11.b) required, in both cases, an appeal to additional premises concerning the essences of other entities, viz., the various shape-, resemblance, and representational properties that are relevant to their respective persistence conditions; moreover, in both cases, the derivation in question went well beyond the patterns of inference observed in either the simple case or the logical case.

II.5 Scientific Connections

The final type of explanatory connection I want to consider is taken from the realm of natural science and can be illustrated by means of the following example:^{xiv}

(17) $\square_{\text{CONST:Water}}$ (Water is predominantly composed of H₂O-molecules)

(18) \square (Water boils at 100 degrees Celsius)

According to (17), it is part of the constitutive essence of water to be predominantly composed of H₂O-molecules, while (18) states that water necessarily boils at 100 degrees Celsius. Again, as in

the mathematical and metaphysical cases, the proposition embedded within the necessity operator in (18) is neither the same as nor logically entailed by the proposition embedded within the constitutive essence operator in (17).

How (if at all) can the necessary truth concerning water in (18) be derived from the partial statement of its constitutive essence in (17)? In the case of a scientific explanatory connection, such as that illustrated in (17) and (18), non-modalists have the option of applying a strategy that is different from those already encountered, namely to argue that the explanatory connection in question does not in fact instantiate a more general schema in which a metaphysically necessary truth follows from some essential truths. If some version of this strategy can be made to work, then the relation between (17) and (18), regardless of how exactly it is to be understood, does not straightforwardly fall under the commitment incurred by non-modalists to explain metaphysical necessity in terms of essence. Variants of this strategy are adopted by both E. J. Lowe and Kit Fine.^{xv}

According to Lowe, the proposition embedded within the necessity operator in (18) does not express a metaphysically necessary truth concerning water, but rather states a contingent natural law consisting in the dispositional predication of a non-substantial universal (viz., the property, boiling at 100 degrees Celsius) of a substantial kind (viz., the kind, water) (Lowe 2006: 127-128). The necessity operator in (18) might be taken to denote what is commonly referred to as “natural” or “physical” necessity; but this type of necessity, in Lowe’s view, is “at best a species of ‘relative’ necessity: a matter of what is necessarily the case given that some contingent truth obtains” (ibid., 133). In addition, given Lowe’s approach, whether the proposition embedded within the constitutive essence operator in (17) can in fact be accurately characterized as a partial statement of the constitutive essence of water depends on whether we understand the

term, “water”, in (17) as being used in the way in which theoretical chemists might use it to denote a certain chemical compound or in the way in which ordinary speakers might use it to denote a certain kind of liquid identifiable by its macroscopically detectable features, such as transparency, colorlessness and tastelessness (Lowe 2008: 44-45). Given the first (scientific) usage of the term, “water”, it is in fact correct to say, according to Lowe, that it is part of the essence of the chemical compound in question to be predominantly composed of H₂O-molecules. Given the second (non-scientific) usage of the term, “water”, however, it is at most correct to say that the macroscopically identifiable liquid which figures in our ordinary non-scientific discourse is, as a matter of natural law, predominantly composed of H₂O-molecules. But this latter statement expresses merely that it is overwhelmingly unlikely, given certain contingent states of affairs, that the transparent, colorless, tasteless liquid which fills our rivers, lakes and oceans could have a chemical composition very different from the chemical composition it actually has (where the occurrence of “could” here expresses mere physical or natural, and not metaphysical, possibility). As a result, given that, in Lowe’s view, (18) does not express a metaphysically necessary truth concerning water and given that (17) only expresses a partial statement of the constitutive essence of water on certain construals but not others, the relation between (17) and (18) does not exhibit a pattern in which a metaphysically necessary truth follows from a statement of essence.

(Fine 2002) argues that there are three main and irreducible varieties of necessity, viz., metaphysical, natural, and normative necessity. The proposition embedded within the necessity operator in (18), on Fine’s approach, would be classified as naturally but not metaphysically necessary and thus similarly escapes the non-modalist’s commitment to trace metaphysically necessary truths to their proper essentialist source. What explanatory connection, if any, might

there be, on Fine's view, between the constitutively essential truth concerning water in (17) and the naturally necessary truth in (18)? In Fine's view, even though (18) cannot be derived from (17), even with an appeal to additional essentialist premises, what we can say concerning the explanatory connection in question is that any apparently *de re* naturally necessary fact concerning a *particular* quantity of water, to the effect that it boils at 100 degrees Celsius, reduces to (i) the metaphysically necessary (and constitutively essential) *de re* fact that the quantity in question belongs to the kind, water, and is therefore, as part of its nature, predominantly composed of H₂O-molecules; and (ii) the naturally necessary *de dicto* fact that chemical compounds of this kind boil at 100 degrees Celsius (Fine 2002: 243). The latter naturally necessary *de dicto* fact is not further derivable from any metaphysically necessary or essential truth, though it might of course be derivable from other more fundamental *de dicto* natural necessities concerning the connection between chemical composition, molecular structure and temperature. But the kind of derivability that is at issue in the relation between more fundamental and less fundamental *de dicto* natural necessities is of course different from that which figures in the non-modalist program of deriving metaphysical necessity from essence.

III. Explanatory Strategies

III.1 The One-Way Entailment Between Statements of Essence and Metaphysical Necessary Truths

Let's return now to a question that was left open earlier in our discussion of the simple case, i.e., the case in which the proposition embedded within the necessity operator is the same as the proposition embedded within the essence operator. As noted in Section II.1, our two representative non-modalists, Kit Fine and E. J. Lowe, both accept that, in the simple case, a one-

way entailment, stated in (EN), holds between statements of essence and metaphysically necessary truths: according to (EN), if it is part of the essence of a certain entity or entities that A (where “A” abbreviates a sentence), then it is also metaphysically necessary that A. Among the questions that arise with respect to (EN), the following seems especially pressing for non-modalists: assuming that the one-way entailment from statements of essence to metaphysically necessary truths itself holds with metaphysical necessity, can this metaphysical necessity also be traced to the essences of some entities and, if so, how?

Suppose that any particular application of the schema stated in (EN) results in a metaphysically necessary truth of the following form:

$$(N) \quad \Box(\Box_{x,y,\dots}A \rightarrow \Box A)$$

According to (N), the following holds with metaphysical necessity: if it is essential to some entities, x, y, \dots , that A, then it is metaphysically necessary that A. The proposition embedded within the outer metaphysical necessity operator in an instance of (N), by hypothesis, expresses a metaphysically necessary truth and therefore, by the non-modalist’s lights, itself needs to be traced to the essences of some entities. But which entities could act as the proper essentialist source from which metaphysically necessary truths of the form stated in (N) can be derived?

It is implausible to think, in general, that the entities, x, y, \dots , whose identity serves as the explanatory basis for the essential truth of the proposition that A, could also act as the proper essentialist source by means of which the metaphysically necessary truth of the embedded conditional statement (“If it is part of the essence of x, y, \dots , that A, then it is metaphysically necessary that A”) can be explained. For suppose, for the sake of illustration, that “A” abbreviates the sentence, “Socrates is human” and that the inference in question is that from (1) to (2). In that case, the essential truth of “Socrates is human” is assumed to have its source in

Socrates' constitutive essence; and, by (EN), this essential truth in turn entails the metaphysically necessary truth of "Socrates is human". But presumably there is nothing in *Socrates'* nature which speaks to the fact that the following holds with metaphysical necessity: if it is part of Socrates' essence to be human, then it is metaphysically necessary for Socrates to be human. For, unlike a logical operation, say, Socrates, as a human being, is not the right sort of entity whose nature could license an inference, such as that stated in (EN), or the metaphysically necessary truth of a conditional statement of the form stated in (N) which expresses the inference in question, viz., "If it is part of Socrates' essence to be human, then it is metaphysically necessary for Socrates to be human". Given Socrates' unsuitability to act as the proper essentialist source in this particular case, we therefore also cannot expect that, in general, the metaphysically necessary truth of a statement of the form, "If it is part of the essence of x, y, ..., that A, then it is metaphysically necessary that A", can be explained by reference to the essences of the entities, x, y, ..., mentioned therein.

Presumably, the best hope for non-modalists, in response to the question at hand, is to follow the strategy proposed by Fine for the logical case. Recall that, in the logical case, Fine's strategy is to explain the logical connection between a consequentially essential truth and the constitutively essential truth from which it follows in part by reference to the nature of the logical operations that are relevant to the case at hand. Thus, the inference from the constitutively essential truth that Socrates' singleton set contains Socrates as a member to the consequentially essential truth that Socrates' singleton set contains some member or other, on this conception, is explained in part by reference to the fact that it lies in the nature of the existential quantifier to license inferences which instantiate the rule of existential generalization. Similarly, applying this strategy to the present case, non-modalists who (like Fine and Lowe)

accept the one-way entailment in (EN) in the simple case from statements of essence to the corresponding metaphysically necessary truths may opt to appeal to the nature of the (constitutive or consequential) essence operator to explain the validity of inferences which follow the pattern described in (EN), from a statement of essence to the corresponding metaphysically necessary truth. The same essentialist basis would then also serve to explain the metaphysically necessary truth of instances of the schema stated in (N).^{xvi}

III.2 The “Cosmic” Strategy

As our preceding discussion has brought out, the non-modalist’s program of explaining metaphysical necessity in terms of essence often requires widening the class of relevant essences beyond those to which the initial essentialist premise-set is explicitly indexed. In the simple case, for example, facts concerning the nature of the (constitutive or consequential) essence operator were brought in to explain why the one-way entailment stated in (EN) from statements of essence to the corresponding metaphysically necessary truths itself might be thought to hold with metaphysical necessity. In the logical case, the derivation of a consequentially essential truth from a constitutively essential truth was justified in part by appeal to the nature of the various logical operations licensing the inference in question. In the mathematical case, the derivation of a metaphysically necessary truth concerning one type of geometrical entity (viz., ellipses) was seen to require an appeal to the nature of other relevant types of geometrical entities (viz., cones). Finally, in the metaphysical case, the class of relevant essences needed to explain facts about the persistence-conditions of certain objects (viz., statues and the lumps of clay constituting them) was broadened to include facts about the nature of various relevant properties (viz., shape-, resemblance, and representational properties). Only in the scientific case, the non-

modalist's strategy diverged from the pattern just cited, since in this case the necessary truth in question was thought to be physically or naturally, rather than metaphysically, necessary, and therefore does not instantiate the non-modalist pattern in which a metaphysically necessary truth in some way follows from some essential truths.

Given the general need to broaden the class of entities whose essences might be relevant to the derivation of any given metaphysically necessary truth beyond those to which the initial essentialist premise-set is explicitly indexed, it is perhaps not surprising that Fine opts for what might be called the "cosmic strategy", according to which the metaphysically necessary truths are true in virtue of the nature of *all* objects whatsoever:

"Indeed, it seems to me that far from viewing essence as a special case of metaphysical necessity, 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: 9)^{xvii}

In the context of Fine's logic of essence, we can see why the move towards the cosmic strategy might seem to be warranted. For, first, Fine's system operates with consequential, rather than constitutive, essence and therefore already casts its net very widely, by including all the logical consequences of any given constitutively essential truth in the collection of truths that are said to be essential to any given entity, provided that no additional objectual content is introduced. Secondly, there appears to be no general *logical* strategy by means of which the class of relevant essences can be widened beyond those to which an initial essentialist premise-set is

explicitly indexed, in order to arrive at exactly those that are relevant to the derivation of any given metaphysically necessary truth. For, as we saw in the preceding sections, filling in the details that might underlie any particular case requires establishing *non-logical* connections between related phenomena, e.g., between ellipses and cones or between shape-properties and representational properties. By widening the class of relevant essences to include those of *all* objects whatsoever, Fine's cosmic strategy therefore might seem to guarantee that *enough* essences are available to license any particular transition from a statement of essence to a metaphysically necessary truth.

Given that the non-modalist's derivation of metaphysical necessity from essence is meant to be *explanatory*, however, the cosmic strategy appears to overshoot its intended target. For, unless the metaphysically necessary truths at issue are in fact absolutely general and concern the natures of *all* objects whatsoever, it seems that Fine's cosmic strategy will be guilty of loading up the explanatory basis from which any given metaphysically necessary truth is supposed to follow with entities whose essences do not directly contribute, and are therefore explanatorily *irrelevant*, to the case at hand. To illustrate, suppose the aim is to derive the metaphysically necessary truth that Socrates is an animal in part from the constitutively essential truth that Socrates is human. In that case, it would seem that only facts concerning the essences of human beings and animals are directly relevant to the explanatory connection at issue. There is thus no need to bring in the natures of *all* objects whatsoever; and doing so will actually diminish the explanatory power of the essentialist premise-set from which the statement, "It is metaphysically necessary for Socrates to be an animal", is supposed to be derived. For, in general, if a truth of the form, "It is (constitutively or consequentially) essential to x, y, ..., that A", contributes to the derivation of a metaphysically necessary truth of the form, "It is metaphysically necessary that

B”, there is no guarantee that expanding the essentialist premise-set by adding further essential truths will increase or even preserve the explanatory power of the initial premise-set. For example, the fact that it is constitutively essential to the Eiffel Tower to be a tower has nothing to contribute to any proposed derivation of “It is metaphysically necessary for Socrates to be an animal” from statements concerning the essences of human beings and animals. Thus, adding the statement, “It is constitutively essential to the Eiffel Tower to be a tower”, to the essentialist premise-set from which the statement, “It is metaphysically necessary that Socrates is an animal”, is supposed to follow, in effect weakens the explanatory power of the essentialist premise-set in question, since it now includes irrelevant information concerning the essences of unrelated entities, viz., the Eiffel Tower. Expanding the relevant class of essences to include those of *all* objects whatsoever, as the cosmic strategy proposes to do, will of course only worsen the problem just cited.^{xviii} When it comes to the non-modalist’s program of explaining metaphysical necessity in terms of essence, there thus appears to be no logical “one-size-fits-all” method of supplying a suitable class of entities whose essences are relevant to the derivation of any given metaphysically necessary truth. Rather, the process unfolds, at least in part, by non-logical means and requires a case-by-case engagement with the specific types of entities whose essences are thought to contribute to the derivation in question.

IV. Conclusion

Our aim in this chapter was to bring out, with respect to various types of cases and explanatory connections, how non-modalists may proceed with their goal of explaining metaphysical necessity in terms of essence. In each case, we found that, in order to derive a metaphysically necessary truth from a statement of essence, it was necessary to bring in

additional facts concerning the essences of related entities beyond those that are explicitly appealed to in the initial essentialist premise-set. It appears, however, that there is no logical “one-size-fits-all” strategy by means of which the relevant class of essentialist facts can be widened in the appropriate way. Thus, a successful execution of the non-modalist’s program requires a non-logical engagement with specific cases to make good on the promise that metaphysically necessary truths can, in all cases, be derived from statements of essence.

Related Topics

Correia, Fabrice, “Non-Modal Conceptions of Essence”

Kovacs, David, “Essence, Grounding, and Explanation”

Litland, Jon, “Logic of Essence”

Tahko, Tuomas, “Natural Kind Essentialism”

Torza, Alessandro, “Modal Conceptions of Essence”

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ⁱ Strictly speaking, non-modalists need not accept that essence is prior to metaphysical modality. A further (though uncommon) option for non-modalists would be simply to accept that neither is prior to the other. Given the state of the literature, however, I will address versions of non-modalism which do accept that essence is, in some sense, prior to metaphysical modality; and that the latter is, in some way, to be explained in terms of the former.

ⁱⁱ See Torza (this volume) and Correia (this volume) for a discussion of modal and non-modal conceptions of essence, respectively.

ⁱⁱⁱ See also Correia (this volume, Sections 5-7) for discussion relevant to what I call “the simple case”.

^{iv} Unless otherwise noted, I assume that the type of necessity at issue, represented by “□”, is *metaphysical* necessity. To state essentialist claims, here and in what follows, I avail myself of the indexed operator notation introduced in Fine 1995a: for each predicate, “F”, there is an operator, “□_F”, to be read as “it is true in virtue of the nature of the objects that are F that ...”, which denotes an unanalyzed relation between the objects that are F and a proposition.

Essentialist statements of the form, “ $\Box_F A$ ”, in this framework, are explicitly relativized to their source, viz., in this case, the objects that are F in virtue of whose identity the proposition that A is true. If a proposition is true in virtue of the nature of a single object, y, a predicate which applies to y uniquely may be formulated using lambda-abstraction, viz., “ $\lambda x(x=y)$ ”; similarly for pluralities of objects. For reasons of simplicity, I side-step the predicate-notation in the main text and follow Fine’s informal convention of speaking of objects directly as the source of essentialist truths. Fine uses the terms, “essence”, “identity”, and “nature” interchangeably (Fine 1995b: 69, n. 2) and takes definitions to be statements of essence (Fine 2015: 308). See Litland (this volume) for more discussion of Fine’s notation.

^v For the sake of simplicity, I formulate these claims, here and in what follows, directly in terms of propositions, rather than in terms of sentences and the propositions they express.

^{vi} See for example Leech (2018) for arguments to the effect that an inference like that from (1) to (2) may be held to be objectionable. According to Leech, “what something *is* does not tell us – absent further assumptions – what something *must be*” (320).

^{vii} A similar sentiment is also voiced for example in (Lowe 2012: 106).

^{viii} “ \vdash ” is intended to stand for an informal notion of entailment, rather than for deducibility in some formal system. See Ditter 2022, for discussion of whether the variables, “x, y, ...” (or other expressions) to which the essence-operator is indexed must occur in the proposition that is embedded within the operators in question.

^{ix} If the propositions in question are not the same, then the relevant relation of “following from” is no longer that specified in (EN), which, as formulated, requires that the propositions in question be the same. We might try to generalize (EN) by allowing that a suitable replacement proposition may be substituted for the proposition embedded within the necessity-operator. The question before us then becomes what counts as a “suitable replacement” in this context, since the propositions in question cannot vary independently. For example, it does not follow, in the relevant sense, from “Socrates’ singleton set has Socrates as its sole member” that 2 is a number, even if we assume that the former is an essentialist truth and the latter holds with metaphysical necessity.

^x Of course, given (EN), the proposition embedded within the essence operator in (6) also holds with metaphysical necessity. Since the proposition embedded within the essence operator in (6) logically entails the proposition embedded within the necessity operator in (7), it may be tempting to think that the connection between (6) and (7)

can be captured by appeal to (EN), together with the idea that necessity is closed under logical consequence.

However, given non-modalism, the latter idea should presumably itself be explained in some way by appeal to some essentialist facts.

^{xi} See also Correia (this volume) and Litland (this volume) for further discussion of the distinction between constitutive and consequential essence.

^{xii} See also Correia (2012) for a further elaboration of the idea that the essence of a logical concept is non-propositional and is given, instead, by certain rules of inference.

^{xiii} For further discussion of the Grounding Problem, see for example Koslicki (2018) and the references therein.

^{xiv} See also Tahko (this volume) for relevant discussion of statements of essence and metaphysically necessary truths involving natural kinds.

^{xv} Other theorists, however, employ a different strategy from that illustrated here and propose instead that statements expressing laws of nature hold with metaphysical necessity. (See for example the defense of dispositional essentialism by Bird (2001) and others.) These theorists, then, assuming that they also accept non-modalism, would be committed to the idea that (18) can in some way be derived from (17).

^{xvi} See also, for example, Wallner (2019) for useful discussion of the question of whether non-modalists are committed to unexplained metaphysical necessities; and Ditter (2022) for discussion of the proposal that metaphysical necessity should be construed as truth in virtue of the nature of all propositions.

^{xvii} The cosmic strategy, which is here characterized informally, is also embedded within Fine's logic of essence by means of a monotonicity principle, stated in Axiom II (v), according to which a proposition which is true in virtue of the nature of the Fs is also true in virtue of the nature of the Gs, provided that the Fs are also Gs (Fine 1995a: 247). See Litland (this volume) for further discussion of monotonicity as well as (Zylstra 2019).

^{xviii} As pointed out by Robert Michels (see Michels 2018: 8), Fine anticipates this worry in a parenthetical remark (italicised here): "[a] necessary truth can be taken to be a proposition that is true in virtue of the identity of all objects [...] (*not that all objects [...] need be relevant*)" (Fine 1995b: 56). We should, in this context, distinguish between the following two aims: (i) deriving all metaphysically necessary truths from all statements of essence taken together; and (ii) deriving some particular metaphysically necessary truth from some particular statements of essence. It very well may be the case that Fine's cosmic strategy helps us with the first goal; in relation to the second

goal, however, which has been my main concern, the cosmic strategy overshoots its explanatory target by introducing potentially irrelevant information into class of essentialist facts from which a particular metaphysically necessary truth is supposed to follow.