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On the Reduction of Necessity to Essence

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In his influential paper "Essence and Modality", Kit Fine argues that no account of essence framed in terms of metaphysical necessity is possible, and that it is rather metaphysical necessity which is to be understood in terms of essence. On his account, the concept of essence is primitive, and for a proposition to be meta-physically necessary is for it to be true in virtue of the nature of all things. Fine also proposes a reduction of conceptual and logical necessity in the same vein: a conceptual necessity is a proposition true in virtue of the nature of all concepts, and a logical necessity a proposition true in virtue of the nature of all logical con-cepts. I argue that the plausibility of Fine's view crucially requires that certain apparent explanatory links between essentialist facts be admitted and accounted for, and I make a suggestion about how this can be done. I then argue against the reductions of conceptual and logical necessity proposed by Fine and suggest alter-native reductions, which remain nevertheless Finean in spirit.

1. Fine on Essence and Modality

There are two widespread accounts of what it is for an object to have a property essentially, both framed in terms of the concept of metaphysical necessity. On one account, for an object to be essentially F is for it to be metaphysically necessary that the object is F; and on the other account, for an object to be essentially F is for it to be metaphysically necessary that the object is F if it exists.

In his influential paper "Essence and Modality"—which I, like many others, take to be one of the most important papers on essentialism of the last decades—Kit Fine objects to both accounts, on the grounds that they do not leave room for certain plausible views about essentialist and modal matters of fact. Fine argues not only that these two accounts are flawed, but also that no satisfactory account framed in terms of metaphysical modality can be found. He then advocates a reverse picture of the connection between essence and modality, according to which it is metaphysical necessity which reduces to essence rather than the other way around. According to Fine, each object or plurality of objects gives rise to its own collection of metaphysically necessary truths, the propositions which are true in virtue of the nature of this or these objects—different objects or pluralities thereof typically giving rise to different collections of such truths. On Fine's reductive account, for a proposition to be metaphysically necessary is for it to be true in virtue of the nature of all objects (p. 9).[1]

Fine's ontology comprises *concepts*—*logical* concepts like, say, the concept of conjunction, as well as *non-logical* concepts like, say, the concept of bachelorhood. This allows him to propose a reduction of conceptual and logical necessity[2] also framed in terms of essence: to be conceptually necessary is to be true in virtue of the nature of all concepts, and to be logically necessary is to be true in virtue of the nature of all logical concepts (pp.9–10).

Fine conceives of the notion of essence at work in the reductions to be subject to the following principle of monotonicity: if a proposition is true in virtue of the nature of some object or objects, then it is true in virtue of the nature of any plurality of objects which comprises this object or these objects. Given the Finean reductions, an immediate consequence is that logical necessity is at least as strong as conceptual necessity, which in turn is at least as strong as metaphysical necessity—i.e. whatever is logically necessary is conceptually necessary, and whatever is conceptually necessary is metaphysically necessary. This, I take it, is just as it should be.[3]

The resulting picture is particularly attractive: three important modal notions are analyzed in terms of a single notion, and the analyses predict the correct order of relative strength between these notions. But how are we to understand the relevant notion of essence? Fine advocates a broadly Aristotelian conception of essence as a form of definition, which he describes thus:

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1 Unless explicitly mentioned, all page numbers make reference to "Essence and Modality".

2 Throughout this paper, 'conceptual necessity' and 'logical necessity' will be understood in such a way that *contingent a priori* propositions, if such there be, count as neither conceptually nor logically necessary.

3 Say that a type of necessity is *stronger* than another one iff the former is at least as strong as the latter, but not *vice versa*. Although this is not absolutely uncontroversial, most plausibly logical necessity is stronger than conceptual necessity (because propositions like, say, the proposition that no bachelor is married, are conceptually, but not logically, necessary), which in turn is stronger than metaphysical necessity (because propositions like, say, the proposition that Socrates is human if he exists are metaphysically, but not conceptually, necessary).

> [...] essence [h]as been conceived on the model of definition. It has been supposed that the notion of definition has application to both words and objects—that just as we may define a word, or say what it means, so we may define an object, or say what it is. The concept of essence has then [been] taken to reside in the ‘‘real’’ or objectual cases of definition, as opposed to the ‘‘nominal’’ or verbal cases (p.2).

Yet he does not take that conception to be a reductive one:

> [...] the traditional assimilation of essence to definition is better suited to the task of explaining what essence is. It may not provide us with an analysis of the concept, but it does provide us with a good model of how the concept works (p.3).

For Fine, the concept of essence cannot be understood in fundamentally different terms.

2. A Task: Accounting for Derivative Essentiality

Many will reject the idea of objectual definition as crazy, and many will hold that the notion of essence is too obscure to be taken as a primitive. I am on neither side. Be it as it may, it is an assumption of this paper that Fine's view of essence as primitive and to be conceived on the model of definition is viable. Yet the Finean view about essence and its relationships with modality needs to be somewhat further elaborated in order to have any chance of being convincing. My main aim in what follows is to supplement the Finean story in an appropriate way. My goal is thus to complete, from a Finean perspective, the Finean view at a point where I see what I take to be a lacuna.[4]

The lacuna concerns certain facts about ‘‘collective essences’’ I take the Finean to be committed to. Fine's reductions are framed in terms of the predicate ‘... is true in virtue of the nature of —’, which takes an expression designating a proposition and an expression designating *one* object (e.g. ‘Socrates’, ‘the number 2’, ‘the concept of material

[4] I should perhaps emphasize that it is not my aim to *defend* a Finean conception of essence and modality. I actually believe that there are plausible replies to Fine's objections to the modal accounts of essence, and also, *pace Fine*, that cases can be made for views to the effect that the concept of essence can be understood in other terms, in particular for views according to which essence reduces to modality. (See e.g. Gorman 2005, Zalta 2006 and Correia 2007 for some recent anti-Finean positions.) In my opinion, though, a proper assessment of the relative merits of the various views in the area requires further clarificatory work. The present paper is to be seen as a work of that type on the Finean position.

implication') or *several objects* (e.g. 'Socrates and Plato', 'the natural numbers', 'the concept of material implication and the concept of bachelorhood'), in that order, to make a sentence.[5] Now one important thing to notice is that the Finean is committed to the view that some correct collective essentialist attributions are *irreducibly collective*, i.e. to the view that some statements of type 'α is true in virtue of the nature of *X*', where '*X*' is a plural term, are true, without there being a true statement of type 'α is true in virtue of the nature of *x*', where '*x*' is a singular term.[6]

For take e.g. the following two propositions:

(1) <Socrates is distinct from the Eiffel Tower if both exist>

(2) <(Socrates is human if he exists) and (the Eiffel Tower is a non-living, concrete thing if it exists)>

and assume that both are metaphysically necessary (many other examples of propositions involving several objects, in particular many logically complex propositions, could be invoked). By the Finean reduction, there should be one object, or several objects, which is, or are, an essentialist source of the truth of (1)—and similarly for (2). Which object or objects could that be? Consider (1) first. It is most natural to reject the view that (1) is true in virtue of the nature of Socrates, on the grounds that, as Fine puts it, "there is nothing in [Socrates'] nature which connects him in any special way to [the Eiffel Tower]" (p. 5). The view that the proposition is true in virtue of the nature of the tower is also most naturally rejected, for a symmetrical reason. And it is hard to see which other object could do the job. The natural thing to say is that the proposition is true in virtue of the nature of Socrates and the Eiffel Tower (and perhaps the concept of distinctness) *taken together*. The very same kind of considerations applies to proposition (2), and we are naturally led to the view that (2) is true in virtue of the

5 Fine 1995a (and also Fine 2000) suggests another grammar for essentialist statements of the sort under consideration: there they are formulated by means of the operator 'it is true in virtue of the nature of ... that —', which takes a predicate (picking out the subjects of essentialist attribution) and a sentence to make a sentence. Here I prefer to assume that the essentialist predicate provides the "canonical" way of making essentialist statements, and likewise that the various sorts of necessities which will occupy us are canonically expressed by predicates on propositions rather than by the standard sentential operators. This is just for reasons of convenience, however, and nothing serious will hinge on that choice.

6 Granted the definitional approach to essence, irreducibly collective essentialist truths constitute, to use Fine's words, "the objectual counterpart of simultaneous definition" (Fine 1995a, p.242).

nature of Socrates and the Eiffel Tower (and perhaps the concept of conjunction) *taken together*.

Now there may be cases where it can be claimed, with some plausibility, that the fact that a certain proposition is true in virtue of the nature of several things is *brute* or *basic*, i.e. that it cannot be further explained in essentialist terms. That (1) is true in virtue of the nature of Socrates and the Eiffel Tower, or in virtue of the nature of another given plurality of objects, is perhaps of that sort. But in many cases such a claim is highly implausible. Take (2) for instance, and assume it is true in virtue of the nature of Socrates, the Eiffel Tower and the concept of conjunction. We cannot just assume that this fact is a brute fact, in the sense that it cannot be explained in further essentialist terms. For intuitively, the fact that (2) is true in virtue of the nature of the three objects in question is *derivative*, i.e. it is to be explained in terms of the individual nature of these objects, along something like the following lines: it is *because* (i) <Socrates is human if he exists> is true in virtue of the nature of Socrates, (ii) <the Eiffel Tower is a non-living, concrete thing if it exists> is true in virtue of the nature of the tower, and (iii) conjunction has the nature it has, that (2) is true in virtue of the nature of the three objects taken together.

Thus my view is that once one endorses the Finean conception of essence, one should admit the distinction between brute or basic and derivative essentialist facts. By definition, the basic essentialist facts cannot be explained in further essentialist terms, while the derivative ones can. But how? How do the derivative essentialist facts derive from other essentialist facts—ultimately, from the basic ones? We do not have as yet an account of derivative essentiality which would enable us to answer the question. This is the lacuna I previously alluded to. Unless the Finean view is completed by such an account, the view will remain incomplete, and, I take it, to a significant extent unconvincing.

I will propose what I take to be an account of that sort in section 4. But before that, I shall present and reject another, somewhat similar account of derivative essentiality which very naturally comes to mind.[7]

3. The Consequentialist Account

I will hereafter follow previous usage and use 'α' as a singular term for a proposition and 'X' as a plural term. For reasons of convenience, I will follow the standard convention of using 'plural term' in a liberal sense, so that a plural term may refer to several objects, but also to just

[7] This account is discussed and rejected in Hale 1996, on the grounds that it leads to a vicious regress. I do not think there is the vicious regress Hale supposes there to be, but it is not the place here to elaborate on the issue.

one object, and I will often use 'plurality' in the corresponding liberal sense, counting genuine pluralities as well as single objects as pluralities. On this policy, 'belongs to' will have to be understood as 'is identical with' when flanked by terms that refer to single objects. I shall say that plurality X is *part* of plurality Y when all the objects which belong to X belong to Y. Finally, I will use '... is basically essential to —' as expressing basic essentiality and '... is derivatively essential to —' as expressing derivative essentiality—i.e. in such a way that the truth of a true statement of type 'α is basically essential to X' is a basic essentialist fact, and the truth of a true statement of type 'α is derivatively essential to X' is a derivative essentialist fact.

The account of derivative essentiality I wish to present here conceives of derivation in term of logical consequence. Let me use '$\vdash$' for logical consequence. Where X is any plurality of objects, let the *basic nature* of X—$\mathfrak{B}(X)$, for short—be the plurality of propositions α such that for some Y which is part of X, α is basically essential to Y.[8] The proposal is the following:

(3) α is derivatively essential to $X :\equiv \alpha$ does not belong to $\mathfrak{B}(X)$ and $\mathfrak{B}(X) \vdash \alpha$.

That is to say, α is derivatively essential to X just in case α does not belong to, but is a logical consequence of, the basic nature of X. Given that a proposition is true in virtue of the nature of a plurality of objects iff it is either basically or derivatively essential to that plurality, (3) yields an elegant and simple account of the Finean notion of essence:

(4) α is true in virtue of the nature of $X :\equiv \mathfrak{B}(X) \vdash \alpha$,

i.e. α is true in virtue of the nature of X just in case α is a logical consequence of the basic nature of X. The concept of essence so defined is what Fine calls a concept of "consequentialist" essence (1995b, § 3), and I will accordingly qualify the proposed account of derivative essentiality by the same adjective.

The consequentialist account has its virtues. Consider again proposition (2). Assume that <Socrates is human if he exists> is basically essential to Socrates, and that <the Eiffel Tower is a non-living, concrete thing if it exists> is basically essential to the tower. Given that a

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8 I here invoke pluralities of propositions instead of sets because of potential cardinality problems. As a result, the conception of logical consequence involved in the sequel is slightly different from the standard conception, according to which logical consequence relates a proposition (or a truth-bearer of another kind) and a set of propositions (or of truth-bearers of the corresponding other kind).

conjunction is a logical consequence of its conjuncts, by the account (2) is derivatively essential to Socrates and the Eiffel Tower taken together.

Yet, as I previously stressed, I take the proposed account to be inappropriate. In line with the Finean conception of metaphysical necessity and essence, we want to say that metaphysical necessities are true in virtue of the nature of pluralities of objects, and that different metaphysical necessities may be true in virtue of the nature of different pluralities. This holds for non-conceptual necessities as well as for conceptual necessities, in particular for logical necessities. For instance, on that conception, the proposition:

> (5) <If Sam is a philosopher and Maria is a politician, then Sam is a philosopher or Maria is a politician>

should turn out derivatively essential to, say, conjunction, disjunction and implication, as opposed to derivatively essential to conjunction alone, or negation and the concept of existential quantification. Now clearly, the consequentialist account cannot do justice to the Finean view. For given that every logical necessity is a logical consequence of any plurality of propositions whatsoever, it is a logical consequence of the basic nature of any plurality of objects whatsoever, and, therefore, the account entails that it is derivatively essential to any plurality of objects we want. Thus, for instance, by the account, conjunction, disjunction and implication collectively constitute a derivative essentialist ground for proposition (5), but the same is also true of e.g. negation and the concept of existential quantification, or again of Sam and Mont-Blanc.

Another, less compelling objection is that the account renders the Finean reduction of logical necessity circular. The thought here is that logical consequence itself is to be understood in terms of logical necessity: for a proposition to be a logical consequence of a plurality of propositions is for it to be the case that as a matter of logical necessity, if the latter propositions hold, then so does the former. The objection is less compelling, because although the foregoing thought is widely held it can be doubted. An alternative view which has some plausibility is e.g. the view that it is logical necessity which must be understood in terms of logical consequence. On a variant of this view, to be logically necessary is to be a logical consequence of the empty set.[9]

At this point, one might be tempted to reject the Finean reduction of logical necessity while keeping the rest of the Finean story. On that

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[9] Notice here that given that there is no empty plurality, the view is committed to a (standard) conception of logical consequence as a relation between propositions and *sets* of propositions, rather than between propositions and *pluralities* of propositions.

view, conceptual and metaphysical necessity reduce to essence, but logical necessity does not have its source in the nature of logical concepts—nor in any other plurality, for that matter: it is an altogether different kind of necessity. Yet given the nice unified picture provided by the Finean reductions, I take it that going that way is a line of last resort, to be taken only if no appropriate account of derivative necessity can be found. As I argue in the next section, such an account is available.

4. The Rule-Based Account

The alternative account of derivative essentiality I wish to propose—the *rule-based* account, as I will call it—stems from a brief suggestion Fine makes in ''Senses of Essence'' when discussing the limits of a consequentialist conception of essence (Fine 1995b, pp. 57–58). This is the suggestion that ultimately, the essence of a logical concept—in my terms, what is basically essential to it—is given, not by certain propositions, but rather by certain *rules of inference*. On such a view, for instance, it will be taken to be part of the nature of conjunction that from a conjunctive proposition one can infer each of its conjuncts, and part of the nature of disjunction that from a proposition one can infer any disjunctive proposition having the former proposition as a disjunct.

I will not adopt Fine's suggestion as it is, though. A problem with the view is that logical concepts, being objects of their own (I am here following Fine), plausibly have basic essential properties which have nothing to do with their proper logical nature. For instance, the concept of disjunction may plausibly be said to be basically essentially a concept, or self-identical. It makes very good sense indeed to distinguish, amongst the basic essential features of the logical concepts, those features from the properly logical features, be they thought to be propositional or inferential in character.

Instead of Fine's suggestion, thus, I will assume that the *properly logical* features basically essential to logical concepts are inferential in character. On that assumption, it is possible to develop a theory of ''relative'' logical consequence, which in turn can be used to give an account of derivative essentiality. The point of the remaining part of this section is to show how such a theory can be built, and subsequently to propose such an account.

A theory of relative logical consequence of the sort to be presented here presupposes that 'the class of all logical concepts' unambiguously and determinately refers to a well delineated class of objects, and that to each logical concept is associated some fixed and well defined collection of rules of inference which characterize its basic logical nature.

These presuppositions are substantial and even controversial, but I will just boldly accept them. Among those who endorse them, there is potential disagreement about what to count as a logical concept, and about which rules of inference properly characterize this or that previously recognized logical concept. It is not the place here to argue for one view against other views on these matters. I will work with the assumption that the logical concepts are those expressed by certain classical "logical constants", namely (classical) negation, conjunction, disjunction, material implication, universal quantification and existential quantification—call the set of all these concepts '$\mathcal{L}$'—and that the rules of inference associated with these concepts are the introduction and elimination rules mentioned by some standard classical natural deduction system.[10] This is just for the sake of illustration, though, and many other views on which logical concepts there are and on their inferential nature could be used to start with.

Given any proposition α, plurality of propositions Δ, and set of logical concepts (i.e. subset of $\mathcal{L}$) S, say that α is a logical consequence of Δ *relative to* S—in symbols, $\Delta \vdash_S \alpha$—iff there is a proof of α from Δ, such that given any rule concerning a logical concept which appears in that proof, that concept is a member of S.

A few remarks are in order. First, the following equivalence is taken to hold:

(6) $\Delta \vdash \alpha$ iff there is a set S of logical concepts such that $\Delta \vdash_S \alpha$.

On that account, logical consequence *simpliciter* can accordingly be defined in terms of relative logical consequence. Second:

(7) If α belongs to Δ, then for every set of logical concepts $S, \Delta \vdash_S \alpha$

(so that in particular, $\Delta \vdash \alpha$). There is indeed a proof of α from Δ using only the rule of rewriting (also known as the rule of iteration) provided that α belongs to Δ.[11] Third, relative logical consequence is subject to a monotonicity principle with respect to sets of logical concepts:

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10 In standard natural deduction systems, the rules of inference concern *sentential expressions*, and the notion of a proof is that of a proof of a sentential expression from a collection of sentential expressions. I am here talking about rules of inference which concern *propositions*, and the notion of proof I will invoke below is accordingly that of a proof of a proposition from a plurality of propositions.

11 The rule of rewriting is a "structural" rule, which enters into the definition of a certain sort of proofs and which accordingly does not characterize any of the members of $\mathcal{L}$.

(8) If S is a subset of S' and $\Delta \vdash_S \alpha$, then $\Delta \vdash_{S'} \alpha$.[12]

Notice that (6) and (8) together entail:

(9) $\Delta \vdash \alpha$ iff $\Delta \vdash_{\mathcal{L}} \alpha$.

Fourth, relative logical consequence is subject to a monotonicity principle with respect to pluralities of propositions:

(10) If Δ is part of Γ and $\Delta \vdash_S \alpha$, then $\Gamma \vdash_S \alpha$.[13]

Let me now turn to derivative essentiality. Where X is a plurality of things, let $\texttt{log}(X)$ be the (possibly empty) set of all logical concepts in X. The rule-based account of derivative essentiality runs as follows:

(11) α is derivatively essential to $X :\equiv \alpha$ does not belong to $\mathfrak{B}(X)$ and $\mathfrak{B}(X) \vdash_{\texttt{log}(X)} \alpha$.

That is to say: α is derivatively essential to X just in case α does not belong to the basic nature of X, but is a logical consequence, relative to the set of all logical concepts in X, of the basic nature of X. The proposed account of derivative essentiality yields an account of the Finean notion of essence which is just slightly less simple than the consequentialist account:

(12) α is true in virtue of the nature of $X :\equiv \mathfrak{B}(X) \vdash_{\texttt{log}(X)} \alpha$,

i.e. α is true in virtue of the nature of X just in case α is a logical consequence, relative to the logical concepts in X, of the basic nature of X. Notice that despite the role played by relative logical consequence in the account, (12) does not define concept of consequential essence in the sense of Fine 1995b, § 3. For e.g. the propositions which are true in virtue of the nature of Socrates are, on the proposed account, just the propositions which belong to his basic nature. More generally, on

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12 It is possible to define a corresponding "strict" notion which is not monotonic in that sense, as follows:

α is a logical consequence of Δ *strictly* relative to $S :\equiv \Delta \vdash_S \alpha$ and $\forall S'$ (if S' is a proper subset of S, then $\Delta \nvdash_{S'} \alpha$).

Such a strict notion, though, will not be needed.

13 It is possible to define a notion of relative logical consequence which is not monotonic with respect to pluralities of propositions, as well as a notion which is monotonic neither with respect to sets of logical concepts nor with respect to pluralities of propositions, in the obvious way. But, again, such strict notions will not be needed.

the account, in case X comprises no logical concepts, the propositions which are true in virtue of the nature of X are just those which belong to the basic nature of X.

For certain pluralities of objects, the rule-based and the consequentialist accounts are equivalent. In fact, (9) entails:

(13) If $\mathtt{log}(X)$ is $\mathcal{L}$, then $\mathfrak{B}(X) \vdash_{\mathtt{log}(X)} \alpha$ iff $\mathfrak{B}(X) \vdash \alpha$.

As a corollary, granted the reduction of metaphysical necessity to essence, on either account:

(14) α is metaphysically necessary iff for some X, $\mathfrak{B}(X) \vdash \alpha$.

The two accounts thus agree on what counts as metaphysically necessary.

Yet, clearly, the accounts are not equivalent for all pluralities. Any proposition deemed derivatively essential to a given plurality by the rule-based account must also be deemed so by the consequentialist account (thanks to (6) above), but the converse does not hold. Counterexamples to the converse are provided by pluralities comprising no logical concepts (see above). Counterexamples involving pluralities which do comprise logical concepts can also be proposed. For instance, whereas on the rule-base account the proposition <if Sam is a philosopher, then Sam is a philosopher> is not derivatively essential to conjunction (since there is no proof of the proposition from the basic nature of conjunction and the logical rules for conjunction), on the consequential account that proposition is derivatively essential to any plurality of objects whatsoever (because it is a logical consequence of any plurality of propositions whatsoever), and hence in particular to conjunction.

The superiority of the rule-based account over the consequentialist account should be obvious. Every logical necessity is, on the consequential account, derivatively essential to anything we want. Given that account, whichever logically necessary truth we take, there is no way we could possibly point to a plurality of logical concepts as collectively constituting a derivative essentialist ground for that truth as opposed to other pluralities. In contrast, the rule-based account is tailor-made for taking care of logical necessities. This should already be evident, but let me just illustrate the point with proposition (5), i.e. the proposition <if Sam is a philosopher and Maria is a politician, then Sam is a philosopher or Maria is a politician>. There is a proof of that proposition from no premises using only the elimination rule for conjunction, the introduction rule for disjunction, and the introduction rule for implication. The proposition is therefore a logical consequence, relative to the set of logical concepts $\{\wedge, \vee, \supset\}$, of any plurality of propositions whatsoever, and so, in particular, of the basic nature of any plurality of objects X such that $\texttt{log}(X) = \{\wedge, \vee, \supset\}$. Consequently, on the account, the proposition is derivatively essential to these logical concepts. In contrast, on the rule-based account the proposition is not derivatively essential to, say, Sam and Mont-Blanc (because there is no proof of the proposition from the basic nature of Sam and Mont-Blanc using no rule for logical concepts), or to the concepts of negation and existential quantification (because there is no proof of the proposition from the basic nature of these two concepts using only inference rules characterizing their basic logical natures).

5. Conceptual and Logical Necessity

In this final section I wish to address certain issues concerning the conceptual and the logical necessities. On Fine's account, as we saw, concepts are the essentialist grounds of the conceptual necessities, and logical concepts the essentialist grounds of the logical necessities. As I previously pointed out, Fine actually upholds stronger claims about these types of necessity: he advocates a reduction of conceptual and logical necessity to essence along the line of his reduction of metaphysical necessity, by invoking appropriate restrictions on the objects of essentialist attribution. For a proposition to be conceptually necessary, Fine holds, is for it to be true in virtue of the nature of all concepts, and for a proposition to be logically necessary is for it to be true in virtue of the nature of all logical concepts (pp. 9–10).

Yet there are reasons, irrespective of the way the Finean notion of essence is characterized, to doubt that the proposed reductive claims are tenable. As I previously emphasized, logical concepts plausibly have properties such as being a concept or being self-identical essentially. Yet we do not want to say e.g. that the proposition <disjunction is a concept>, although true in virtue of the nature of disjunction, is a logical necessity. All the same, non-logical concepts equally plausibly have such properties essentially, but it is very implausible to say e.g. that the proposition <bachelorhood is a concept> is conceptually necessary.[14] At best, the logical necessities should be taken to be a proper subclass of what is true in virtue of the nature of all logical concepts, and the

[14] It may be held that the sentence 'bachelorhood is a concept' is analytic, on the grounds that 'bachelorhood' has a descriptive content which marks the concept as a concept, and accordingly one may be tempted to deem the proposition <bachelorhood is a concept> conceptually necessary. If the reader is inclined to go that way, I suggest that she understand my claim as being about the proposition <b is a concept>, where 'b' is a name stipulatively introduced as directly referring to the concept of bachelorhood. Similar considerations apply to the case of disjunction.

conceptual necessities a proper subclass of what is true in virtue of the nature of all concepts.

The same kind of considerations apply to "local" notions of logical and conceptual necessity. The Finean wants to say e.g. that the proposition <if Sam is a philosopher and Maria is a politician, then Sam is a philosopher or Maria is a politician> is logically necessary "in", say, the concepts of conjunction, disjunction and implication, as opposed to the concepts of negation and existential quantification, and similarly, that the proposition <no bachelor is married> is conceptually necessary "in" the concept of bachelorhood but not, say, "in" the concept of being married, or "in" the concepts of being a mountain and of being a prime number. But, as the previous considerations show, we cannot identify local logical or conceptual necessity with truth in virtue of the nature of the corresponding concepts.

However, following the approach which underlies the rule-based account of derivative essentiality, it is possible to characterize local logical necessity, and logical necessity *tout court*, in a way which looks promising. The account I have in mind invokes a notion of *relative theoremhood*, which is akin to the notion of relative logical consequence as previously defined. Given any proposition α and set of logical concepts S, say that α is a theorem *relative to* S—in symbols, $\vdash_S \alpha$—iff there is a proof of α from no premises, such that given any rule concerning a logical concept which appears in that proof, that concept is a member of S. Relative theoremhood has the following properties:

(15) α is a theorem (*simpliciter*) iff there is a set S of logical concepts such that $\vdash_S \alpha$

(16) If S is a subset of S' and $\vdash_S \alpha$, then $\vdash_{S'} \alpha$

(17) If $\vdash_S \alpha$, then $\Delta \vdash_S \alpha$.

The suggestion is then simply to identify local logical necessity with relative theoremhood (for a proposition to be logically necessary in the members of S is for it to be a theorem relative to S), and logical necessity *tout court* as logical necessity in all the logical concepts taken together. Given that (15) and (16) together entail:

(18) α is a theorem iff $\vdash_{\mathcal{L}} \alpha$,

on that account the logical necessities are just the theorems *simpliciter*.

On the proposed picture, thus, the propositions which are true in virtue of the nature of a given plurality X of logical concepts—i.e., according to the rule-based account, the propositions which are consequences, relative to the set S of all logical concepts in X, of the basic nature of X—divide into two mutually exclusive classes. There is the class constituted by the properly logical necessities—which on the proposed account are the theorems relative to S. As it were, these propositions are true in virtue of the nature of X solely thanks to the inferential nature of the logical concepts which belong to X, the (propositional) basic nature nature of X plays no role in giving them this status. The second class, in contrast, is constituted by propositions which at least partly owe their status to the basic nature of X, like, e.g., the proposition <disjunction is a concept>.

The case of conceptual necessity can be treated in a similar way. Take a given plurality of concepts X. If X comprises only logical concepts, the conceptual necessities in X are just the theorems relative to X. In case X comprises at least one non-logical concept, let Y be the plurality of the concepts of that sort which belongs to X. We distinguish, within the basic nature of Y, those truths which are properly conceptual (e.g. the proposition <no bachelor is married>) from those which are not (e.g. the proposition <bachelorhood is a concept>). The conceptual necessities in X are then identified with the logical consequences, relative to the set of all the logical concepts in X, of the "conceptual part" of the basic nature of Y. And the conceptual necessities *tout court* are taken to be the propositions which are conceptually necessary in the plurality of all concepts.

The propositions which are true in virtue of the nature of a given plurality X of concepts thus divide into two mutually exclusive classes. There is the class constituted by the properly conceptual necessities. By the previous account, these propositions are true in virtue of the nature of X solely thanks to the inferential nature of the logical concepts which belongs to X (if any) and the "conceptual part" of the basic nature of the non-logical concepts in X (if any). The second class, in contrast, is constituted by propositions which at least partly owe their status either to the basic nature of some logical concepts in X (if any) or to the "non-conceptual" basic nature of some logical concepts in X (if any).

The proposed account of the relationships between essence and metaphysical, conceptual and logical necessity can be summed up as follows. A proposition which is true in virtue of the nature of all things, i.e. which is metaphysically necessary, is either true in virtue of the nature of all concepts (1), or it is not (2). If it is, then either it is true in virtue of the nature of all logical concepts (1.1), or it is not (1.2). If 1.1 holds, then either the proposition is properly conceptual (1.1.1), or it is not (1.1.2). And likewise, if 1.2 holds, then either the proposition is properly conceptual (1.2.1), or it is not

(1.2.2). Plausible examples of each ultimate category are the following:

[2:] <Socrates is human if existing>

[1.1.1:] <If Sam is a philosopher and Maria is a politician, then Sam is a philosopher or Maria is a politician>

[1.1.2:] <Disjunction is a concept>

[1.2.1:] <No bachelor is married>

[1.2.2:] <Bachelorhood is a concept>.

The propositions which meet condition 1.1.1 or condition 1.2.1 are the conceptual necessities; those which meet condition 1.1.1 are the logical necessities, and those which meet condition 1.2.1 are the conceptual necessities which are not logical necessities.[15]

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