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Essentialism and Absolute Necessity

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Abstract: Bob Hale has argued that logical necessity is absolute necessity. Furthermore, he presents a challenge to the essentialist who tries to evade the consequences of his argument. Here I examine the direct argument he presents for his thesis. I argue that it presents no problem for the essentialist because (1) it begs the question and (2) it relies upon premises that are not entailed by essentialism. I then proceed to show how the essentialist can meet Hale's challenge.

Essentialism and Absolute Necessity

1. Introduction

If there is a received view in the philosophy of modality, it is that there is something properly called 'logical necessity' and that this necessity is philosophically less controversial than anything distinct from it that might be called 'metaphysical necessity', the latter entangling one in the mysteries of Aristotelian essentialism. A natural extension of this view is that logical necessity provides the basis for all other necessities. Logically necessary truths are the consequences of logical axioms. Extending the axiom set to include mathematical axioms or laws of physics permits mathematical necessity or physical necessity to be defined as the consequences of the relevantly expanded set of axioms. Logical necessity would, then, be the most fundamental kind of necessity.

In a very thorough and challenging article, Bob Hale has recently provided a partial defence of this extension of the received view by defending the claim that logical necessity is absolute necessity.[1] He provides a *reductio* of the hypothesis that there could be any sense in which logical necessities might be false. If successful, this argument rules out any necessity that is more fundamental than logical necessity. In section 2 I present Hale's *reductio* and examine its limitations. For those who try to circumvent the argument, Hale presents a regress. In section 3 I sketch for the essentialist a natural way to avoid Hale's regress.

2. The Argument

Absolute necessities are necessary *tout court*, while relative necessities are necessary only relative to some additional axioms which, in some sense, might be false. As the conclusion of a typical valid argument is necessary only relative to the premises of that argument, so the physical necessities are necessary only relative to the fundamental laws of physics. In both cases it appears that the necessity is a matter of the logical relation of entailment between a set of sentences, statements, or propositions and their logical consequences. If all relative necessities are necessary relative to extra-logical axioms because they are the deductive consequences of those axioms, then all forms of necessity are based upon logical necessity. Logical necessity is modal bedrock.

To provide some precision for this contrast between absolute and relative necessities, Hale lets ‘$\grave{O}_1$’ and ‘$\grave{O}_2$’ denote kinds of necessity. By definition, $\grave{O}_1$ is stronger than $\grave{O}_2$ iff ‘$\grave{O}_1$p’ always entails ‘$\grave{O}_2$p’ but not conversely. $\grave{O}_1$ is at least as strong as $\grave{O}_2$ iff ‘$\grave{O}_1$p’ always entails ‘$\grave{O}_2$p’. $\grave{O}_1$ is absolute necessity iff $\grave{O}_1$ is at least as strong as any other kind of necessity. The ideas informally expressed in the previous paragraph amount to the idea that logical necessity is at least as strong as any other kind of necessity. If logical necessity is absolute in this sense, then there is no possibility of logical necessities being false. On the assumption that necessity and possibility are interdefinable in the standard ways, this last claim is equivalent to the claim that logical possibility is at least as weak as any other kind of possibility. If we think of the logically necessary propositions as the logical truths and if we think of logical truths as the propositional correlates to instances of logical consequence, then a special-case formulation of the claim that logical necessity is absolute necessity, in terms of conditional propositions, is McFetridge’s Thesis: ‘if the conditional corresponding to a valid inference is logically necessary, then there is no sense in which it is possible that its antecedent be true but its consequent false’.[2] When generalised, this amounts to there being no stronger, more restrictive, form of necessity than logical necessity and no weaker, less restrictive, form of possibility than logical possibility. Anything logically necessary is necessary in every metaphysically significant sense and anything possible in any metaphysically significant sense is also logically possible.

McFetridge’s Thesis threatens to undermine essentialism, which involves commitment to extra-logical metaphysical necessities which seem to be absolute. If it is metaphysically necessary that Kripke’s lectern is made of wood and if this fact does not follow from anything semantic, then its necessity purportedly does not derive from a more fundamental logical necessity. The contemporary dispute over essentialism arose precisely because essentialist claims promised to be both extra-logical and non-relative. That it is necessary that bachelors are unmarried obviously derives from a logical truth and a definition. The matter is wholly semantic or conceptual. This necessary fact involves no genuine restriction on the ways of the world because bachelor Jones may change marital status. It is a necessity with no metaphysical teeth. In contrast, essentialists proclaim necessities that have these teeth. No logical facts in conjunction with semantic facts about ‘lectern’ or ‘wood’ are sufficient to underwrite the (alleged) fact that Kripke’s lectern is essentially wooden. This is metaphysically significant because while Kripke might have used a lectern made of different stuff, any such lectern would not have been the one he did use. The necessity here does not float in the logical or semantic air, but attaches directly to the lectern and involves a genuine constraint on the ways the world might have been. So, it looks as though the essentialist must deny that logical necessity is absolute necessity.

Hale’s defense of McFetridge’s Thesis involves five assumptions, where ‘$\grave{O}_L$’ denotes logical necessity and ‘**Â**’ denotes an arbitrary kind of metaphysically significant possibility such that **õ**A → A.[3]

A1. If $\grave{O}_L$(A → B) then $\grave{O}_L$ ((A & C) → B)

A2. $\grave{O}_L$(A → A)

A3. If $\grave{O}_L$(A → B) and $\grave{O}_L$(A → C) then $\grave{O}_L$(A → (B & C))

A4. If **Â**A and $\grave{O}_L$(A → B) then **Â**B

A5. ¬ **Â** (A & ¬A)

The argument, then, is the following.

1)	$\grave{O}_L$(A → B)	Assumption
2)	**Â**(A & ¬B)	Assumption
3)	$\grave{O}_L$((A & ¬B) → B)	from 1, by A1
4)	$\grave{O}_L$(¬B → ¬B)	A2
5)	$\grave{O}_L$((A & ¬B) → ¬B)	from 4, by A1
6)	$\grave{O}_L$((A & ¬B) → (B & ¬B))	from 3, 5, by A3
7)	**Â**(B & ¬B)	from 2, 6, by A4
8)	¬**Â**(B & ¬B)	A5
9)	¬**Â**(A & ¬B)	from 2, 7, 8, by *reductio*

The supposition that B is a logical consequence of A, along with standard assumptions about entailment (A1–A3), about deductive closure (A4) and about contradiction (A5) yield the conclusion that there is no sense of possible in which A could be true and B false. This result can be generalised to cover non-conditional propositions: Ò$_{L}$A → **Ò**A, which is equivalent to **Â**A → Â$_{L}$A.[4]

There are two general positions that constitute a rejection of this more general conclusion. According to the first, there is a more restrictive kind of necessity and a corresponding less restrictive kind of possibility. For such a necessity **Ò**A → Ò$_{L}$A, but the converse fails. According to the second, the necessities are somewhat incommensurable. The sets of necessary propositions would be at least partially disjoint sets, permitting the failure of Ò$_{L}$A → **Ò**A. I will concern myself with the first position in the remainder of this section and take up the second in the next section.

A4 states that arbitrary possibilities are preserved under logical consequence. Hale correctly points out that it does not follow from the failure of A4 for some modality that we cannot reason about the modality in question.[5] In fact, not much follows about our ability to reason about a modality for which A4 fails. The schema A4 fails on the condition that there is simply one pair of propositions for which it fails. The relevant possibility would be preserved under logical consequence in all cases save one. Formulating the issue here in terms of possibility, the argument is supposed to establish that **Â**A → Â$_{L}$A, i.e., there are no possibilities beyond the logical possibilities; all real possibilities are logical possibilities. This entails that the laws of logic are preserved in all genuine possibilities.

Suppose the truth of:

A6. For some A, B: **Â**A and Ò$_{L}$(A → B) and ˜**Â**B

According to A6, there is some possibility that lies beyond the boundary of the logically possible, e.g., A & ˜B. Since A is possible, it is true in some world and since B is impossible, it is false in that A-world. Furthermore, that particular possibility is one for which not all logical necessities hold. The joint truth of A and ¬B renders (A → B) false, even though by hypothesis (A → B) is logically necessary.[6] As commonly understood, for some situation to be logically impossible is for it to be incompatible with the logical truths, which is to say that the situation involves contradiction, explicitly or implicitly. Thus, any kind of necessity more restrictive than logical necessity would correlate with a possibility less restrictive than logical possibility, thus permitting possibilities beyond the logically possible, like A & ˜B. The entire weight of this defence of the absoluteness of logical necessity, then, rests on A5: the impossibility of contradiction.

It is important to note that on *traditional* accounts of logic, logical impossibility involves contradiction. Classical and intuitionist logics certainly formalise the idea that no contradictions are true. If these logics have tacit modal import, then they exhibit, though they cannot express, the idea that no contradictions are possibly true. At this point we confront an ambiguity in the thesis that logical necessity is absolute necessity. With which logic are we concerned? There is no single set of truths that can be labelled unambiguously as ‘logical’. There are the popular presentations of something called ‘logic’ which descend from *Principia Mathematica*, and this logic constitutes the content of typical introductions to the study of valid inference. Non-classical logicians of all stripes, however, take this account of logical truth and logical consequence to task. Some, the paraconsistent logicians, take classical logic to task precisely over the status of A5, at least in its nonmodalised form. Paraconsistent logics are, by definition, logics which do not exclude contradictions from the realm of the possible in at least one sense—the derivation of a contradiction does not automatically warrant the rejection of at least one assumption or inference that led to the contradiction. Such logics embody attempts to formalise the idea that there is a sense of possibility—indeed, logical possibility—in which at least some contradictions are possibly true. They are not false as a simple matter of logic.[7]

Clearly Hale is trying to defend the claim that *non-paraconsistent* logical necessity is absolute necessity. Where ‘$\hat{A}_L$’ denotes traditional, non-paraconsistent logical possibility, the most a defender of McFetridge’s Thesis is entitled to assume is:

A7. $\neg \hat{A}_L (A \& \neg A)$

Contradictions violate the laws of traditional logics. Far from being an available assumption in a defence of McFetridge's Thesis, A5 is precisely the point at issue between the traditionalist and the paraconsistentist. The bone of contention between them may be viewed as an issue over the boundary of logical possibility or it may be viewed as a dispute about whether there is a kind of non-logical possibility broader than logical possibility, while both parties tacitly assume that the logic in question is traditional rather than paraconsistent. Either way, contradiction serves as a requirement on, a boundary of, traditional logical possibility. All grant this. Hale is explicitly defending the thesis that no form of necessity is strictly stronger than traditional logical necessity. This is equivalent to the thesis that no form of possibility is strictly weaker than logical possibility, i.e., that there are no possibilities that reside outside of the domain of the logically possible as traditionally construed. Since this just is the issue of whether there are any genuine contradictory possibilities outside of the class of traditional logical possibilities, A5 begs the question by assuming precisely that there is no possibility weaker than standard logical possibility.[8]

Since A5 begs the question by simply being another formulation of the thesis that logical necessity is absolute, Hale really requires a direct argument for A5 rather than a *reductio* that uses it. Such an argument would straightforwardly refute the claim that paraconsistent logics provide general maps of logical space. If Hale is willing to concede 'logical possibility' to the paraconsistentist, then the argument for A5 would refute the claim that logical possibility, as it would then be understood under the influence of the paraconsistentists, is an adequate guide to genuine possibility. That A5 begs the question undermines the full generality of Hale's argument for McFetridge's Thesis, but Hale's real stalking horse, the essentialist who holds fairly standard views about the scope of logic and its necessity, must deal with the argument in some other way. In the remainder of this paper, I will take up the remaining challenge that Hale poses for the essentialist and argue that in the same way Hale may well dispute the claim that paraconsistent logical possibility is real possibility, the essentialist will. dispute the claim that more traditional logical possibility is real possibility.

3. Essentialism Rescued

Hale's argument establishes, against those with no scruples against A5, that metaphysical necessity is not stronger than logical necessity, in the sense that the class of metaphysically necessary truths does not form a proper subset of the logically necessary truths. Hale quite carefully notes that this argument does not establish that logical necessity is the strongest form of necessity. In particular, it does not show that logical necessity is strictly stronger than metaphysical necessity. The thesis that logical necessity is absolute necessity permits that logical necessity and metaphysical necessity be equal in strength . The essentialist has no interest in the thesis that these two modalities are co-extensive since it erases any dispute between the essentialist and the anti-essentialist. Hale, then, offers to the essentialist a way to escape the conclusion that logical necessity is absolute necessity: hold that the sets of logical necessities and metaphysical necessities are at least partially disjoint rather than one forming a subset of the other. In such a case neither modality would be strictly weaker than the other; the set of absolute necessities would be the union of the logical and metaphysical necessities and the set of genuine possibilities would be the intersection of the logical and metaphysical possibilities.[9]

The essentialist, however, can decline the offer because typical essentialist claims are not even so much as addressed by Hale's *reductio*. Controversial essentialist claims do not entail that metaphysical necessity is more restrictive than logical necessity. Rather, they involve logical possibilities that are not metaphysically (genuinely) possible e.g., it is logically possible that Kripke's lectern might have been ice, but it is still not possible that it have been so. Essentialist claims do not amount to 1) and 2). Instead they amount to 1) and 2) with the types of modalities reversed, i.e.,

10. $\Box_M(A \rightarrow B)$

11. $\Diamond_L(A \& \neg B)$

The essentialist can admit with Hale that there is no interesting sense of possible in which logical necessities could be false because instances of 1) and 2), though inconsistent, are not consequences of essentialist claims. Instances of 10) and 11) are entailed by essentialism, but they are consistent and are not undermined by Hale's argument. Part of the standard picture sketched in the introduction can be accepted by the essentialist: the class of logical necessities is a subset of the class of metaphysical necessities and metaphysical possibilities form a subset of the logical possibilities. Essentialism does not conflict with the thesis that logical necessity is absolute as this has been defined.

The essentialist wants to claim that metaphysical necessity is basic or absolute not in the sense defined above, but only in the sense that the metaphysically possible constitutes the whole of the genuinely possible. This claim is consistent with Hale's precisely-defined thesis for logical necessity. The essentialist is simply at pains to maintain that any logical possibilities outside the domain of the metaphysically possible have no bearing on the ways the world might be. Such merely logical possibilities are possibilities in name only. According to the essentialist, real possibility is *less* permissive than mere logical possibility not more permissive. Logical possibility, as given by first-order quantificational logic, overgenerates admissible formulae, so logical possibility is not a reliable guide to genuine possibility.

Such a response is too easy, thinks Hale. "To accept that metaphysical necessity is not absolute is to acknowledge that while it is, say, metaphysically necessary that heat is mean kinetic energy of molecules, there are possible worlds—logically possible worlds—in which this is not so."[10] Not only is the essentialist not forced to acknowledge the existence of any such worlds, essentialism, in its current forms, just is the denial of their existence. To say that some things are logically possible but metaphysically impossible is not to deny that logical necessity is absolute in the technical sense given. It is to say, rather, that any logical possibilities that fail to be metaphysically possible are not real possibilities. To express this in terms of worlds, essentialism amounts to the denial that there are any genuinely possible worlds in which logically possible but metaphysically impossible situations obtain. Logically possible worlds which are not also metaphysically possible worlds are not worlds at all. At best they can be represented by consistent descriptions that are not possibly realised. To claim that there are worlds in which metaphysically impossible things obtain actually requires an argument for the claim that all logical possibilities are genuine possibilities. This is not secured simply by arguing that logical necessity is absolute necessity, since this claim is consistent with essentialism. What is required is some further argument that connects certain facts of syntax and/or semantics to real possibility.

The essentialist can justify the claims that the logical necessities form a subset of the metaphysical necessities and that not all logical possibilities are genuine possibilities on the condition that there is some motivated rationale which accounts for the genuine possibility of only some of the logical possibilities. One such rationale is a completely general essentialist account of necessity, including logical necessity.[11] On such a theory, the fundamental notion is that of the essence of, the nature of, a thing. Essence is not further explained in terms of logical truth, logical form, or even possible worlds. The absolutely necessary truths are those true in virtue of the essence or nature of the relevant items. As a special case, logical necessities are those truths which are true in virtue of logical items, perhaps propositions or their constituent concepts. Alternatively, logical necessities might be those propositions true in virtue of the nature of every situation or every object and property about which we may speak. This preserves the idea that logic is the most general science which applies to every situation. The non-logical metaphysical necessities are those that lack this degree of generality. These necessities are those propositions true in virtue of the essence or nature of only some objects and their attributes. The commonly-discussed essentialist theses purport to specify parts of the essences of water, Kripke's lectern, and Queen Elizabeth that are not shared by other substances or objects, which is to say that they purport to convey parts of the relevant essences which are non-logical.

On this account, absolute necessity is the union of the logical and the metaphysical necessities, since the logical necessities are simply special cases of metaphysical necessities. Absolute possibility is the intersection of the logical and the metaphysical possibilities, i.e., the metaphysical possibilities. Just what the essentialist wants. Essentialist claims to the effect that something is logically possible but not metaphysically possible, amount to the following: the features common to the nature of all things are insufficient to rule out a given possibility, e.g., that Kripke's lectern might have been made of ice. When its full nature is considered, however, that possibility is excluded. If the logically possible is simply that which contravenes no universal essentialist facts, then it is not at all surprising that not all logical possibilities are genuine possibilities. In the same way we cannot fully specify the way something is if we limit ourselves to the properties it shares with all other things, likewise we cannot specify the nature of a thing if we limit ourselves to essential properties that it shares with all other things. Consequently, we cannot accurately specify the possibilities for something if we limit ourselves to the part of its nature that it shares with everything else. On the assumption that part of the essence of Kripke's lectern is not shared with everything else, its real possibilities are not a function of only that part of its essence that it shares with everything else. Because the essentialist claims that the lectern has more to its essence than what all other things have to their essences, we will overgenerate possibilities for it if we ignore part of its essence, in particular the part about its chemical make-up.

This framework permits the essentialist to account for the absoluteness of logical necessity because it is a special case of metaphysical necessity. Logical necessities are those propositions necessarily true in virtue of a limited set of concepts and objects—those needed for the logical truths. It also permits a rationale for declaring some logical possibilities not to be genuine possibilities. Such logical possibilities are declared on an incomplete assessment of the essence of the relevant object(s).

At this point, Hale's main challenge to the essentialist is the threat of regress. Like Carnap's modal conventionalism, this essentialist account of necessity is supposed to be a comprehensive account of modality. It permits the class of necessary truths to exhibit structure, i.e., some necessities entail some others. If some necessary truths are necessary directly or immediately, in virtue of the essences of the relevant objects, and if some are necessary derivatively, in virtue of being entailed by those necessary immediately, then an infinite regress threatens.

Carnap held that ϕ is necessarily true if and only if either it is (simply) true by convention or it is a logical consequence of something (simply) true by convention. Quine argued that Carnap's account foundered on a regress like the following.[12] Let $\boldsymbol{C}$ be the class of necessary truths that are made true by direct convention. Consider a ϕ which is a consequence of something made true by direct convention. Then ϕ is necessarily true in virtue of being a logical consequence of C, i.e., in virtue of $\boldsymbol{C}$ ′ ϕ. ϕ's being a logical consequence of C involves at least Ò$(\boldsymbol{C} \to \phi)$. Assuming that not all necessarily true conditionals are members of C, then for some instances of $\boldsymbol{C}$ and ϕ, $(\boldsymbol{C} \to \phi)$ must be necessarily true because $\boldsymbol{C}$ ′ $(\boldsymbol{C} \rightarrow \phi)$. But then Ò$(\boldsymbol{C} \rightarrow (\boldsymbol{C} \rightarrow \phi))$ must already hold, and we are off to the regress races. In exactly the same way, Hale argues that any comprehensive theory of absolute necessity in which something besides logical necessity is absolute founders on this kind of regress.[13] There appears to be an unavoidable reliance upon logical consequence and its modal involvement, which must be more basic than the absolute necessity to be explained.

Carnap wished to retain a classical understanding of logical and mathematical truth as objective. His account relies upon entailment relations as part of the definition of necessary truth, yet if entailment relations are, in part, modal relations and their corresponding object language conditionals are necessary truths, regress or circularity is inevitable. By Carnap's own lights, entailment relations need to obtain both by convention and yet be *sui generis* and objective. The former condition is constitutive of his conventionalism, the latter constitutes his conservatism about logic and mathematics. In trying to account for a prior understanding of the objectivity in logic and mathematics in a way that had the facts of necessity running in tandem with our knowledge of necessity, at least for the stipulators of the relevant linguistic facts, Carnap's moderate conventionalism failed.

Regress may certainly be avoided by those who reject Carnap's conservatism and hold to a modal constructivism: every necessary truth is true by direct convention, permitting those conventions to take the form of proof construction. In the absence of appropriate conventions there are no facts about entailment relations. Essentialists are not driven to extreme conventionalism to avoid regress, however. Common facts about truthmaking may be mobilised.

For simplicity suppose that the essentialist holds that logical truths are a species of conceptual truth. The truth of logically true propositions would then be found in the nature of the relevant concepts involved. Let $\boldsymbol{C}$ be the class of propositions made true by the nature of only one concept. Hale suggests that the following are members of *C*:

(1) If a conjunction is true, then so are its conjuncts

and

(2) A disjunction is true, if at least one disjunct is.

These appear to be base-level necessary truths because of the nature of the concepts of conjunction and disjunction respectively. In contrast, there seem to be propositions that are necessarily true because they are entailed by these, like:

(3) If a conjunction is true, so is any disjunction which shares a component with it.

(3) is necessarily true, because ***C*** ′ (3).

To see that regress does not ensue, even if Ò(***C*** → (3)) is a necessary condition for ***C*** ′ (3), recall that here the essentialist proposal is to give an account of the necessity of a logically necessary proposition in terms of that proposition's being true in virtue of the essence or nature of the relevant logical concepts. It is these concepts and their essential attributes that serve as truthmakers for logical necessities.[14] (1) and (2) are true in virtue of facts involving the concepts of conjunction and disjunction and their essences. Those concepts being the way they are account for the truth of these propositions. These concepts and their essences are also the truthmakers for propositions like (3). Complex propositions like (3) are admitted into the class of necessities because they are rendered true by the nature of the relevant items, just like (1) and (2). The difference is that some complex propositions like (3) require more than one item and more than one nature for their truth. What is definitely not required is that the relevant truthmakers make (1) and (2) true and then (1) and (2) turn around and render (3) true *via* entailment. Were this so, a regress similar to that faced by Carnap would arise. In that case, the account would require pre-existent entailment relations, which would be correlated with pre-existent necessary truths, to explain the necessity of (3), thus precluding the essentialist account from being completely general. The essentialist, however, can easily deny that (3) is necessarily true *because* it is entailed by (1) and (2). Instead, the truth of (3) supervenes upon the same set of things that render (1) and (2) true. (3) is a member of the class of logical necessities because of the nature of the concepts of conjunction and disjunction. The propositions (1) and (2) do not figure into the account of (3)'s truth and necessity at all, only their constituent concepts and their natures so figure.

The result is that there need be no distinction between necessities that are privileged because they are made true directly and those that are true only indirectly. All find their truth directly and immediately in the relevant objects and essences. Because the truthmaking relation is not something transmitted from some propositions to others, the regress does not get started. Entailment relations among necessarily true propositions do not require that truth be transmitted by or grounded in entailment relations. Inference and warranted assertion may be so transmitted or grounded, but to think that truth is likewise transmitted is to confuse the metaphysics on the one hand with its expression or encoding on the other. Saying that {(1), (2)} ′ (3), which involves the claim that Ò(((1) & (2)) → (3)), is simply one way of expressing that any state of affairs making (1) and (2) true is sufficient to render (3) true. Claims about entailment relations are nothing more than linguistic representations of the fact that the natures of conjunction and disjunction are sufficient to secure the truth of (3). What matters are the truthmakers, the natures, not the entailment relations among propositions. On any sensible theory of truth it is incorrect to interpret {(1), (2)} ′ (3) as saying that two propositions render a third true. This holds whether the theory of truth is a metaphysically robust correspondence theory or ontologically more conservative minimalist theories. Since no propositions enter the set of necessary truths as a result of entailment by others, there are no first- and second-class citizens of that set. All are equal. Thus, the regress does not arise.

This way of handling the threat of regress assumes a distinction between recognising a necessity to be true and its being true. The former is certainly connected with deduction and proof. One might ask why, according to the essentialist, are some logical truths accorded the status of axioms and others rendered mere theorems? But what could be the trouble here for the essentialist? Alternative axiomatisations of first-order logic show, if anything, that relative status is not in the propositions themselves any more than it is in the rules of deduction. We are under no illusions that *modus ponens* is a privileged rule. While true that given certain axiom sets of propositional logic, *modus ponens* constitutes a sound and complete set of proof rules, this does not tempt us to think that simplification or disjunction introduction are intrinsically inferior rules. Their superiority or inferiority are relative to axiom sets and to the interests of deducers. *Modus ponens* is sufficient with some axiom sets. With others, more rules are needed. With the null set of axioms, still more rules are needed. If anything, that we can do without axioms altogether and proceed with natural deduction rules casts doubt on the inference that since some logical truths entail some others, there must be some structure of dependency in what it is for logical truths to be true and some attending dependency in what it is for the relevant necessities to be true. With equal justification one could argue that the entire class of logical necessities has a structure of dependency firmly rooted on the null class of propositions, a very implausible result.

To the extent that there is a problematic unclarity with the essentialist's reliance on the relation of *ϕ's being true in virtue of the nature of x* there are also problems making out the substance of logical *necessity*. There certainly are propositions we designate with labels 'logical truth', 'axiom', 'theorem', etc. To permit the current discussion to get off the ground I have acceded to provisionally defining 'logical necessity' in terms of logical truth. But, to what does logical *truth* amount? If something like Quine's regress effectively removed from the scene old-style conventionalist accounts of logical truth as truth by convention, there is the very great danger that logical truths are truths in name only. If the Tractarian thought that logical truths are vacuous is pursued we end with merely so-called truths and so-called necessities. Truths that say nothing are hardly truths; necessities which say nothing are empty. There is a very great burden to be shouldered by any advocate of logical necessity: to say in virtue of what logical necessity is genuine necessity. Clearly, logical truth is connected in some fashion with facts of syntax and model-theoretic semantic structures, but what is rarely addressed is exactly what these things have to do with real possibilities. Both Hale and the essentialist can agree that first-order logic shows us the structure of modal reality insofar as we pay attention only to predicate structure, but what the essentialist tries to answer, and what the anti-essentialist typically does not, is what relation this predicate structure bears to necessity. We must have some reason to think that 'logical necessity' is not co-opted and stipulatively defined when it is defined in terms of formal syntax or semantics. To give such a reason would be to show what relation the typically-favoured facts of syntax and semantics bear to real possibilities. If no such reason is forthcoming, then the standard definitions of logical truth shed no light on any pre-theoretically understood necessity. The result is that while there may well be quite deep problems about the nature of necessary truth and our epistemological access to that truth, these problems arise for the proponent of the absoluteness of logical necessity no less than they arise for the essentialist.

It must be left for another occasion to pursue these issues in the philosophy of logic. It is fair to say that so far as the arguments considered here go, there is no reason to think that there is a special problem for the friends of metaphysical necessity. Essentialists may hold, with Hale, that logical necessity is absolute while at the same time contending that metaphysical necessity limns the nature of modal reality. At least one option is to see logical necessity as simply a special case of the metaphysical. One lesson, not fully defended here, is that metaphysical necessity is not particularly more problematic than logical necessity. We might cast about for non-essentialist accounts of logical necessity. Indeed, there have been historically significant attempts to account for the nature of logic in psychologistic, syntactic, and semantic terms without appeal to anything like *ϕ's being true in virtue of the nature of x*. It is doubtful that these accounts can actually recover anything that could count as logical *necessity*.[15] The fundamental issue is not whether to embrace metaphysical necessity along side an innocuous logical necessity. In all likelihood, it is whether to embrace any modality at all.

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Notes

[1] B. Hale, "Absolute Necessities," *Philosophical Perspectives* 10 (1996): 93–117. Hale understands 'logical necessity' broadly, to encompass logical truths as well as conceptual necessities. He says that narrowly logical necessity, the necessity associated with only with logical truths, is a special case of broadly logical necessity. It is easy to see what he has in mind when we think of conceptual necessities as those true (necessarily) in virtue of the meanings of the relevant constituent concepts. Narrowly logical truths are necessarily true in virtue of the constituent logical concepts. Broadly logical truths are necessarily true in virtue of constituent non-logical concepts as well as the relevant logical concepts. On the assumption that the class of broadly logical (conceptual) necessities includes all of the narrow logical truths, my discussion focuses on narrowly logical truths/necessities. If the case for the absoluteness of narrow logical necessities fails, then the case for broadly logical necessity fails.

[2] Hale, 97.

[3] Hale excludes the epistemic modalities from his discussion because some of them are clearly not relative in the relevant sense. Epistemic possibility, when understood as, 'for all we know', is not relative but it also fails to be a metaphysically significant modality.

[4] Hale, 97–98.

[5] Hale, 99–100.

[6]The following is analogous. On the assumption that laws of nature are contingent there will be something that is naturally necessary but not logically or metaphysically necessary. If it is a law of nature that (If A, then B), but this law is contingent, then there is a sense of possible in which it is possible that (A & ~ B). Consider a world in which it is true that (A & ~B). It is natural to say that the laws of nature do not apply to that world or situation.

[7]The idea of something being true or false as a matter of logic is not at all clear. What this could amount to is discussed in my ‘The Necessity of Logic’, unpublished.

[8]Of course, there is a variety of paraconsistent logics. In some, noncontradiction is a theorem *and* noncontradiction fails for some of its instances. In others, noncontradiction is not a theorem at all. In either case, A5 asserts something the denial of which is affirmed by paraconsistentists, thus begging the question.

[9] Hale, 101.

[10] Hale, 98.

[11] One version of which is presented in K. Fine, “Essence and Modality,” *Philosophical Perspectives* 8 (1994): 1–16; K. Fine, “Ontological Dependence,” *Proceedings of the Aristotelian Society* 95 (1995): 269–289. That an essentialist framework is required for a satisfactory account of logical *necessity* is defended in my ‘The Necessity of Logic’ unpublished.

[12] W.V. Quine, “Truth by Convention,” in O. H. Leed, ed., *Philosophical Essays for A. N. Whitehead* (New York: Longmans, 1936); reprinted in W.V. Quine, *The Ways of Paradox* (New York: Random House, 1966): 77–106.

[13]Hale, 105–110.

[14]This version of truth and truthmakers resembles that put forward in D.M. Armstrong, *A World of States of Affairs* (Cambridge: Cambridge University Press, 1997), though he is not interested in avowing a general essentialist theory of logical necessity.

[15]This is partially defended in my Conventions, Cognitivism, and Necessity,' *American Philosophical Quarterly*, 33 (1996): 375–392 and more fully defended in 'The Necessity of Logic'.

Ò$_1$ is stronger than Ò$_2$ iff ‘Ò$_1$p’ always entails ‘Ò$_2$p’ but not conversely.

Ò$_1$ is at least as strong as Ò$_2$ iff ‘Ò$_1$p’ always entails ‘Ò$_2$p’.

Ò$_1$ is absolute necessity iff Ò$_2$ is at least as strong as any other necessity (iff Â$_L$ is at least as weak as any other possibility)

McFetridge’s Thesis: ‘if the conditional corresponding to a valid inference is logically necessary, then there is no sense in which it is possible that its antecedent be true but its consequent false’.

Five assumptions, where ‘Ò$_L$’ denotes logical necessity and ‘**Â**’ denotes an arbitrary kind of metaphysically significant possibility such that **Ò**A → A

A1. If Ò$_L$(A → B) then Ò$_L$ ((A & C) → B) [Strengthening]

A2. Ò$_L$(A → A) [Self-implication]

A3. If Ò$_L$(A → B) and Ò$_L$(A → C) then Ò$_L$(A → (B & C)) [Compatibility of consequences]

A4. If **Â**A and Ò$_L$(A → B) then **Â**B [Closure]

A5. ¬ **Â** (A & ¬A) [Impossibility of contradiction]

The argument.

1)	Ò$_L$(A → B)	Assumption
2)	**Â**(A & ¬B)	Assumption
3)	Ò$_L$((A & ¬B) → B)	from 1, by A1
4)	Ò$_L$(¬B → ¬B)	A2
5)	Ò$_L$((A & ¬B) → ¬B)	from 4, by A1
6)	Ò$_L$((A & ¬B) → (B & ¬B))	from 3, 5, by A3
7)	**Â**(B & ¬B)	from 2, 6, by A4
8)	¬**Â**(B & ¬B)	A5
9)	¬**Â**(A & ¬B)	from 2, 7, 8, by *reductio*

A6. For some A, B: **Â**A and Ò$_L$(A → B) and ˜**Â**B

A7. ¬ Â$_L$ (A & ¬A)

10. Ò$_M$(A → B)

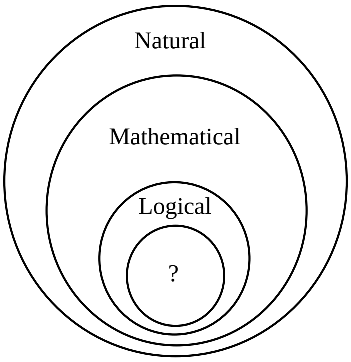
11. Â$_L$(A & ¬B)

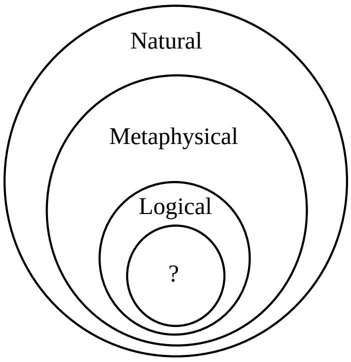
(1) If a conjunction is true, then so are its conjuncts

(2) A disjunction is true, if at least one disjunct is.

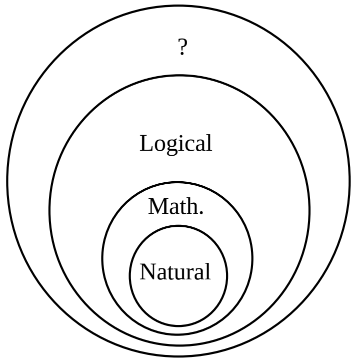
(3) If a conjunction is true, so is any disjunction which shares a component with it.

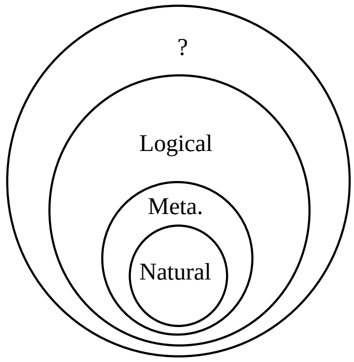
Necessities





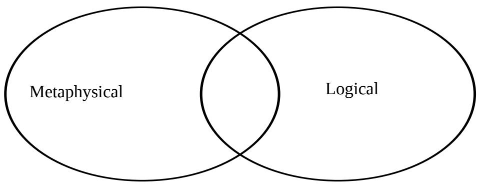
Possibilities





The argument establishes that there is nothing stronger than logical necessity and nothing weaker than logical possibility. This is compatible with:

Absolute Necessities



Absolute Possibilities