Necessary Existence and
The Semantics of Quantified Modal Logic

1. Timothy Williamson (2002) has offered what he believes to be a “proof” for his own necessary existence. This “proof,” though, is not an exercise in existential immodesty on a grand scale since it generalises to be an argument for the seemingly absurd claim that *everything* is a necessary existent.¹ The “proof” is thus an exercise in existential egalitarianism – there is no distinction, in terms of the modal status of one’s existence, among you, me, God, and the number seven.² While I applaud egalitarianism in most every form, accepting necessary existence, it seems, is one step too far. Engaging in a bit of fitching,³ I present a new argument for necessary existence, one that I think offers a stronger case for necessary existence than does Williamson’s. I then consider how one might deal with these arguments. It seems to me that the arguments for necessary existence raise a fundamental question concerning the semantics of quantified modal logic – namely, what are the truth conditions for a modal sentence about an individual? In contrast to the standard truth conditions for such sentences, I present a Priorean semantics of quantified modal logic that yields what I take to be the right resolution of the arguments for necessary existence.

This semantics also has an implication concerning the modal status of a certain set of true sentences about contingent existents, namely,

¹ For convenience, let ‘necessary existence’ abbreviate this claim and let ‘contingent existence’ abbreviate its negation.
² Assuming all of the individuals mentioned exist at all, of course.
³ ‘Fitch’ as defined by *The Philosophical Lexicon*: *fitch*, v. To seek sound arguments for positions no one holds. ‘In his last article he really went fitching.’ Hence, *fitch*, n. Such an argument, and *fitchous*, adj. describing such arguments (e.g. a fitchous circle), also *fitchy*, adj. ‘His argument struck me as fitchy.’ See Dennett (ed.) (1987).
existential sentences, such as ‘Tony Blair exists’,

instances of logical truths, such as ‘If Tony Blair is a person, then Tony Blair is a person’,

essentialist claims, such as ‘Tony Blair is essentially a person’,

sentences that predicate an accidental property to a contingent existent and contain ‘actually’ as a predicate modifier, such as ‘Tony Blair is actually Prime Minister of the United Kingdom in 2005’, and

identity sentences, such as ‘Hesperus is identical with Phosphorus’.

On the Priorean semantics I present, such sentences are all contingently true, in the sense that they and their negations are not necessary, but they are never not the case, in the sense that they are not possibly not the case. I explore this consequence of the Priorean semantics after dealing with the arguments for necessary existence.

2. Williamson (2002, 233-34) offers the following “proof” of necessary existence.

(1) Necessarily, if TW does not exist, then the proposition that TW does not exist is true.
(2) Necessarily, if the proposition that TW does not exist is true, then this proposition exists.

(3) Necessarily, if the proposition that TW does not exist exists, then TW exists.

From these premises, we can conclude:

(4) Necessarily, TW exists.

Generalising this conclusion we obtain:

(5) Everything is such that, necessarily, it exists.

This conclusion follows uncontroversially from premises (1) – (3). So in order to resist necessary existence, one must resist at least one of the argument’s premises.

Now the general principles underlying (1), (2), and (3) are the following.

(6) Necessarily, if \( \varphi(a) \) then the proposition that \( \varphi(a) \) is true.

(7) Necessarily, if the proposition that \( \varphi(a) \) is true, then the proposition that \( \varphi(a) \) exists.

(8) Necessarily, if the proposition that \( \varphi(a) \) exists, then \( a \) exists.

\[ ^4 \text{Whenever I write ‘}\varphi(a)\text{‘ I assume that this formula contains no rigid singular terms other than ‘}a\text{‘.} \]
Thus, if one is to give a plausible rebuttal of this argument for necessary existence, one must give good reasons for not accepting the validity of (6), (7), or (8). Two ways of disputing the soundness of this argument immediately come to mind: denying that propositions are individuals and denying that existence is a first-level concept. One might take this argument as a *reductio ad absurdum* for either or both of these assumptions. Williamson’s argument, though, does not essentially depend on the existence of propositions as individuals, as Ian Rumfitt (2003) as shown. Before turning to Rumfitt’s refined version of Williamson’s argument, I want to introduce a new argument for necessary existence, one that assumes both that propositions are individuals and that existence is a first-level concept. This argument, though, is more general than Williamson’s and, in my view, presents a stronger case for necessary existence than does Williamson’s.

3. Consider any sentence about me that holds of necessity. Some likely candidates include:

   (a) If I exist, then I exist.

   (b) If I exist, then I am a person.

From the necessity of one of these sentences or any other about me, we can argue that I am a necessary existent. Generalising from this result, we can conclude that everything is a necessary existent. Symbolisation will make the logical form of the
argument perspicuous. Let ‘a’ denote me and let ‘ϕ(a)’ symbolise ‘If I exist, then I exist’, a sentence I choose for convenience. Also, let ‘T’ denote the truth predicate, let ‘E!’ denote the existence predicate, and let ‘[ϕ(a)]’ abbreviate ‘the proposition that’”ϕ(a). With this symbolization we can give the following argument for necessary existence.

(9) Necessarily, if I exist, then I exist.

□ϕ(a)

(10) If, necessarily, if I exist, then I exist, then, necessarily, the proposition that if I exist, then I exist is true.

□ϕ(a) ⊃ □T[ϕ(a)]

(11) If, necessarily, the proposition that if I exist, then I exist is true, then, necessarily, this proposition exists.

□T[ϕ(a)] ⊃ □E![ϕ(a)]

(12) If, necessarily, the proposition that if I exist, then I exist exists, then, necessarily, I exist.

□E![ϕ(a)] ⊃ □E!a

By modus ponens, we can conclude:

(13) Necessarily, I exist.

□E!a
Generalising this conclusion produces:

\[(14) \text{ Everything is such that, necessarily, it exists.} \]
\[
\forall x \Box \exists ! x
\]

Consequently, we can conclude that everything is a necessary existent from the claim that I essentially exist, formalised as: \(\Box (\exists ! a \Rightarrow \exists ! a)\).

The move from premises (9) – (12) to conclusion (13) relies on modus ponens, which is unobjectionable in this context. The move from (13) to (14) relies on universal generalization, which is also unobjectionable in this context. Thus, if the soundness of this argument is to be disputed, one of the premises, (9) – (12), must be denied. Denying (9) amounts to denying that there are any necessity claims about me. Denying (11) – (13) amounts to denying the validity of at least one of the schemata:

\[(15) \text{ If, necessarily, } \varphi(a), \text{ then, necessarily, the proposition that } \varphi(a) \text{ is true.} \]
\[
\Box \varphi(a) \Rightarrow \Box T[\varphi(a)]
\]

\[(16) \text{ If, necessarily, the proposition that } \varphi(a) \text{ is true, then, necessarily, the proposition that } \varphi(a) \text{ exists.} \]
\[
\Box T[\varphi(a)] \Rightarrow \Box \exists ! [\varphi(a)]
\]

\[(17) \text{ If, necessarily, the proposition that } \varphi(a) \text{ exists, then, necessarily, } a \text{ exists.} \]
\[
\Box \exists ! [\varphi(a)] \Rightarrow \Box \exists ! a
\]
Now to the task ahead: refining both Williamson’s argument and this new argument for necessary existence so that they do not rely on the existence of propositions as individuals.

4. Using Prior’s concept of statability – where it is statable that \( P \) just in case there is a question whether \( P \) – we can reformulate the arguments for necessary existence so that they do not rely on the existence of propositions as individuals. Williamson’s argument would then take the form:

\[
\begin{align*}
(18) & \text{ Necessarily, if } a \text{ does not exist, then it is true that } a \text{ does not exist.} \\
& \Box(\neg E!a \supset T(\neg E!a))
\end{align*}
\]

\[
\begin{align*}
(19) & \text{ Necessarily, if it is true that } a \text{ does not exist, then it is statable that } a \text{ does not exist.} \\
& \Box( T(\neg E!a) \supset S(\neg E!a))
\end{align*}
\]

\[
\begin{align*}
(20) & \text{ Necessarily, if it is statable that } a \text{ does not exist, then } a \text{ exists.} \\
& \Box(S(\neg E!a) \supset E!a))
\end{align*}
\]

\[
\begin{align*}
(21) & \text{ Therefore, necessarily, } a \text{ exists.} \\
& \Box E!a
\end{align*}
\]

\[
\begin{align*}
(22) & \text{ Therefore, everything is such that, necessarily, it exists.} \\
& \forall x \Box E!x
\end{align*}
\]
The second argument for necessary existence then becomes:

(23) Necessarily, $\varphi(a)$.

$\Box \varphi(a)$

(24) If, necessarily, $\varphi(a)$, then, necessarily, it is statable that $\varphi(a)$.

$\Box \varphi(a) \Rightarrow \Box S(\varphi(a))$

(25) If, necessarily, it is statable that $\varphi(a)$, then, necessarily, $a$ exists.

$\Box S(\varphi(a)) \Rightarrow \Box !E!a$

(26) Therefore, necessarily, $a$ exists.

$\Box !E!a$

(27) Therefore, everything is such that, necessarily, it exists.

$\forall x \Box !E!x$

Purged of this reliance on the existence of propositions as individuals, the soundness of these arguments may still be challenged on the basis that they assume that existence is a first-level concept. David Wiggins (2003; cf. his 1995) is a great proponent of this sort of strategy, and I support it. But I think there is more to be learned from these arguments than just the fact that existence is a second-level concept. While Wiggins has used Williamson’s argument to bring the Kant-Frege-Russell analysis of the logical form of existence sentences into view again, I would
like to use these arguments to bring into view what I take to be Prior’s semantics of quantified modal logic. This semantics, I think, can provide the proper resolution to these arguments.

5. When addressing modal matters it is helpful to speak of circumstances, such as the circumstance in which I wear a red shirt. We can then idealise the notion of circumstance to obtain the concept of a possible world, which is a complete specification of a circumstance or a fully determinate circumstance. With this understanding of “possible world,” we can proceed to give a semantics for modal sentences.

On the standard semantics, we have the following two clauses for the modal operators.

\[ \lozenge_s \varphi(a) \text{ is true just in case } \varphi(a) \text{ is true with respect to every possible world}. \]

\[ \Diamond_s \varphi(a) \text{ is true just in case } \varphi(a) \text{ is true with respect to some possible world}. \]

On these clauses, the modal operators have their “strong” interpretation.

A variety of responses to the arguments for necessary existence are available on this semantics. For convenience, I focus on the versions of the arguments that do not rely on the existence of propositions as individuals. One may deny the object-dependency assumptions:

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5 I give the modal operators the subscript ‘s’, for ‘strong’, to differentiate this interpretation of the modal operators from other interpretations I will consider.
(28) Necessarily, if it is statable that $a$ does not exist, then $a$ exists.

$$\Box_s(S(\neg E!a) \Rightarrow E!a))$$

(29) If, necessarily, it is statable that $\varphi(a)$, then, necessarily, $a$ exists.

$$\Box_sS(\varphi(a)) \Rightarrow \Box_sE!a$$

Such a response though is not attractive since it seems that a precondition for it being a question that $\varphi(a)$ that $a$ exists. Thus, if, necessarily, it is a question that $\varphi(a)$, then, necessarily, $a$ exists, in which case (39) is true. Another response, though, is available. This response centres on denying the assumptions:

(30) Necessarily, if $a$ does not exist, then it is true that $a$ does not exist.

$$\Box_s(\neg E!a \Rightarrow T(\neg E!a))$$

(31) If, necessarily, $\varphi(a)$, then, necessarily, it is true that $\varphi(a)$.

$$\Box_s\varphi(a) \Rightarrow \Box_sT(\varphi(a))$$

In response to Williamson, Rumfitt (2003) accepts for the sake of argument the object-dependency assumptions, but he argues that (30) is false if the necessity operator is taken to express metaphysical necessity and the truth operator is taken to be non-redundant. He also argues that (31) is false, and it is this argument that I will concentrate on. For if Rumfitt’s case against (31) is persuasive, then it follows that the refined version of Williamson’s argument is unsound since (31) is derivable from (30) by the (K) axiom. We will examine Rumfitt’s argument in detail as it will help motivate the Priorian semantics I aim to revive.
Rumfitt (2003, 476) explains that the non-redundant truth-operator may be defined in terms of the statability operator as follows:

\[(32) \ T(P) \equiv (P \& S(P)).\]

From this definition, we have:

\[(33) \ T(\phi(a)) \equiv (\phi(a) \& S(\phi(a))).\]

Assuming that the equivalence is necessary, we obtain:

\[(34) \ \Box_s[T(\phi(a)) \equiv (\phi(a) \& S(\phi(a)))].^6\]

Applying the K axiom and modus ponens yields the result:

\[(35) \ \Box_sT(\phi(a)) \equiv \Box_s(\phi(a) \& S(\phi(a))).\]

Assuming that the necessity operator distributes over conjunction, we obtain:

\[(36) \ \Box_sT(\phi(a)) \equiv (\Box_s\phi(a) \& \Box_sS(\phi(a))).\]

From (41) and (46), we may conclude:

\[(37) \text{If, necessarily, } \phi(a), \text{ then, necessarily, it is statable that } \phi(a).\]

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^6 Because Rumfitt does not state that he is treating the semantics of modal sentences in a non-standard way, I presume that he is assuming the standard semantics.
Rumfitt argues that (47) is false. His argument proceeds as follows. For convenience, let “it is never not the case that” abbreviate “it is not the case that it is possible that it is not the case that.” Rumfitt begins with the assumption:

(38) It is never not the case that \( \phi(a) \).

\[ \neg \Diamond \neg \neg \phi(a) \]

Now following Prior, Rumfitt claims that statability is a contingent matter. He represents this claim as the following assumption:

(39) It is possible that it is not the case that it is statable that \( \phi(a) \).

\[ \Diamond \neg S(\phi(a)) \]

Therefore,

(40) It is not the case that: if it is never not the case that \( \phi(a) \), then it is never not the case that it is statable that \( \phi(a) \).

\[ \neg (\neg \Diamond \neg \neg \phi(a) \supset \neg \Diamond \neg S(\phi(a))) \]

Rumfitt now introduces ‘\( \Box \)’ by the definition:

(41) \( \Box P \equiv \neg \Diamond \neg P \).
Given that negation receives its classical interpretation, the modal operators are duals. But with the duality of the modal operators now in hand, if it is not the case that:

\[(42) \neg \Box_s \neg \varphi(a) \supset \neg \Box_s \neg S(\varphi(a)),\]

then it is not the case that:

\[(43) \Box_s \varphi(a) \supset \Box_s S(\varphi(a)).\]

Therefore, (41) is false, and so (40) is false.

Rumfitt’s response, though, is deeply puzzling. It is founded on a supposed distinction between a redundant truth operator, when the truth operator appears in non-modal contexts, and a non-redundant truth operator, when the truth operator appears in modal contexts. But is there such a non-redundant truth operator in natural language? *Prima facie*, to those who share intuitions supporting a deflationary conception of truth, there is no such non-redundant truth operator. But rather than leave the matter as a clash of intuitions, we should examine in detail Rumfitt’s motivation for positing such an operator.

This motivation is springs from an attempted refutation of the Fregean argument for the redundancy theory of truth. Frege (1997, 322-23) argues that since the sentences ‘P’ and ‘It is true that P’ agree in assertoric content, they agree in ingredient sense, to use Dummett’s (1981, 447) terminology; consequently, the truth operator is redundant. In order to respond to Frege’s argument, Rumfitt (2003, 470-71) argues against the general principle underlying it, namely, if the sentences ‘P’ and ‘OP’, where ‘O’ denotes a sentential operator, agree in assertoric force, then they
are inter-substitutable *salva veritate* in every context, and, consequently, ‘O’ is redundant. Rumfitt attempts to show that this schema has at least one counter-example, namely, where ‘O’ denotes the actually operator. He takes the following sentences as examples: ‘Blair is Prime Minister in 2002’ and ‘Blair is actually Prime Minister in 2002’. These sentences, according to Rumfitt, agree in assertoric content, but they do not agree in ingredient sense. This is so because the sentences cannot be interchanged *salva veritate* in every sentential context, particularly in modal contexts. To show this, he asks us to consider the following sentences:

(44) It is metaphysically necessary that, if Blair is Prime Minister in 2002, then Blair is Prime Minister in 2002.

(45) It is metaphysically necessary that, if Blair is actually Prime Minister in 2002, then Blair is Prime Minister in 2002.

(44), Rumfitt (2003, 471) says, is “clearly true” but (45) “is false.” He argues for the falsity of (45) in the following way. (45) together with the K axiom entails:

(46) If it is metaphysically necessary that Blair is actually Prime Minister in 2002, then it is metaphysically necessary that Blair is Prime Minister in 2002.

He (2003, 471) then remarks that “[g]iven that “actually” is understood as a rigidifying sentential operator, the antecedent of this last conditional is true, while the consequent is false.” Thus, Rumfitt concludes, the actually operator is non-

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7 Rumfitt does not state explicitly this schema, but it is clear that it is this schema he is arguing against.
redundant. The lesson that Rumfitt (2003, 471) draws from this argument is that “[f]or all that Frege’s argument shows, the same might hold good of corresponding instances of ‘P’ and ‘It is true that P’, so that the truth operator is not redundant in modal contexts.”

Rumfitt’s argument against Frege is illuminating, not because it is sound, as I take it not to be, but because it displays clearly an inference that I take to be unsound, namely, Rumfitt’s inference from the assumption that ‘actually’ is a rigidifying sentential operator to the conclusion that ‘Blair is actually Prime Minister in 2002’ is necessary. While the assumption is plausible, the conclusion, at least in my view, is implausible. Let us see how this inference might be supported. Consider the following argument.

Say that some sentence ‘P’ is true. That is, the truth-value of ‘P’ with respect to the actual world is true. Now consider the sentence ‘Actually P’. This sentence is also true with respect to the actual world. But what is its truth-value with respect to other possible worlds? If we assume that ‘actually’ is a rigidifying sentential operator, then when ‘Actually P’ is evaluated with respect to a possible world, the truth-value returned is given by the truth-value of ‘P’ with respect to the actual world. Assuming that ‘Actually P’ can be evaluated with respect to every possible world, the truth-value of ‘Actually P’ with respect to every possible world is true. Now given that sentences true with respect to all possible worlds are necessarily true, ‘Actually P’ is necessarily true.
This argument, it seems, is what underlies Rumfitt’s inference from the assumption that ‘actually’ is a rigidifying sentential operator to the conclusion that ‘Blair is actually Prime Minister in 2002’ is necessarily true. But this sort of argument has not gone unchallenged. In particular, motivated by the implausibility of contingently true sentences prefixed with the ‘actually’ operator being necessary, David Bostock (1988) denies that sentences true in all possible worlds are necessary. He (1988, 357) writes that it seems to him “to be just obvious” that “the criterion of truth in all possible worlds is no longer an adequate criterion of necessity” since “[w]e cannot really turn a contingent proposition into a necessary one by adding such qualifications as ‘actually’ or ‘in fact’ or ‘as things are’.” While Bostock is right to be suspicious of the supposed necessity of sentences such as ‘Blair is actually Prime Minister in 2002’, he has identified the wrong premise in the argument supporting Rumfitt’s inference to deny. For, at least in my view, it is more plausible that ‘Blair is actually Prime Minister in 2002’ is necessary than it is insufficient for a sentence to be necessary that it be true in all possible worlds. Another response flows from two-dimensionalist accounts of necessity which distinguish a priority from necessity, but explain both in terms of possible worlds. On this response, the above argument overlooks the distinction between considering a possible world as actual and considering a possible world as counterfactual. But rather than employing this distinction, or rather than questioning the sufficiency of being true in every world for necessity, I wish to urge that we deny that a sentence may be evaluated with respect to any world, regardless of whether the objects the sentence is about, such as Blair, exist in that world. Denying this assumption motivates the thought that both ‘Blair is Prime Minister in 2002’ and ‘Blair is actually Prime Minister in 2002’ are contingent because neither claim is true in all possible worlds, which is necessary for the
sentences to be necessary. This is one of the key ideas behind the Priorean semantics which I explain below.

Analysing where the motivation behind Rumfitt’s distinction between a redundant and a non-redundant truth operator goes wrong has helped to motivate the Priorean semantics. Similarly, though Rumfitt’s has not given a satisfactory account of where the second argument for necessary existence has gone wrong, analysing his argument will reveal where the false step occurs. Rumfitt agrees with Prior that statability is a contingent matter. Rumfitt, though, represents this claim in an un-Priorean way. He represents this claim as the following assumption:

(47) It is possible that it is not the case that it is statable that \( \varphi(a) \).

\[ \Diamond \neg S(\varphi(a)) \]

Prior, though, would have represented the fact that statability is a contingent matter by the assumption:

(48) It is not the case that it is necessary it is not the case that it is statable that \( \varphi(a) \).

\[ \neg \Box \neg S(\varphi(a)) \]

(47) is equivalent to (48) only on the assumption that the modal operators are duals. On the standard semantics, the modal operators are indeed duals. But this duality should be broken. That is, we should construct a semantics on which the modal operators are duals.

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\[ ^8 \text{I suppress subscripts on the modal operators for the rest of this section because my point is that a proper response to Rumfitt’s argument points the way to a semantics of the modal operators other than the standard semantics.} \]
operators are not duals. For those of us who do not wish to accept that there is a
distinction between a sentence being necessary and it being necessarily true, we can
escape the arguments for necessary existence by maintaining a certain semantics of
quantified modal logic on which the modal operators are not duals. In order to
motivate this Priorean semantics further, I present an alternative to the standard
semantics, one that will point the way to the Priorean semantics.

6. In examining Rumfitt’s motivation for distinguishing a redundant truth-
operator from a non-redundant truth operator, we discovered that the step to deny in
his motivation is the one that assumes that a sentence may be evaluated with respect
to a possible world regardless of whether the object the sentence is about exists in that
possible world.9 A semantics that does not allow for sentences about an individual to
be evaluated with respect to possible worlds in which it does not exist is the
following:

\[ \Box_w \varphi(a) \text{ is true just in case } \varphi(a) \text{ is true with respect to every possible world in which } a \text{ exists.}^{10} \]

\[ \Diamond_w \varphi(a) \text{ is true just in case } \varphi(a) \text{ is true with respect to some possible world in which } a \text{ exists.} \]

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9 Wiggins (1995) and (2003) suggests a semantics along these lines.

10 The subscript ‘w’ on the modal operators stands for ‘weak’.
Since closed quantified formulas are not about any particular individual, there is no question of restricting the possible worlds of their evaluation. So where $\varphi$ is a closed quantified formula containing no names, we have the following clauses:

\[ \square_w \varphi \text{ is true just in case } \varphi \text{ is true with respect to every possible world.}^{11} \]

\[ \Diamond_w \varphi \text{ is true just in case } \varphi \text{ is true with respect to some possible world.} \]

Call this interpretation of the modal operators the “weak” interpretation.

This semantics, though, cannot be an adequate arena in which to debate necessary existence as it makes necessary existence out to be the claim that everything essentially exists, which is trivially true since in every possible world in which an individual exists it exists. If there are necessary existents in the sense that they exist in all possible worlds whatsoever, we cannot formalise this fact on this semantics. That is, the semantics guarantees that the formula $\forall x \square_w E!x$ is true. Directly related to this difficulty, this semantics requires the validity of the converse Barcan formula. To see this, consider the following argument. Assume that the antecedent is true, that is, the formula $\forall x Fx$ is true with respect to every possible world. Now choose some individual, say $a$, that exists in this possible world. Given the antecedent, $a$ is F in this possible world. Now choose any other possible world in which $a$ exists. By the antecedent, $a$ is F in this possible world. So it is true with respect to every possible world in which $a$ exists that $a$ is F. We can generalise this conclusion to obtain:

$\forall x \square_w Fx$. So, we have: $\square_w \forall x Fx \supset \forall x \square_w Fx$.

\[^{11}\text{Clearly, for such sentences the clauses for the strong necessity operator will be the same as the clauses for the weak necessity operator. That is, where } \varphi \text{ is a closed quantified sentence, the equivalences } \square_w \varphi = \square \varphi \text{ and } \Diamond_w \varphi = \Diamond \varphi \text{ hold.} \]
Besides these features of the semantics, it has the following peculiar feature: the necessity operator does not distribute over conjunction and the conditional. The following argument shows that the necessity operator does not distribute over conjunction. It can be modified easily to show that the necessity operator does not distribute over the conditional. An instance of the schema:

\[(49) \Box_w(\varphi \land \psi) \supset (\Box_w \varphi \land \Box_w \psi)\]

is the following:

\[(50) \Box_w (Fa \land \forall x Gx) \supset (\Box_w Fa \land \Box_w \forall x Gx)\]

The following is a counter-model to (50) on this semantics.

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<tr>
<th>Possible world₁</th>
<th>Possible world₂</th>
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<tbody>
<tr>
<td>Domain</td>
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<tr>
<td>({a})</td>
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<td>(Fa)</td>
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<td>({a})</td>
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<td>({a})</td>
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\((Fa \land \forall x Gx)\) is true with respect to every possible world in which \(a\) exists, but \(\forall x Gx\) is false with respect to some possible world. Since \(\Box_w \forall x Gx\) is false, \((\Box_w Fa \land \Box_w \forall x Gx)\) is false. Consequently, (57) is false. Therefore, (56) is invalid on this semantics. That is, the necessity operator does not distribute over conjunction given this semantics. The reason that the necessity operator does not distribute is that while
the equivalence ($\square_w \varphi \equiv \square_s \varphi$) holds for closed quantified statements, it does not hold for closed unquantified statements.

To respond to this consequence, the theorist may wish to deny that there is an unrelativised necessity operator so that even necessary universally quantified statements contain a restriction, albeit an implicit one. On this approach, ‘Necessarily, everything is F’ is to be read as ‘Everything is necessarily F’, or equivalently, ‘Given everything, necessarily, everything is F’. It seems that an adequate formal representation of this sentence calls for a Wittgensteinian account of generality: $\square_{a, b, c} (F a \& F b \& F c \ldots)$, where the necessity is conditional on the existence of everything in the domain of the world in which ‘Necessarily, everything is F’ is asserted, and the universal quantification is expanded into a conjunction of atomic sentences. An alternative is to formalise ‘Given everything, necessarily, everything is F’ as: $\square_{a, b, c} \forall x F x$ where the necessity is conditional on the existence of everything in the domain of the world in which ‘Everything is necessarily F’ is asserted. In order to see how these two interpretations diverge, consider a world $w$ containing only $a$ and $b$, and both $a$ and $b$ are F. Say then that world $w^*$ is possible relative to $w$, and $w^*$ contains $a$, $b$ and $c$. On the former interpretation of ‘Necessarily, everything is F’, this claim is true in $w$ only if $a$ and $b$ are F in both $w$ and $w^*$, regardless of whether $c$ is F in $w^*$; on the latter interpretation of ‘Necessarily, everything is F’, this claim is true in $w$ only if $a$ and $b$ are F in $w$ and $a$, $b$ and $c$ are F in $w^*$. It seems that the former interpretation is more natural on the present semantics on which sentences such as ‘Socrates is necessarily human’ and ‘Necessarily, Socrates is human’ are interpreted as ‘Given Socrates, necessarily, that very thing is human’; the analogous account for ‘Everything is necessarily F’ and ‘Necessarily, everything is F’ should be ‘Given everything, that is, everything that exists in this
world, necessarily, each one of those things is F’. This analogous account then seems to call for the Wittgensteinian account of generality employed in the formalisation: $\Box_a b, c. (Fa \& Fb \& Fc \ldots)$. One effect of adopting this sort of account of necessary universal generalisations is that one cannot make claims about every possible world regardless of what exists in it. For example, in saying that ‘Necessarily, everything is F’ I do not express a claim to the effect that for any possible world, whatever exists in it, every one of those things is F. Consider again the argument: ‘Necessarily, everything is such that if it is F it is G; necessarily, everything is F; so, everything is G’. On this account, the argument is represented formally as: $\Box_a b, c. (Fa \& Fb \& Fc \ldots) \Rightarrow (Ga \& Gb \& Gc \ldots)$; so, $\Box_a b, c. (Ga \& Gb \& Gc \ldots)$. This argument is indeed valid. Thus, in order to account for sentences such as ‘Necessarily, everything is F’ in a way consistent with the treatment given to ‘Necessarily, a is F’, the present account seems to require a Wittgensteinian view of generality, a view which is highly objectionable. But more importantly, one cannot express a claim about every possible world, regardless of what exists in it, on this view. It seems desirable though that one should be able to express such claims.

Perhaps the right move for the theorist is to deny that ‘Necessarily, everything is F’ is to be treated in a way analogous to ‘Necessarily, Socrates is human’; rather ‘Necessarily, everything is F’ should be treated in the way Wiggins (1995) treats ‘Socrates contingently exists’. To begin, on this account, ‘Socrates exists’ has the logical form: $\exists x (x [= Socrates])$, which says that there is an individual that falls under the individual concept identical with Socrates. Now, to say that Socrates contingently exists is to say that there is an individual concept, identical with Socrates, and this individual concept is contingently instantiated. Here the modality expressed by ‘contingently’ is non-relative, in particular, it is not relative to the existence of
Socrates. So, ‘Socrates contingently exists’ is interpreted as the claim that there is an individual concept identical with Socrates, and in some worlds, this concept is instantiated, namely, the ones in which Socrates exists, and in other worlds, this concept is not instantiated, namely, the ones in which Socrates does not exist. This understanding of ‘Socrates contingently exists’ provides a way to mark the distinction between contingent beings and necessary ones, necessary beings are ones whose individual concepts are instantiated in every possible world while contingent beings are ones whose individual concepts are instantiated in only some possible worlds.

This approach may also provide a way of understanding necessary universal generalisations that will allow for expressing claims about every possible world, regardless of what exists in it. Analogously to ‘Socrates contingently exists’, one might interpret ‘Necessarily, everything is F’ as ‘Necessarily, every individual concept falls within the concept F’, where the modality is unrelativised.\footnote{The modality will need to be relativised in some contexts, though, such as in the argument: ‘Necessarily, everything is F and a is G; so, necessarily, everything is F’. Formally, $\Box_a(\forall xFx \land G_a)$, so $\Box_a \forall xFx$.} Formally, $\Box_a \forall xFx$, where the variable ranges over individual concepts, and $\forall xFx$ is evaluated with respect to every possible world and the truth-value returned is always true. Thus, to say that ‘Necessarily, everything is F’ is say that for all possible worlds $w$, every individual concept in $w$, whether instantiated or uninstantiated, falls within F.

It may seem objectionable that an uninstantiated individual concept falls within a concept F, objectionable in the same way that an individual is F in a world in which it does not exist, but that would be a mistake. For it is entirely consistent to maintain that an individual falls under a concept F only if that individual exists, but an uninstantiated individual concept may fall within a concept F. For example, Socrates
is human only if Socrates exists, but in worlds in which Socrates does not exist, the concept identical with Socrates falls within the concept human.

With the introduction of an unrelativised interpretation of modality, we now have a hybrid account of modality combining conditional modality with unconditional modality. While this account can accommodate the sort of intuitively valid arguments we have been considering, it does so at the cost of significantly complicating the interpretation of modal discourse, such as the context relativity of modal notions, proper names standing for individual concepts in some contexts and universally quantified statements concerning individual concepts as opposed to individuals themselves. Thus, the theoretical complications necessary for formalising necessary existence have risen quite dramatically. In light of these considerations, I propose an alternative to the semantics for modal sentences we have been considering. Where the present semantics seems to have gone wrong is in the weakness of the necessity operator. A semantics that incorporates the strength of the necessity operator of the standard semantics (so that the costs of the weak semantics do not arise) with the bar on evaluating atomic sentences about individuals with respect to possible worlds in which they do not exist (so that the problems of the standard semantics do not arise) seems like the right way to give an adequate semantics for quantified modal logic.

7. Such a semantics is available in Prior 1957. Though he never explicitly articulated the following semantics, it is clear that he endorsed it in his arguments for his modal logic Q. This semantics has the following clauses:
\[ \square_p \varphi(a) \] is true just in case: \( \varphi(a) \) is true with respect to every possible world and \( a \) exists in every possible world.\(^{13}\)

\[ \Diamond_p \varphi(a) \] is true just in case \( \varphi(a) \) is true with respect to some possible world in which \( a \) exists.

In this semantics, sentences about individuals are evaluated with respect to only possible worlds in which the individuals exist and the necessity operator is as strong as the necessity operator in the standard semantics.

Since the modal operators have asymmetrical strengths and weaknesses, the modal operators are not duals. That is, while the conditionals

\begin{align*}
(51) & \quad \square_p \varphi(a) \supset \neg \Diamond_p \neg \varphi(a) \\
(52) & \quad \Diamond_p \varphi(a) \supset \neg \square_p \neg \varphi(a)
\end{align*}

hold, their converses do not. That is, the conditionals

\begin{align*}
(53) & \quad \neg \Diamond_p \neg \varphi(a) \supset \square_p \varphi(a) \\
(54) & \quad \neg \square_p \neg \varphi(a) \supset \Diamond_p \varphi(a)
\end{align*}

do not hold if \( a \) is a contingent existent. This cost has both an intuitive and a formal element. The formal element is that a modal logic resulting from the denial of duality

\(^{13}\) The subscript ‘p’ stands for “Prior.”
is more complicated than a modal logic that incorporates duality. The intuitive element is that we have to deny a seemingly attractive intuitive description of metaphysical modality. It is intuitively attractive to gloss the claim that $P$ is metaphysically necessary as: $P$ could not have not been otherwise. But ‘could not have been otherwise’ clearly has the structure of ‘it is not the case that it is possible that it is not the case’. And since the modal operators are not duals, ‘could not have been otherwise’ cannot be a gloss of $\Box p$. Furthermore, since there is no reason to suppose that metaphysical necessity cannot be glossed by ‘no matter what’ on this semantics and ‘could not have been otherwise’ cannot be a gloss of metaphysical necessity on this semantics, the sentences ‘$P$ could not have been otherwise’ and ‘$P$ holds no matter what’ are not synonymous, even though they appear to be so.

This feature, which might be regarded as costs of the semantics, is the key to how on this semantics we can formalise ‘Socrates is a contingent existent’ in a way that allows for it to be true. A sentence is contingent just in case neither it nor its negation is necessary. So, if Socrates is a contingent existent, then it is not necessary that Socrates exists and it is not necessary that it is not the case that Socrates exists: $(\Box p \land \Box \neg p)$, where ‘$a$’ denotes Socrates. In this way, we can represent the claim that Socrates is a contingent existent and the semantics allows for this claim to be true. However, on this semantics, it is not the case that it is possible that it is not the case that Socrates exists: $\neg \Diamond p \land \neg \Diamond \neg p$. So Socrates both contingently exists, which we represent as the formula $(\Box p \land \Box \neg p)$, and he essentially exists, which we represent as the formula, $\neg \Diamond p \land \neg \Diamond \neg p$. So we have on this semantics: $((\Box p \land \Box \neg p) \land \neg \Diamond \neg p)$.

This representation of the claim that $a$ is a contingent existent connects with the debate over whether proper names are weakly rigid or strongly rigid. On the
Priorean representation of an individual’s contingent existence, proper names are weakly rigid. Since Kripke’s (1980) work on proper names, it is commonly accepted that proper names are rigid designators. It has been maintained that there are two senses of ‘rigid’ whereby one may understand this claim:

A singular term is *weakly rigid* just in case it designates the same object in every possible world in which the object exists; in possible worlds in which the object does not exist, the term designates nothing.

A singular term is *strongly rigid* just in case it designates the same object in every possible world, regardless of whether the object exists or not in the possible world.

A. D. Smith (1984, 180) gives the following version of an argument due to David Kaplan for the claim that proper names are strongly rigid.

Consider Benjamin Franklin; since he is not a necessary existent, his name, according to Kripke, is merely weakly rigid, i.e. it has *no* designatum at any possible world in which he does not exist; but now consider the sentence ‘Benjamin Franklin might not have existed’; since Benjamin Franklin is a contingent entity, this sentence is *true*; but according to our possible worlds semantics, such a sentence is true only if there is a possible world at which ‘Benjamin Franklin does not exist’ is true; but if ‘Benjamin Franklin’ lacks a denotation with respect to every world in which he does not exist, we are prevented from granting this latter sentence the truth-value true at any world,
and hence are incapable of semantically representing Ben Franklin’s contingency. This shows that we need a rigid designator to have constant denotation with respect to all possible worlds; a term can name an individual with respect to a world even though that individual does not exist in that world.

Assuming that the distinction between weak rigidity and strong rigidity make sense, Smith’s contention that representing Franklin’s contingency requires strong rigidity is not true. We can represent Franklin’s contingency with weak rigidity by making use of the Priorean semantics I have argued for above. Franklin’s contingency is represented by the formula \((\neg \Box \neg \neg E!a \& \neg \neg \neg \neg \neg E!a)\), but the formula \(\neg \Diamond \neg E!a\) is also true.

At this point I would like to deal with an objection to the Priorean semantics that arises from the way in which it represents a sentence’s contingency and the modal status it assigns to instances of logical truths and instances of contradictions. The objection goes as follows. If what it means for a sentence to be contingent is that neither it nor its negation is necessary, then instances of contradictions about contingent existents and instances of logical truths will also be contingent.\(^{14}\) On this semantics, if \(a\) is a contingent existent, then the following formula is true: \((\neg \Box_{p}(Fa \lor \neg Fa) \& \neg \Box_{p}(Fa \lor \neg Fa))\), which is equivalent to the formula: \((\neg \Box_{p}(Fa \& \neg Fa) \& \neg \Box_{p}(Fa \& \neg Fa))\). Thus, both of the formulas \((Fa \lor \neg Fa)\) and \((Fa \& \neg Fa)\) are contingent. But it seems that the former should be necessary and the latter impossible. Thus, the Priorean semantics gives the wrong result in assessing the modal statuses of instances of logical truths and instances of contradictions. In response, we can accommodate the intuition that even if \(a\) is contingent, some sort of

\(^{14}\) Christopher Menzel discusses the difficulty with contradictions in Menzel (1990), pp. 347-348.
necessity attaches to the formula \((Fa \lor \neg Fa)\). This necessity is weak necessity, which we may represent as the formula \(\neg \Diamond_p (Fa \lor \neg Fa)\). This representation of the necessity of the formula \((Fa \lor \neg Fa)\) is equivalent to the formula \(\neg \Diamond_p (Fa \& \neg Fa)\), which shows that we can represent the fact there is some sense of impossibility that attaches to the formula \((Fa \& \neg Fa)\) by the formula \(\neg \Diamond_p (Fa \& \neg Fa)\). Thus, even though the formulas \((Fa \lor \neg Fa)\) and \((Fa \& \neg Fa)\) are both contingent, in the sense that both they are their negations are both not necessary in the Priorean sense, the formula \((Fa \lor \neg Fa)\) is weakly necessary in the Priorean sense and the formula \((Fa \& \neg Fa)\) is impossible in the Priorean sense. I turn now to the implications of the Priorean semantics for the arguments for necessary existence.\(^\text{15}\)

8. The Priorean semantics allows for either necessary existence to be true or contingent existence to be true. It thus does not decide this crucial metaphysical issue. At the conclusion of this paper, I present an argument against necessary existence, but should one wish to uphold this claim, one can consistently accept the Priorean semantics. But should one wish to uphold contingent existence, the Priorean semantics yields a distinctive response to the arguments for necessary existence. This response flows from the result: on the Priorean semantics, if a sentence about an individual is necessary, then the individual in question is a necessary existent. Formally, \(\Box \varphi(a) \supset \Diamond E!a\). So, if one thinks that there are contingent existents, then either all of the premises of Williamson’s argument will be false or the use of

\(^{15}\) Since the modalities will have their Priorean interpretation henceforth, I will forgo subscripts.
universal generalisation is invalid. To see this, recall the premises of Williamson’s argument.¹⁶

(62) Necessarily, if TW does not exist, then the proposition that TW does not exist is true.

□(¬E!a ⊃ T[¬E!a])

(63) Necessarily, if the proposition that TW does not exist is true, then the proposition that TW does not exist exists.

□(T[¬E!a] ⊃ E![¬E!a])

(64) Necessarily, if the proposition that TW does not exist exists, then TW exists.

□(E![¬E!a] ⊃ E!a)

If Williamson is a contingent existent, then all of these premises are false on the Priorean semantics. (62) and (64) are false because Williamson is a contingent existent. (63) is false because propositions about Williamson are also contingent existents since the following schemata are true on the Priorean semantics:

(65) If, necessarily, φ(a), then, necessarily, the proposition that φ(a) is true.

□φ(a) ⊃ □T[φ(a)]

(66) If necessarily, the proposition that φ(a) is true, then, necessarily, the proposition that φ(a) exists.

¹⁶ When discussing Williamson’s and the related arguments for necessary existence I will assume for the sake of argument that propositions are individuals and existence is a first level concept.
(67) If, necessarily, the proposition that $\varphi(a)$ exists, then, necessarily, $a$ exists.

$\Box \exists ![\varphi(a)] \supset \Box \exists !a$

However, if Williamson is a necessary existent, then the premises may be true on this semantics, but one cannot generalise from Williamson’s necessary existence to the necessary existence of everything else. The response carries over straightforwardly to the version of the argument in which propositions are not individuals.

Now consider the premises of the second argument for necessary existence.

(68) Necessarily, if I exist, then I exist.

$\Box \exists \varphi(a)$

(69) If, necessarily, if I exist, then I exist, then, necessarily, the proposition that if I exist, then I exist is true.

$\Box \exists \varphi(a) \supset \Box \exists ![\varphi(a)]$

(70) If, necessarily, the proposition that if I exist, then I exist is true, then, necessarily, this proposition exists.

$\Box \exists ![\varphi(a)] \supset \Box \exists! \varphi(a)$

(71) If, necessarily, the proposition if I exist, then I exist exists, then, necessarily, I exist.

$\Box \exists ![\varphi(a)] \supset \Box \exists !a$
On the assumption that \( a \) is a contingent existent, (68) is false for any substitution instance of \( \varphi(a) \) and (69) – (71) are true. This response carries over straightforwardly to the version of the argument that does not rely on the existence of propositions as individuals.

Instead of interpreting the modality in Williamson’s premises as Priorean necessity, we might instead interpret it as weak necessity, translated into Priorean terms. The argument thus becomes:

(73) Necessarily, if TW does not exist then the proposition that TW does not exist is true.
\[
\neg \Diamond (\neg E!a \supset T[\neg E!a])
\]

(74) Necessarily, if the proposition that TW does not exist is true, then the proposition that TW does not exist exists.
\[
\neg \Diamond \neg (T[\neg E!a] \supset E![\neg E!a])
\]

(75) Necessarily, if the proposition that TW does not exist exists, then TW exists.
\[
\neg \Diamond \neg (E![\neg E!a] \supset E!a)
\]

(76) So, necessarily, TW exists.
\[
\neg \Diamond \neg E!a
\]

(77) So, everything is such that, necessarily, it exists.
\[
\forall x \neg \Diamond \neg E!x
\]
Putting aside the issue of the existence of propositions as individuals and the interpretation of existence as a first level concept, this argument appears entirely plausible and sound. The second argument for necessary existence appears similarly plausible and sound. This, though, is cold comfort for the proponent of necessary existence because the conclusion says merely that everything essentially exists, in the sense that in every possible world in which an individual exists, it exists.

9. I turn now to a series of objections to the Priorean semantics that focus on the fact that on this semantics there are no necessary truths about contingent existents. This objection maintains that there are indeed necessary truths about contingent existents, such as true statements of Aristotelian essentialism, true identity statements and true sentences prefixed by ‘actually’.

In response, contrary to the objection, the Priorean semantics gives a plausible account of the logical form of essentialist claims. Wiggins (1976) has argued that the logical form of essentialist claims such as that Socrates is essentially a person is:

\[ \text{nec}(\lambda x)(Fx)), [a] \]. This formal representation respects the grammar of the sentence ‘Socrates is essentially a person’ by displaying the grammatical fact that the sentence says of Socrates that he has the property of being necessarily (or essentially) a person. As Wiggins (1976, 76) makes clear, one cannot infer \( \Box F a \) from \[ \text{nec}(\lambda x)(Fx)) \), \( [a] \); in fact, if \( a \) is contingent and \( a \) is essentially \( F \), \[ \text{nec}(\lambda x)(Fx)) \] is true but \( \Box F a \) is not.\(^{17}\)

Wiggins (1976, 311) is right when he suggests that one cannot define his ‘nec’

\(^{17}\) This inference fails if the necessity operator is given either its strong or its Priorean interpretation. The inference, though, is valid on the weak interpretation, an interpretation that is far from Wiggins' concerns.
operator in terms of ‘◊’; in my view, the interpretation he is giving to the modal operator is the Priorean one. However, this is not to say that ‘nec’ cannot be defined in terms of ‘◊’ and ‘¬’ if we accept the Priorean semantics. We may define ‘nec’ in the following way: \[\text{[nec}(\lambda x)(\varphi(x)))](a) = \neg \diamond \neg \varphi(a)\]. So, we can represent formally, ‘a is essentially F’ by the formula: \(\neg \diamond \neg Fa\). If \(a\) is a necessary existent, then we have: \(\neg \diamond \neg Fa \& \lozenge Fa\). And if \(a\) is contingent we have: \(\neg \diamond \neg Fa \& (\lozenge Fa \& \lozenge \neg \neg Fa)\).

Furthermore, if \(a\) is contingent, then we have: \(\neg \lozenge \neg (E!a \supset Fa)\). Thus, if \(a\) is essentially F, then the following schema holds: \(\neg \lozenge \neg (E!a \supset [\neg \diamond \neg Fa \& (\lozenge Fa \& \lozenge \neg \neg Fa) \& \neg \lozenge (E!a \supset Fa)])\).

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18 There is an interesting relationship between this account of the logical form of essentialist claims and the standard account of the logical form of essentialist claims. Using the strong necessity operator, the claim that \(a\) is essentially F is represented as: \(\lozenge (E!a \supset Fa)\). Using the Priorean possibility operator, the claim that \(a\) is essentially F is represented as: \(\neg \diamond \neg Fa\). Syntactically, the standard representation uses a conditional to represent the claim that \(a\) is essentially F. But the semantics of this representation do not use a conditional. The case is exactly the opposite for the Priorean representation. Syntactically, the Priorean representation does not use a conditional, but semantically it does. It seems that if we are to allow for the formal representations of essentialist claims about contingent individuals using sentential operators other than the weak necessity operator to be true, then we must use a conditional in either the semantics or the syntax of the representations of these claims.

19 This result has implications that connect with Kit Fine’s (1994) recent work on the formal representation of essentialist claims. Consider the equivalence:

\[\text{(E)} \quad a\text{ is essentially F just in case, necessarily, if } a\text{ exists, then } a\text{ is F.}\]

That this equivalence adequately captures the logical form of essentialist claims is the received view. Fine, though, has challenged this equivalence. He argues that there are counter-examples to the right to left direction of (E):

\[\text{(E1)} \quad \text{If, necessarily, } a\text{ exists only if } a\text{ is F, then } a\text{ is essentially F.}\]

These purported counter-examples are:

Necessarily, (if Socrates exists, then Socrates belongs to the set whose sole member is Socrates), but it is not the case that Socrates essentially belongs to this set.

Necessarily, (if Socrates and the Eiffel tower exist, then Socrates is distinct from the Eiffel tower), but it is not the case that (Socrates is essentially distinct from the Eiffel tower or the Eiffel tower is essentially distinct from Socrates).

The idea behind these purported counter-examples is that it is not part of the nature of Socrates that he belong to a set or that he be distinct from the Eiffel tower, even though, it is necessary that if he exists, then he is a member of the singleton Socrates and he is distinct from the Eiffel tower. However, on the Priorean semantics, these examples cannot be counter-examples to (E1) since there are no necessary truths about contingent existents. On the Priorean semantics, (E1) is vacuously true for contingent
A similar treatment is also given to true identity sentences about contingent existents such as ‘Hesperus is identical with Phosphorus’. Consider the modal status of this sentence. It is commonly thought that it is necessary. But since Hesperus is a contingent existent, it cannot be necessary on the Priorean semantics. That is, if ‘a’ denotes Hesperus and ‘b’ denotes Phosphorus, we have: \( \neg \Box(a = b) \) \& \( \neg \Box \neg(a = b) \).

But, it seems, this sentence is not possibly not the case. That is, there is no possible world in which Hesperus is not Phosphorus. So the following formula is also true:
\[ \neg \Diamond \neg(a = b). \]
So, while it is contingent that Hesperus is Phosphorus, it is also not possible that Hesperus is not Phosphorus. Formally, we have: \( \neg \Box(a = b) \) \& \( \neg \Box \neg(a = b) \).

Turning now to ‘actually’ sentences, the Priorean semantics yields a similar treatment to sentences such as ‘Blair is actually Prime Minister in 2002’. Since Blair is a contingent existent, this sentence is not necessary. That is, if ‘A’ denotes the actually operator, \( a \) denotes ‘Blair’, and \( \phi(a) \) abbreviates ‘Blair is Prime Minister in 2002’, the formula \( \neg A \phi(a) \) \& \( \neg \neg A \phi(a) \) is true since \( a \) is a contingent existent. But since the formula \( \phi(a) \) is true and ‘A’ is a rigidifying sentential operator, the formula \( \neg \Diamond \neg A \phi(a) \) is also true. So we have the following schema on this semantics: \( (\phi(a) \& \neg \Box E a \& \Diamond \neg \phi(a)) \supset ((\neg \Box A \phi(a) \neg \Box A \phi(a)) \& \neg \Diamond \neg A \phi(a)). \) Thus, ‘Blair is Prime

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exists. That (E1) is vacuously true might constitute an argument against the acceptance of (E1) as part of an adequate characterisation of the logical form of essentialist claims.

While on the Priorean semantics (E1) is vacuously true for contingent existents, the left to right direction of (E):

\((E2) \quad \text{If } a \text{ is essentially } F, \text{ then, necessarily, } a \text{ exists only if } \text{if } a \text{ is } F.\) is false on the Priorean semantics if there are true essentialist claims about contingent existents. So while Fine denies (E1) and accepts (E2), on the Priorean semantics (E2) is false and (E1) is trivially true for contingent existents.

\(^{20}\) This result harmonises with my discussion of the logical form of essentialist claims. Wiggins has urged that the sentence ‘Hesperus is necessarily Phosphorus’ has the logical form \( [\text{nec}(\lambda x)(\lambda y)(x = y)]\), \( [a, b] \). I argued that one can define ‘nec’ in terms of the Priorean possibility operator and the negation operator such that \( [\text{nec}(\lambda x)(\phi(x))]\), \( [a] = \neg \Diamond \neg \phi(a). \) 1. On such a characterisation of ‘nec’, the logical form of ‘Hesperus is necessarily Phosphorus’ is: \( \neg \Diamond \neg(a = b). \)
Minister’ and ‘Blair is actually Prime Minister’ are contingent; however, ‘Blair is Prime Minister’ is possibly not the case, but ‘Blair is actually Prime Minister’ is not possibly not the case.

10. At this point we can connect the Priorean semantics with a certain way of drawing the \textit{de dicto/de re} distinction so that the Priorean can maintain that some sentences making a claim of \textit{de re} necessity are true of contingent existents while consistently denying that no sentences making a claim of \textit{de dicto} necessity are true of such existents. Typically, the distinction between the \textit{de re} and the \textit{de dicto} is drawn along the following lines. A sentence containing a single modal expression is a \textit{de re} modal sentence just in case its logical form contains a free variable or individual constant within the scope of a modal operator; otherwise, the sentence is a \textit{de dicto} modal sentence. Wiggins (1976, 294) draws the distinction differently. On Wiggins’ approach, a sentence containing a single modal expression is a \textit{de re} modal sentence just in case the modal expression functions as a predicate modifier; the sentence is a \textit{de dicto} modal sentence just in case the modal expression functions as a sentence operator. Wiggins goes on to suggest that there are no true \textit{de dicto} necessary identity statements about contingent existents, while \textit{de re} necessary identity statements are indeed true. For example, if Venus is a contingent existent, ‘Hesperus is necessarily identical with Phosphorus’ is true, but ‘Necessarily, Hesperus is identical with Phosphorus’ is false. The present proposal generalises Wiggins’ suggestion. On the current proposal, while there are true \textit{de re} necessities about contingent existents, there are no true \textit{de dicto} necessities about such individuals. For example, the following sentences are true: ‘Socrates is necessarily identical with Socrates’ and
‘Socrates is necessarily human’; the following sentences are false: ‘Necessarily, Socrates is identical with Socrates’ and ‘Necessarily, Socrates is human’.

In light of these remarks we can provide the following guide to formalising modal statements:

‘a is necessarily F’ is represented formally as: \( \neg \lozenge \neg Fa \).

‘Necessarily, a is F’ is represented formally as: \( \Box Fa \).

‘a is contingently F’ is represented formally as: \( Fa \land \lozenge \neg Fa \).

‘Contingently, a is F’ is represented formally as: \( Fa \land (\neg \Box Fa \land \neg \neg Fa) \).

These formalisations give rise to the following consistent conjunctions:

‘a is necessarily F and, necessarily, a is F’ is represented formally as: \( \Box Fa \).

‘a is contingently F and, contingently, a is F’ is represented formally as: \( (Fa \land \lozenge \neg Fa) \land (\neg \Box Fa \land \neg \neg Fa) \).

‘a is necessarily F and, contingently, a is F’ is represented formally as: \( \neg \lozenge \neg Fa \land (\neg \Box Fa \land \neg \neg Fa) \).

For our purposes, it is the third conjunction that is most important. It gives rise to the claims:
Essentialism: Socrates is necessarily human but it is contingent that Socrates is human. Formally, $\neg \Diamond \neg Fa \land (\Box Fa \land \neg \Box \neg Fa)$.

Identity: Socrates is necessarily identical with Socrates but it is contingent that Socrates is identical with Socrates.

Existence: Socrates necessarily exists but it is contingent that Socrates exists.

Logical truth: Socrates is necessarily either F or not-F but it is contingent that Socrates is either F or not-F.

Actually: Socrates is necessarily actually snub-nosed but it is contingent that Socrates is actually snub-nosed.

These claims deserve some comment. Concerning Identity, this claim does not amount to the rejection of the necessity of identity, properly understood, which is that if $a$ is identical with $b$, then $a$ is necessarily identical with $b$. Here I agree with Wiggins when he writes:

For the conclusion [the necessity of identity] is not put forward here as a necessarily true statement. (On this we remain mute.) It is put forward as a true statement of de re necessity. The thing that the proof comes down to is
simply this: Hesperus is necessarily Hesperus, so, if Phosphorus is Hesperus,
Phosphorus is necessarily Hesperus. (2001, 116)

I would, however, go further than Wiggins and not remain mute on whether the
necessity of identity expresses a true statement of de dicto necessity: it does not. It is
ture that Hesperus is necessarily identical with Hesperus ($\neg \lozenge \neg a = a$), so if Phosphorus
is Hesperus ($b = a$), Phosphorus is necessarily Hesperus ($\neg \lozenge \neg b = a$), but it is
contingent that Phosphorus is Hesperus ($b = a \& (\lozenge \neg b = a \& \neg \lozenge \neg b = a)$). So, true
identities are de re necessary, but they are de dicto contingent. Turning now to
Existence, this claim shows that the contingency of an individual can be represented
formally while (i) requiring that a claim about an individual may be evaluated for
truth-value only with respect to worlds in which that individual exists and (ii) without
making use of individual concepts. On this account, every individual is a de re
necessary existent, but individuals such as Socrates are de dicto contingent existents.

Turning now to Logical truth, this claim shows one way in which to meet an
objection made commonly against Prior’s account of the modal operators. On Prior’s
view, and also the present account, there are no true necessities of the form $\Box \varphi(a)$
about contingent existents, which has seemed objectionable to some since, it seems,
there should be some sense of ‘necessary’ on which logical truths are necessary. But
Logical truth shows that there is a sense in which logical truths about contingent
existents are indeed necessary: while they are not de dicto necessary, they are de re
necessary. Similarly, on Prior’s account contradictions about contingent existents are
contingently false in the sense that it is contingent that Socrates is not both F and not-
F, but it seems that there should be some sense in which contradictions are
impossible. The present account provides for this sense: while it is contingent that
Socrates is not both F and not-F, Socrates is impossibly both F and not-F. So, there is a sense in which contradictions about contingent existents are impossible, namely, the *de re* sense of ‘impossible’.

11. I turn now to the final consequence of this semantics that I will be considering, namely, the axioms of quantified modal logic it allows to be true and the axioms it does not allow to be true. The semantics allows for the following axioms to be true.

\[(K) \quad \Box(\varphi \supset \psi) \supset (\Box\varphi \supset \Box\psi)\]

\[(T) \quad \Box\varphi \supset \varphi\]

\[(S4) \quad \Box\varphi \supset \Box\Box\varphi\]

The semantics, however, does not allow for the B axiom to be true if there are true sentences about contingent existents and *modus ponens* is valid.

\[(B) \quad \varphi \supset \Box\varphi\]

This is so because no sentence about a contingent existent is necessarily possibly true on this semantics. The semantics requires that if a necessity sentence about an individual is true, the individual must be a necessary existent. On this requirement, the B axiom is not if there are true sentences about contingent existents and *modus ponens* is valid. Consequently, the S5 axiom is also not true.
This result, in my view, is plausible because it seems that unless everything is a necessary existent, we cannot have a quantified modal logic as strong as S5. The Priorean semantics shows why S5 cannot be an adequate quantified modal logic for a world of contingent existents.

References


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