Adequate Counterpart Translations

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Abstract

An important motivation for believing in the modal realist's ontology of other concrete possible worlds and their inhabitants is its theoretical utility, centrally the reduction of ordinary modal talk to counterpart theory as showcased by David Lewis's 1968 translation scheme. In a recent paper Harold Noonan, following the lead of John Divers, argues that Lewis's scheme is not strictly adequate by the modal realist's own lights, and that nothing short of jettisoning de dicto contingency will help. In this paper, I argue that this is a serious overreaction. First, I show that Noonan's problem does not touch Lewis's proposal, since his translation scheme is not even concerned with the relevant sentences. Thus, Noonan's problem only points to a limit in scope. I then go on to propose a straightforward extension of the translation scheme that provides translations for the allegedly problematic sentences, but does so endangering neither adequacy nor de dicto contingency.

David Lewis's Modal Realism—the theory whose central tenet it is that there is a plurality of concrete possible worlds much like the actual one, but spatio-temporally inaccessible—has not much initial plausibility going for it. Instead, it derives its attractions from the immense utility it promises in explicating all kinds of philosophical and everyday phenomena. One central such feat is supposed to be the analysis of everyday talk about what might be and what could not have been in terms of the plurality of worlds and their inhabitants. Lewis (1968) provided a translation scheme between (formal analogues of) natural language modal sentences and sentences in the modal realist language of Counterpart Theory, which systematically pairs sentences with their modal realist analysanda. The Lewisian translation scheme thus furnishes a central motivation for believing in the modal realist picture of what there is—provided, of course, that it succeeds.

At least since Divers (1999), it has been repeatedly claimed that the Lewisian translation scheme yields unwanted results in its application to cases of what Divers calls *advanced modalizing*. This has led to various modification proposals for the original scheme, sometimes accompanied by

surprising pronouncements on modal matters such as that Modal Realism is contingent (Parsons 2012), that some propositions are *amodal*, i.e. lack a modal status altogether (Cowling 2011), or that some truths are impossible (Hudson 1997). The most recent example is Harold Noonan (2014) who argues that, even by the modal realist's own lights, the Lewisian translation scheme is not *strictly adequate*, in the sense of pairing modal sentences with alleged modal realist translations such that the latter fail to be strictly equivalent to the former, if there are de dicto contingencies. As a remedy, he proposes a modification of the original scheme that immediately leads to de dicto modal collapse into truth: whenever S is a (closed) sentence with no singular terms, $\ulcorner S \leftrightarrow \Box S \urcorner$ and $\ulcorner S \leftrightarrow \Diamond S \urcorner$ are derivable.[1] But, says Noonan, the translation scheme is a necessary modification of the original Lewisian proposal, which retains its spirit but gains strict adequacy. Thus, surprising as it may be, we should reject de dicto contingency if we want to be modal realists at all.

In this paper I will argue that no surprising pronouncements on modal matters are called for for the sake of strict adequacy. For definiteness, I will focus on Noonan's (2014) presentation. In a nutshell, the argument runs as follows: the 1968 translation scheme, in effect, interprets the ordinary language quantifiers it translates as *world-restricted*. Noonan's arguments rely on applying the scheme to theoretical sentences whose quantifiers the modal realist needs to interpret as *un*restricted. But rather than yielding unwanted results, the Lewisian translation scheme is inapplicable in such cases. A straightforward extension of the scheme that tracks the difference between quantifiers will be set up and used to show how problems of advanced modalizing can be avoided.[2] In a last step, the scheme is defended against objections.

1. The problem

In Lewis (1968) we find a systematic method for translating sentences of quantified modal logic (QML) into the language of Counterpart Theory (CT). Lewis's basic idea is to recursively define a translation function that gives CT-translations of QML-formulae depending on their main operator. Via the translation scheme, every sentence of QML (and, thus, every natural language modal sentence formalizable in QML) receives a step-wise translation into CT. If the translations are correct, the modal realist has some claim to the view that she has analysed our everyday modal talk within a non-modal first-order theory that employs distinctive modal realist resources. Correlatively, Modal Realism would prove to be a fruitful explanatory theory.

[1] This is a direct consequence of clause (a) in Noonan (2014: 859).

[2] I owe this characterisation of the basic idea of the paper to a referee for this journal.

However, it's a necessary condition for something to analyse a second thing that these things should be strictly equivalent. This is part of how we test analysis proposals: if we can find a possible case in which the proposed analysans holds while the analysandum does not or vice versa, we may reject the proposal. Correlatively, for the Lewisian translation scheme to be successful it should satisfy the condition of *strict adequacy*: it should only pair sentences that are strictly equivalent.[3] But, argues Noonan, this condition is not satisfied, if there are de dicto contingencies. What is worse: on that assumption, the 1968 translation scheme is not strictly adequate *by the modal realist's own lights*.

Noonan has two arguments for this claim. For definiteness, he argues against the strict equivalence of

1 It is possible that there is a talking donkey;

and what is, according to the Lewisian translation scheme, its translation into the language of CT, i.e.

1$_{\mathbf{T}}$ There is a possible world that contains a talking donkey;

on the assumption that the complement clause of (1), i.e.

2 There is a talking donkey;

is contingently false. Any other sentence of QML that might be taken to be false while its possibilitation is true would, of course, have done the trick as well.

Argument 1: Plausibly, (1) is necessary, if true: it is necessary that it's possible that there is a talking donkey, provided that it's possible that there is a talking donkey.[4] In any case, the modal realist who endorses the 1968 translation scheme (henceforth: the 1968 modal realist) is badly placed to deny this. For, it is a direct consequence of the Lewisian translation scheme that (1) and

3 It is necessary that it is possible that there is a talking donkey.

are materially equivalent, since their CT translations are. To see this, consider the Loglish variants of (1_{T}) and the translation of (3)

1$_{\mathbf{T}*}$ There is a world w such that w contains a talking donkey;

3$_{\mathbf{T}*}$ Every world w' is such that there is a world w such that w contains a talking donkey.

[3] A strictly weaker correctness condition is that of *material adequacy*: a correct translation scheme should only pair sentences that are materially equivalent. One might conceivably also impose *stronger* criteria than strict adequacy, such as propositional *identity*, but such stronger correctness conditions are not at issue in the following discussion.

[4] Anyone who subscribes to S5 should accept the claim. But even philosophers who do not, do not ipso facto deny *every* instance of '$\Diamond p \rightarrow \Box\Diamond p$'.

Since (3_{T^*}) differs from (1_{T^*}) only in containing a world quantifier that does not bind any variable, they are materially equivalent.[5] For the sake of the translation scheme's material adequacy, the 1968 modal realist is committed to the material equivalence of (1) and (3), and, thus, to accepting that (1) is necessary if true. Since we are working under the assumption that (1) *is* true, the 1968 modal realist should take it to be necessary. I won't quarrel with this line of thought.

On the other hand, the 1968 modal realist must deny that (1_T) is necessary, according to Noonan. For, consider (1_{T^*})'s necessitation

4 Necessarily, there is a world w such that w contains a talking donkey.

Its 1968 CT translation, says Noonan, is

$4_{T?}$ Every world w' is such that w' contains a world w such that w contains a talking donkey.

Now, the only world contained in a given possible world is that world itself. Thus, every world that does not contain a talking donkey—such as, by assumption, the actual world—is also a world that does not contain a world that contains a talking donkey. Consequently, ($4_{T?}$) is false, and, by material adequacy of her translation scheme, the 1968 modal realist is committed to rejecting (4) as well.

Summarizing, the 1968 modal realist should take (1) to be necessary, and (1_T) not to be necessary, given that it is contingently false that there are talking donkeys. But strict equivalents have the same modal status. In particular, nothing that is necessary can be strictly equivalent to anything not necessary. So, at least some sentences paired by the modal realist's translation scheme are not strictly equivalent on the assumption that there are de dicto contingencies. Consequently, the Lewisian translation scheme is not strictly adequate on that assumption.

Argument 2: What distinguishes Noonan's second argument from the first is an alternative argument for the intermediary conclusion that the 1968 modal realist should take (1_T) not to be necessary on the assumption that it is contingently false that there are talking donkeys.[6]

Let us recall the two crucial sentences

1_T There is a possible world that contains a talking donkey; and

2 There is a talking donkey.

Noonan claims that the 1968 modal realist is committed to the soundness

[5] In fact, '$\forall\nu\varphi \dashv\models \varphi$, when ν does not occur in φ' is a basic metalogical fact about predicate logic.

[6] I will suppress mentioning the assumption in the remainder for the sake of readability. It should be kept in mind, however, that both of Noonan's arguments against strict adequacy employ the assumption that it is contingently false that there are talking donkeys, which he eventually rejects.

of the following argument, and, thus, to the truth of its conclusion:[7]

P1 (1_{T}) and (2) are strictly equivalent.

P2 (2) is not necessary.

Thus, by P1, P2, and the principle that no necessity is strictly equivalent to anything not necessary,

C (1_{T}) is not necessary.

The argument is valid. It remains to be shown that the 1968 modal realist is committed to its premisses. With respect to P2, it seems rather uncontroversial that this is the case. For, according to the 1968 translation scheme, the necessitation of (2), i.e.

5 Necessarily, there is a talking donkey;

is to be translated as

5_{T} Every possible world w is such that w contains a talking donkey.

Because of worlds that do not have talking donkeys as parts—like, by assumption, the actual world—(5_{T}) turns out to be false. Thus, the modal realist who is committed to the material adequacy of the 1968 translation scheme should take (5) to be false as well. Hence, since (2) is necessary iff its necessitation (5) is true, P2 follows.

The main work is done by the subsidiary argument Noonan offers the 1968 modal realist for P1 on the basis of claims she should accept as true in virtue of meaning:

P3 In virtue of what 'possible world' means, 'there is a possible world that contains a talking donkey' is true iff 'there is some object spatio-temporally related to a talking donkey' is true.

P4 In virtue of what 'donkey' means, 'there is some object spatio-temporally related to a talking donkey' is true iff 'there is a talking donkey' is true.

Hence,

C2 In virtue of what 'possible world' and 'donkey' mean, 'there is a possible world that contains a talking donkey' is true iff 'there is a talking donkey' is true.

If S is true just in case S' is true purely in virtue of meaning, S and S' are strictly equivalent. Thus, given C2 to which the modal realist is committed, P1 holds:

1_{T} There is a possible world that contains a talking donkey;

[7] Thanks to a referee for this journal who pressed me on giving a reconstruction of the argument that is maximally charitable in light of what I say in the next sections.

is strictly equivalent to

2 There is a talking donkey.

2. No problem

Giving natural language glosses of the QML sentences and CT translations disguises a rather straightforward difficulty with Noonan's objections *as directed at Lewis's 1968 account*. For, the 1968 account offers a translation scheme between sentences of *two* languages, QML and CT. Lewis himself does not say too much about the relation between the two, only that CT is a *non-modal* first-order language that contains the following four *new* predicates:

1. $\boldsymbol{W}x$ (x is a possible world)
2. $\boldsymbol{I}xy$ (x is in y)
3. $\boldsymbol{A}x$ (x is actual)
4. $\boldsymbol{C}xy$ (x is a counterpart of y)

Distinguishing clearly between the two languages helps us see that Noonan's arguments do not touch the 1968 proposal.[8] For, reconsider Noonan's first argument, and, in particular, his reasoning for the claim that

$\mathbf{1_T}$ There is a possible world that contains a talking donkey;

is not necessary. He simply assumes that (1_T) is necessary just in case

4 Necessarily, there is a world w such that w contains a talking donkey;

is true. But (4) is not a sentence of *either* of the two languages under discussion. It contains vocabulary that is proprietary to QML ('necessarily') and vocabulary that is proprietary to CT (e.g. 'world' and 'contains', natural language glosses of '$\boldsymbol{W}x$' and '$\boldsymbol{I}xy$'). A fortiori, it is *not* a sentence of QML. Thus, it does not receive a translation into CT via the Lewisian translation scheme. Whether or not the modal realist is committed to the falsity of

$\mathbf{4_{T?}}$ Every world w' is such that w' contains a world w such that w contains a talking donkey;

is irrelevant to whether she needs to accept the contingency of (1_T).[9] Consequently, Noonan's first argument is unable to show that (1) and (1_T) are not strictly equivalent by the 1968 modal realist's own lights.

[8] The importance of distinguishing target and metalanguage in defending Modal Realism has been emphasized as early as Hazen's (1979) discussion of Kripke's famous Humphrey objection.

[9] But isn't (4) a sentence of *English*, and, thus, *shouldn't* it receive a translation if modal realism is able to provide analyses of arbitrary natural language modal sentences? An extension of the translation scheme that achieves just this is proposed in the next section. The discussion of sentence (6) on page 9 above deals with the worry.

Now to the second argument. Distinguishing between QML and CT sentences allows various interpretations of its premises. Depending on which interpretation we choose, the argument is either invalid or relies on a premise that the modal realist need and should not accept.

To be perspicuous, let us highlight that QML and CT are different languages by writing natural language glosses of CT expressions in bold face. For instance, since (1_{T}) contains vocabulary proprietary to CT, it should be written as

$1_{\mathbf{TCT}}$ **There is a possible world that contains a talking donkey**.

Since (2) does not contain vocabulary that belongs exclusively to QML or CT, there is a choice of interpreting it as a sentence of QML or of CT, i.e. as

$2_{\mathbf{QML}}$ There is a talking donkey;

or as the homophonic sentence

$2_{\mathbf{CT}}$ **There is a talking donkey**.

The two sentences spelled 'A billion is one-thousand million' in traditional British and American English bear witness to the fact that it is not always safe to assume that there is no semantic difference between homophonic sentences of two languages.

For the main argument to go through, it has to concern (2_{QML}) throughout. For, the 1968 modal realist's commitment to P2—the claim that (2) is not necessary—is supposed to be justified by the material adequacy of the translation scheme: Since (2)'s necessitation receives a translation that is false by assumption, the 1968 modal realist should agree that (2) is not necessary. But only necessitations of QML sentences receive translations via the translation scheme. Consequently, we have to understand P2 as concerning (2_{QML}). Correlatively, in order for the argument not to rest on an eqivocation, P1 has to concern (2_{QML}) as well.

Since the main argument concerns (2_{QML}), the subsidiary argument needs to establish P1 *in that interpretation*. But the 1968 modal realist should not accept the argument thus understood. In particular, although,

$\mathbf{P3_{CT}}$ In virtue of what '**donkey**' means, '**There is some object spatio-temporally related to a talking donkey**' is true iff '**There is a talking donkey**' is true;

is plausibly true, $\mathrm{P3_{CT}}$ is unable to sustain C2 *interpreted as concerning (2_{QML})*. We might try to close the gap by substituting $\mathrm{P3_{CT}}$ with

$\mathbf{P3_{CT/QML}}$ In virtue of what '**donkey**' (or 'donkey') means, '**There is some object spatio-temporally related to a talking donkey**' is true iff 'There is a talking donkey' is true.

The resulting argument is valid. But nothing compels the 1968 modal realist to accept the new premise. In fact, there is ample reason for her to deny it. For, on Lewis's original translation scheme, the QML sentence 'There is a talking donkey' gets translated as '**The actual world contains a talking donkey**'. But everyone agrees that this latter sentence is false, while the modal realist takes the CT sentences '**There is a talking donkey**', and, thus (per $P3_{CT}$), '**There is some object spatio-temporally related to a talking donkey**' to be true due to the existence of otherwordly talking donkeys. To sum up, once the distinction between QML and CT is observed, we see that there is no way of interpreting the argument so that it is sound by the 1968 modal realist's own lights.

3. Extending the scheme

In the last section I argued that Noonan's worries do not touch the Lewisian translation scheme as it stands. The reason for this is that the scheme provides a systematic way of pairing sentences of *two* separate languages, while the arguments need to assume that the scheme applies cross-linguistically, and, consequently, constantly blurs the distinction between target- and meta-language.

At this point we might suspect, however, that the strict distinction between the language of QML and that of CT is somewhat artificial. After all, what we are after is a justification for the view that *natural language modal sentences* are analysable in terms of quantification over worlds (and counterparts). But surely, we can formulate the things we can say in the language of CT in natural language as well. So, even if Noonan's considerations do not show that Lewis's translation scheme is not strictly adequate, they point to a limit in scope. If the translation scheme cannot be extended to pair sentences that concern the modal status of claims about worlds, world-containment and the like, this would seriously hurt the modal realist's claim to be able to analyse the full range of natural language modal discourse.[10]

Fortunately, it is easy to find an extension of the translation scheme that can account for this consideration. To be maximally explicit, we consider a combined language, QML∪CT, that contains basic vocabulary items from the two languages such as 'necessarily', 'some', 'donkey', as well as '**possible world**', '**contains**', '**some**' and so forth, and builds sentences out of them in the usual way.[11] Our new translation scheme offers translations for

[10] This is the main point in Parsons (2012: §5) against the two languages response to the problem. But it does not show that there is anything wrong with the response, but only that it is incomplete. As I will show presently, there is a straightforward completion.

[11] The name 'QML∪CT' alludes to the fact that the set of basic *vocabulary items* of the language is the union of the basic vocabulary items of QML and the basic vocabulary items of CT. By combining these, the language includes *sentences* that are neither sentences of QML nor of CT.

QML∪CT sentences.

We try to capture the Lewisian idea that ordinary quantification over donkeys is *restricted* to things of the same spatio-temporal system—if speaking non-modally: to donkeys contained in the actual world.[12] On the other hand, when the counterpart theorist quantifies over donkeys no such restriction is in play. The hypothesis that 'everything' and 'something' should be translated as '**everything in** w' and '**something in** w', for contextually relevant w, while '**everything**' and '**something**' receive homophonic translations, ensures this. The full translation scheme is specified in the appendix.

With the translation scheme in place, we can see where Noonan's arguments go wrong. As we might have expected,

1 It is possible that there is a talking donkey.

and its translation, roughly:

$1_{T!}$ **There is a possible world w' such that something in w', x, is such that x is talking and x is a donkey**.

both turn out to be necessary. For, the necessitation of $(1_{T!})$, i.e.

6 Necessarily, **there is a possible world w' such that something in w', x, is such that x is talking and x is a donkey**;

gets translated as

6_{T} **Every world w is such that there is a possible world w' such that something in w', x, is such that x is talking and x is a donkey**.

Now, (6_{T}) differs from $(1_{T!})$ only in containing a quantifier that does not bind any variable. Thus, since $(1_{T!})$ is true, so is (6_{T}). Contrary to Noonan, on the current translation scheme, the necessitation of $(1_{T!})$ turns out to be true, and, since the necessitation of (1) is true as well, the pair does not prove that our scheme fails to be strictly adequate.

In a similar way, other arguments in the literature that appear to spell trouble for the original 1968 translation scheme can be defused.[13] Applying the two language strategy to them, and then using the extended scheme for showing where they go wrong is a routine matter. For instance, Parsons (2012: §1) argues against the modal realist who takes her theory to be non-contingent by appeal to the assumptions (a) that 'there is a world that contains a blue swan' entails 'there is a blue swan'; (b) that 'Necessarily, there is a world that contains a blue swan' is true; and (c) that 'Necessarily, there is a blue swan' is false. But once we distinguish between CT and QML

[12] Cp., e.g., Lewis (1968: 117f.).

[13] I have in mind Hudson (1997: §II), Divers (1999), Divers (2002: 47–50), Cowling (2011: §II.3), Parsons (2012) and Jago (2016).

vocabulary we see that the entailment in (a) holds only between sentences from the same language, the embedded sentence in (b) is from CT, while (c) is only acceptable to the modal realist when the embedded sentence is from QML, since 'Necessarily, **there is a blue swan**' is true rather than false by the modal realist's lights. This can be seen by observing its translation: '**Every world** w **is such that there is something** x **such that** x **is blue and** x **is a swan**', which is made true by any blue swan-part of any world, since its universal world quantifier runs empty.

4. Defense

Interestingly, the translation scheme advertised in the last section secures the truth of biconditionals of the form '$S \leftrightarrow \Box S$' and '$S \leftrightarrow \Diamond S$', whenever S is a (closed) sentence of CT. It does so by correlating '$\Box S$' and '$\Diamond S$' with *redundant* quantification over possible worlds: a possible worlds quantification that does not bind any variable, since CT quantifiers do not supply world variables to be bound. Thus, the proposed translation scheme offers a precise syntactic mechanics for implementing John Divers's (1999) semantic idea for solving the problem to the effect that the modal operators in cases of *advanced modalizing* are redundant. On the current proposal they are redundant in the sense of being translated by a redundant (i.e. non-binding) quantifier. Rather than having to resort to ad hoc stipulation, however, redundancy is an immediate consequence of the language sensitivity of our translation rules and their interplay. This observation helps defend the proposal against various charges.

Material adequacy. In a recent paper, Mark Jago (2016: §3) complains against Divers's redundancy analysis that it still cannot adequately deal with all problem cases. In particular, says Jago, we can imagine 1.8m tall Anna who is part of one world, 1.7m tall Bill who is part of another, and consider the sentence

7 Anna is taller than Bill.

Given the description, (7) is true. But, Jago continues, there is a 'deep intuition' that (7) is contingent. However, since (7) describes a transworld state of affairs, which is supposed to trigger Divers's redundancy analysis, Divers is forced to accept

8 Necessarily, Anna is taller than Bill;

and, thus, must wrongly classify (7) as necessary.

As before, separating clearly between languages is able to defuse the problem. If (7) is supposed to be true, it can only be interpreted as a sentence of CT, and, consequently, its necessitation turns out to be true as well.[14] But sentences of CT express theoretical commitments of the modal

[14] Things are complicated by the fact that our languages do not contain individual con-

realist rather than pre-theoretical intuitions, so the theorist who embraces the truth of (8) cannot be charged with violating any deep intuitions we might legitimately be taken to have.

The modal realist might go on to explain the *semblance* of conflict with intuition by the fact that the conjunction of (7) and (8) *looks* as if it were incompatible with the intuitively plausible principle expressed by the following QML sentence:

9 If something is taller than another, then it's possible for the second to be taller than the first.

But the conjunction of (7) (understood as a sentence of CT) and (8) (understood as the necessitation of (7)) is not incompatible with that intuition.[15] This can be seen by translating (9) according to our scheme:

9_{T} **If there are x and y in the actual world such that x is taller than y, then there is a possible world w' and x' and y' in w' such that x' and y' are counterparts of x and y respectively and y' is taller than x'.**

Since (7) does not imply that Anna and Bill are part of the actual world, it does not imply the antecedent of the relevant instance of (9_{T}). Since the negation of (8) implies that Anna *herself* is not taller than Bill *himself*, it is not implied by that instance's consequent. Thus, the modal realist who avails herself of our translation scheme should be unimpressed by Jago's charge.

Interpretation of modal operators. The current proposal is also able to deal with another objection that has been raised against Divers's attempt at securing adequacy by distinguishing ordinary and advanced cases of modalizing. Parsons (2012: §3) complains that Divers's proposal of treating cases of ordinary and advanced modalizing differently appears committed to the claim that the modal operators are either ambiguous or disjunctive.[16] Nothing like this is true on the current proposal, as witnessed by the univocal and non-disjunctive translation clauses for '$\Box$' and '$\Diamond$' in the appendix.

Interpretation of quantifiers. Of course, our account stipulates multiple (albeit related) interpretations of the quantifiers instead.[17] Noonan opposes

stants (see appendix). Strictly speaking we should, thus, consider, e.g., 'there is something x that's Anna-ish and something y that's Bill-ish and x is taller than y'.

[15] Nor is it incompatible with any other intuition that can be expressed by a sentence that differs from (9) by the addition of modal operators. For simplicity, I discuss only (9) in the main text, but it is a routine matter to go through the other options.

[16] In a recent paper Divers explicitly opts for ambiguity (or *multivocality*), claiming that there is 'more than one interpretation that may be assigned to an expression of necessity' (Divers 2014: 870). From the perspective of the present paper this is a surprising place to locate ambiguity, since the modal operators were originally proprietary to QML, and, thus, it is mysterious how combining the two languages should have managed to multiply their meanings.

[17] It is possible to devise an alternative translation scheme that avoids inadequacy by

such an approach by appeal to *ontological disagreements* between the folk and the modal realist:

> The modal realist and the man in the street do not differ in respect of what they mean by 'there is/are'; [...] otherwise [the latter] should greet the modal realist's [contention that there are talking donkeys] with a yawn of indifference rather than an incredulous stare. (Noonan 2014: 653)

But note, first, that our translation scheme is proposed in an attempt at rational charitable reconstruction of ordinary modal talk in terms of the resources of CT. There is no commitment to the view that such reconstruction is transparent to the reconstructed. So, whether the woman in the street would recognize that she uses her quantifiers differently from the theoretician is besides the point. Secondly, that we do not constantly contradict the modal realist when we make negative existential claims in ordinary talk does not mean that we *agree* with his extravagant ontology either. When sufficiently aware, we may even elect to use the language of CT to express our disagreement and utter '**there are no talking donkeys**'. The present account is not committed to the view that the man in the street has no reason to stare incredulously at the modal realist.[18] And, thirdly, ambiguity in the quantifiers in the combined language is not an ad hoc fix for the problems of advanced modalizing but has a straightforward explanation: the two languages that are put together come with their *own* quantifiers, so there is room for their combination to include differently interpreted pairs

locating interpretational differences in atomic sentences of QML and CT, and, thus, ultimately in their *predicates* (roughly, predicates of QML are treated as having an additional world-argument, which effects the restriction in quantification in the desired cases, while quantifiers from the two languages may be treated uniformly). Since the scheme in the appendix conforms more closely to the spirit of the Lewisian original I chose it here. The alternative scheme could simply brush aside the quantifier ambiguity charge. It is an interesting question that cannot be decided here whether it may also have more significant advantages.

[18] Cp. Lewis (1986: §2.8). The point that the modal realist disagrees with common sense to an extreme degree about what there is, and should, thus, be taken to use the same quantifier as the ordinary speaker, is made also in Parsons (2012: §4). The same comment applies. Parsons also offers an alternative statement of the worry, which relies on the following thought: 'Since the ordinary [QML-] quantifier is intended to be an unrestricted quantifier [by ordinary speakers]—a quantifier that ranges over all there is—the only way to understand the extraordinary [CT-] quantifier is as intended to range over more than all there is' (Parsons 2012: 150). Since the modal realist does not want to end up as a Meinongian, she should not appeal to two kinds of quantifiers. But even if Parsons is correct that ordinary speakers *intend* their quantifiers to be *un*restricted, rather than *not* intending them to be restricted, when uttering 'there are no talking donkeys', it seems to me highly debatable whether untutored speaker intentions need to be accounted for to the letter in charitable reconstruction. After all, the proposed restriction only excludes things from discussion we are ordinarily unconcerned with on everyone's view.

thereof. That our account claims just that is not a shortcoming. Rather, it encodes the basic Lewisian insight that the man in the street is best interpreted as restricting his purview to things contained in the same worlds, while we as theorists may have occasion not to.

Still no de dicto contingency? Finally, one might think that the current proposal is simply an alternative implementation of Noonan's basic idea of solving the puzzle by giving up *deep* de dicto contingency.[19] For, reconsider the false QML sentence (2). According to our translation scheme, its possibilitation

1 It is possible that there is a talking donkey;

turns out to be consistent with it, and, plausibly, true. Thus, the scheme saves *superficial* de dicto contingency: contrary to Noonan's own proposal, (some) QML sentences of the form '$\neg p \wedge \Diamond p$' receive logically consistent translations. However, according to our translation scheme, (2) gets translated as

2_{T} ***The actual world*** **contains a talking donkey**.

But then, to borrow Noonan's words, 'affirming its contingency is not affirming a [deep] *de dicto* contingency' (Noonan 2014: 860, fn.) but something that our translation scheme reveals to be a *de re* contingency regarding our world. This would seem to generalize: whenever there is a case of superficial de dicto contingency, our translation scheme reveals it as a case of hidden de re contingency about our world.

Let me first point out that if this consideration were on the right track it would somewhat surprisingly show that a natural translation scheme for modal discourse is able to systematically accommodate both Divers's and Noonan's ideas for solving the puzzles of advanced modalizing, while systematically saving the phenomenon of superficial de dicto contingency. This integration potential would appear like a strength rather than a weakness of the current proposal. However, it seems to me that there are good reasons to resist the suggestion. For, in the current framework, it is natural to count something as a de re modal sentence just in case it is a modal sentence in whose CT translation *counterparts* play some role. But in the translation of, e.g., (1), i.e.

1_{TCT} **There is a possible world that contains a talking donkey**;

the '**counterpart**'-predicate does not occur at all. Thus, in a straightforward sense, (1) is not de re on the current proposal. In fact, depending on what similarity relation is in play, the truth values of (1) and the corresponding de re sentence about our world may come apart. This can be seen by appeal to our translation scheme's result for the latter sentence:

[19] Thanks to a referee for raising the issue.

10 There is a possible world w and some x in w such that x is a counterpart of the actual world and x contains a talking donkey.

For, if the relevant similarity relation selects only worlds as counterparts of the actual world that lack talking donkeys, (10)—the translation of the relevant de re sentence about our world—comes out false, while (1_{TCT})—the translation of the de dicto (1)—will still be true.[20]

Appendix

Based on the simple Lewisian idea that QML 'everything' and 'something' correspond to the CT '**everything in** w' and '**something in** w', we can build a translation scheme for the combined language QML∪CT that minimally differs from the original one, but includes split rules for the quantifiers. The scheme maps sentences from the combined language onto a proper subset: the QML∪CT fragment that coincides with CT.

Let [] be a function that assigns to a formula φ of QML∪CT and a term for a possible world ω a formula of the CT fragment of QML∪CT ($\approx$ ⌜φ is true at the world assigned to ω⌝). The translation of a sentence φ is the sentence the function assigns to φ and a name for the actual world @, i.e. $[\varphi]^{@}$ ($\approx$ ⌜φ is true at the actual world⌝). In what follows, bold font indicates use of vocabulary from CT. To help visually distinguish quantifiers I use '**Π**' (universal) and '**Σ**' (existential) in CT. '[]' adds selective quotation around its argument expression. I assume that atomic formulae of QML are correlated with atomic formulae of CT, which is reflected in the fact that they receive homophonic translations via the AT_{QML}-rule ('Dx' is translated as '**D**x', and so forth). Since we may take QML to contain only finitely many atomic formulae, these translations could in principle be specified one by one. Note also that in Lewis's original presentation QML and CT do not contain individual constants: constants are eliminated in favour of their (analysed) Quinean descriptions (e.g., 'there is exactly one Socratizer, x, and x ...'). Since the problems of advanced modalizing do not depend on this aspect of the translation scheme, I simply follow Lewis in not offering clauses for constants.

For arbitrary φ, ψ and ω, [] is defined recursively as follows:

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$\mathbf{AT_{QML}}$ If φ is an atomic formula of QML, $[\varphi]^\omega$ is φ's homophonic CT translation;

$\mathbf{AT_{CT}}$ If φ is an atomic formula of CT, $[\varphi]^\omega$ is φ;

JU $[(\neg/\boldsymbol{\neg})\,\varphi]^\omega, [\varphi\,(\wedge/\boldsymbol{\wedge})\,\psi]^\omega, [\varphi\,(\vee/\boldsymbol{\vee})\,\psi]^\omega, [\varphi\,(\rightarrow/\boldsymbol{\rightarrow})\,\psi]^\omega,$ $[\varphi\,(\leftrightarrow/\boldsymbol{\leftrightarrow})\,\psi]^\omega$ are $\ulcorner\boldsymbol{\neg}[\varphi]^\omega\urcorner, \ulcorner[\varphi]^\omega \boldsymbol{\wedge} [\psi]^\omega\urcorner, \ulcorner[\varphi]^\omega \boldsymbol{\vee} [\psi]^\omega\urcorner, \ulcorner[\varphi]^\omega \boldsymbol{\rightarrow} [\psi]^\omega\urcorner, \ulcorner[\varphi]^\omega \boldsymbol{\leftrightarrow} [\psi]^\omega\urcorner$ respectively

$\mathbf{EV_{QML}}$ $[\forall\alpha\,\varphi]^\omega$ is $\ulcorner\boldsymbol{\Pi}\alpha\,(\boldsymbol{I}\alpha w \boldsymbol{\rightarrow} [\varphi]^\omega)\urcorner$

$\mathbf{EV_{CT}}$ $[\boldsymbol{\Pi}\alpha\,\varphi]^\omega$ is $\ulcorner\boldsymbol{\Pi}\alpha[\varphi]^\omega\urcorner$

$\mathbf{EX_{QML}}$ $[\exists\alpha\,\varphi]^\omega$ is $\ulcorner\boldsymbol{\Sigma}\alpha\,(\boldsymbol{I}\alpha w \boldsymbol{\wedge} [\varphi]^\omega)\urcorner$

$\mathbf{EX_{CT}}$ $[\boldsymbol{\Sigma}\alpha\,\varphi]^\omega$ is $\ulcorner\boldsymbol{\Sigma}\alpha\,[\varphi]^\omega\urcorner$

N $[\Box\varphi\,(\alpha_1, \ldots \alpha_n)]^\omega$ is $\ulcorner\boldsymbol{\Pi}\omega'\boldsymbol{\Pi}\beta_1, \ldots \beta_n\,((\boldsymbol{W}\omega' \boldsymbol{\wedge} \boldsymbol{I}\beta_1\omega' \boldsymbol{\wedge} \boldsymbol{C}\beta_1\alpha_1 \boldsymbol{\wedge} \ldots \boldsymbol{I}\beta_n\omega' \boldsymbol{\wedge} \boldsymbol{C}\beta_n\alpha_n) \boldsymbol{\rightarrow} [\varphi(\beta_1, \ldots \beta_n)]^{\omega'})\urcorner$

P $[\Diamond\varphi(\alpha_1, \ldots \alpha_n)]^\omega$ is $\ulcorner\boldsymbol{\Sigma}\omega'\boldsymbol{\Sigma}\beta_1, \ldots \beta_n\,((\boldsymbol{W}\omega' \boldsymbol{\wedge} \boldsymbol{I}\beta_1\omega' \boldsymbol{\wedge} \boldsymbol{C}\beta_1\alpha_1 \boldsymbol{\wedge} \ldots \boldsymbol{I}\beta_n\omega' \boldsymbol{\wedge} \boldsymbol{C}\beta_n\alpha_n) \boldsymbol{\wedge} [\varphi(\beta_1, \ldots \beta_n)]^{\omega'})\urcorner$

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