ARE MODAL CONTEXTS OPAQUE?

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1 Introduction

A *metaphysically essential property* of a thing is one that it could not fail to have and yet exist.[1] The most plausible candidates for my essential properties are being such that either it is raining or it is not, being such that $2 + 2 = 4$, being self-identical, and being Teresa Robertson. These are perhaps a little disappointing—*trivial*, we might say, rather than *substantive*. Less disappointing alleged examples of my essential properties are being human and originating from the sperm and egg I actually originated from. Essential properties contrast with *accidental properties*—properties that one happens to have but that one could fail to have. My having taken so long to write this essay should be considered an accidental property of mine, if one agrees with me that I could have done it sooner.

For much of the history of analytic philosophy, the claims of modal metaphysics were regarded with more than aggressive suspicion: if one said that some property was metaphysically essential to a thing, one was thought to be uttering nonsense.[2] Quine is the best-known advocate of such a view. But nowadays—post *Naming and Necessity*—essentialist claims are commonplace. There has been a dramatic change in attitude toward the claims of modal metaphysics in the past forty years: the older view rejected such claims out of hand and the newer view accepts them fairly uncritically.

It is widely believed that Quine's views on quantifying into modal contexts are relevant to the issue of whether or not essentialist claims are intelligible. Why? To answer that, I'll sketch a line of thought I have often encountered. It begins by noting that an essentialist claim can be translated into logical notation with the help of the sentential modal operator '$\Box$' which stands for 'it is necessary that.' We can write the claim that I am essentially human as follows.[3]

(1) $\Box(Et \rightarrow Ht)$

By existential generalization, we may infer

(2) $(\exists x)\Box(Ex \rightarrow Hx)$.

In (2) the last two occurrences of 'x' are *within* the scope of the necessity operator but are bound by a quantifier *outside* the scope of that operator. Quine has argued compellingly that such *quantification into a modal context*, even though it may seem perfectly intelligible, is in fact not so. So, the line of reasoning continues, if Quine is right that quantification into a

modal context is incoherent, then essentialist claims like (1), which seem to entail the likes of (2), are themselves unintelligible.[4]

In the face of this line of reasoning, those sympathetic to essentialist claims—or at least to their *intelligibility*—have responded in the obvious way, saying that Quine was wrong that quantifying into a modal context is incoherent.

In broad outline Quine's argument for his claim is this.[5]

(P1) Modal contexts are opaque.

(P2) Quantification into opaque contexts is incoherent.

(C)   Therefore quantification into modal contexts is incoherent.

(For the moment, I leave the notion of an opaque context unexplained.) It is obvious that the argument is valid, assuming no equivocation. It is not so obvious that the premises are true. Early on, Arthur Smullyan (1947 and 1948) argued that (P1) is false; this view has been influentially revived by Stephen Neale (1990, chapter 4). (P2) has been vigorously criticized by David Kaplan (1986). These two criticisms are taken to have definitively rebutted Quine's argument against quantifying into modal contexts. I believe that both alleged rebuttals are flawed and it is the purpose of this essay to make the case against the Smullyan/Neale strategy.[6]

2 Neale on Smullyan on Modal Contexts

The Smullyan/Neale[7] case against Quine depends on an understanding of opacity in which the notion is defined in terms of the failure of a particular principle of substitutivity:

[PS] If (i) '$a = b$' is a true identity statement, (ii) α is a true sentence containing at least one occurrence of a, and (iii) β is the result of replacing at least one occurrence of a in α by an occurrence of b, then (iv) β is also true. (Neale 1990, p. 124)

A context is opaque, according to Neale, if and only if [PS] fails in it. (3)–(5) provide an example of opacity thus defined:

(3) Kristine believes that Augustus was a Roman emperor;

(4) Kristine believes that Octavian was a Roman emperor;

(5) Augustus is Octavian.

(3) is true.[8] Sadly, (4) is not true, even though (5), which is an identity statement, is true. Clauses (i)–(iii) of [PS] are met and yet (iv) is not.[9] [PS] thus fails in the context 'Kristine believes that ___ was a Roman emperor.' Similar examples can be adduced for other belief contexts and so we can say more generally that belief contexts are, on Neale's understanding of opacity, opaque.

Let's turn now to the case of modal contexts. Famously, Quine supports

(P1) with the fact that

    (6) necessarily nine is greater than seven

is true while

    (7) necessarily the number of planets is greater than seven

is false (at least on one reading) even though

    (8) nine is the number of planets

is true.

This example involves the substitution of a codesignative *definite description* for a name. In Neale's view *any* example that Quine can give in support of (P1) will possess this feature: "the substitution of a definite description is an essential component of Quine's argument. Parallel examples that [do not involve definite descriptions] do not create even the illusion of a problem" (Neale 1990, p. 135). There are, according to Neale, three options for the treatment of definite descriptions: treat them in accordance with Russell's theory; treat them as genuine referring expressions; or treat them as "quasi-referring expressions." He argues all three options are problematic for Quine.

In order to explain Neale's thought, some background is needed. For Neale, a genuine referring expression is defined by the following principles.

    (R1) If '*b*' is a genuine referring expression (singular term), then for a (monadic) predicate '___ is *G*', it is necessary to identify the referent of '*b*' in order to understand the proposition expressed by an utterance *u* of '*b* is *G*.' (Neale 1990, p. 18)

    (R2) If '*b*' [is a genuine referring expression that] has no referent, then for a (monadic) predicate '___ is *G*', no proposition is expressed by an utterance *u* of '*b* is *G*.' (Neale 1990, p. 19)

    (R3) If '*b*' is a genuine referring expression that refers to *x*, then '*b*' is a rigid designator; i.e., *x* enters into a specification of the truth conditions of (the proposition expressed by) an utterance *u* of '*b* is *G*' with respect to actual and counterfactual situations. (Neale 1990, p. 20)

Proper names and variables (under assignments) may serve as plausible examples of genuine referring expressions. The primary claim of Russell's theory is that *definite descriptions* are not genuine referring expressions.[10]

Now to explicate Neale's three-part objection to Quine. *First*, Neale considers the status of Quine's argument *if* definite descriptions are properly analyzed by Russell's theory. (6)–(8) would not, on that assumption, demonstrate a failure of [PS]. The reason is that according to Russell's theory, (8) is not a true *identity statement*, since it is not an identity statement at all. An identity statement has *two genuine singular terms* flanking an identity sign, but (8) is a statement of the form

    (9) $n = (\text{the } x)(Fx),$

which may *look* like an identity statement, but this appearance is misleading. In (8) we have a genuine singular term ('nine') followed by the identity sign followed by a *definite description* ('the number of planets'), which is *not*, according to Russell's theory, a genuine singular term. The meaning of (8) is better captured in a statement of the form

    (10) $(\exists x)[Fx \ \& \ (\forall y)(Fy \rightarrow y = x) \ \& \ n = x].$

This statement, although it *contains* an identity statement, is not *itself* an identity statement and hence clause (i) of [PS] is not satisfied. [PS] *does not* sanction a move from (6) to (7) or from (7) to (6) on the basis of the truth of (8) and hence the example given by (6)–(8) does not show what Quine intends it to show, namely that [PS] breaks down in modal contexts.

    Second, Neale considers the status of Quine's argument *if* definite descriptions are genuine referring expressions. In this case, (6)–(8) would not demonstrate a failure of substitutivity, since (6) and (7) would not diverge in truth value: both would be true. Why? Well, if 'the number of planets' in (7) is treated as a genuine referring expression, then that phrase would, by (R3), refer *rigidly* to nine, and so (7) would be true, just as (6) is. If (6) and (7) do not diverge in truth value, then obviously (6)–(8) do not show a violation of [PS].

    Third and last, Neale discusses treating definite descriptions as "quasi-referring expressions." Such an expression is one that is like a genuine referring expression except that it is not a rigid designator. In other words, such an expression is one that, so to speak, satisfies (R1) and (R2), but not (R3). Once we acknowledge the *possibility* of such an expression, there is a question about what exactly constitutes an identity statement. Must an identity statement involve only genuine referring expressions or may it involve any combination of referring expressions, whether quasi or genuine? Neale assumes, for Quine's sake, the latter. In such a case, Quine would be right that (6)–(8) do represent a violation of [PS]. To this, Neale says that there is no good evidence for the existence of such "flaccid" referring expressions in natural language at all. His reasons for thinking this are not important for my purposes, since I am willing to accept the point in my criticisms.[11]

    Now I offer three criticisms of Neale.

    First. I think Neale is wrong to say that the substitution of a definite description is an essential component of Quine's argument. We *can* adduce examples of substitution failure in modal contexts that don't involve definite descriptions, *if* we interpret modal contexts as Quine did. Consider the following example.

(12) Necessarily Cicero is Cicero.

(13) Necessarily Cicero is Tully.

(14) Cicero is Tully.

We, who write post *Naming and Necessity*, are apt to agree with Neale in thinking that there is not even "the illusion of a problem" here since all three sentences are true. But to think this is to forget the context in which Quine wrote. Quine says explicitly that his "observations apply, naturally, to the prefix 'necessarily' *only in the explained sense of analytic necessity*" (Quine 1943, p. 124, my emphasis).[12] As Plantinga stresses, "it is modal logic as *interpreted* that draws [Quine's] fire" (1974, p. 223). The necessity that Quine is speaking of is such that ⌈Necessarily *S*⌉ is true just in case the sentence consisting of the quote-name of *S* followed by 'is analytic' is true. Now, to the extent that I understand the notion of analyticity, it seems reasonable to say that 'Cicero is Cicero' is analytic although 'Cicero is Tully' is not analytic. *Given this understanding* of modality then, (13) is false while (12) and (14) are true and so [PS] *does* fail in modal contexts.

But this first criticism of Neale does not go very far, since we are interested in Quine's arguments as they relate to the kind of essentialist claims that are made nowadays. Proponents of essentialism say that they are using an allegedly "intuitive" notion of necessity and not necessity as analyticity. If we understand necessity in this way, it does seem that any example that can be adduced in favor of (P1) will involve a definite description. So in what follows I will assume—with Neale—that this is so.

Second. It is important to realize that it is crucial to Neale's criticism that opacity is defined in terms of a *particular* principle of substitutivity, [PS]. To see this, consider a different principle of substitutivity:

> [PS'] If (i) '*a*' and '*b*' are co-designative singular terms, (ii) α is a true sentence containing at least one occurrence of *a*, and (iii) β is the result of replacing at least one occurrence of *a* in α by an occurrence of *b*, then (iv) β is also true.

If it is [PS'] rather than [PS] that defines opacity,[13] then Neale's criticism loses its force, since the fact that (8) is not a *genuine identity statement* is irrelevant to the question of whether or not (6)–(8) constitute a violation of [PS'].[14] Yet Neale provides no argument for his view that opacity is defined in terms of [PS] rather than in terms of [PS'].

In fact there is much textual evidence to suggest that it is not so defined. Quine never states very clearly what he takes the relevant principle of substitutivity to be. However, as is well known, he repeatedly appeals to a core set of examples that he takes to violate the principle. In addition to (6)–(8), Quine offers the following as an example.

(15)   Philip believes that Cicero denounced Catiline.
(16)   Philip believes that Tully denounced Catiline.
(17)   Cicero is Tully.

Now if, as Neale assumes, Quine had [PS] in mind as the principle of substitutivity, then the fact (as the story goes) that (15) and (17) are true and (16) is false should not *by Quine's lights* constitute a failure of the principle, since in addition to advocating Russell's theory of descriptions, Quine also advocates Russell's doctrine that names are disguised descriptions. According to Quine then, (17) is not a genuine identity statement, since names too are to be Russelled away. In fact, if Quine had [PS] in mind, then *none* of the examples that he gives of substitutivity failure should have been considered by him to be examples of such. In this situation it seems to me quite perverse—or at least uncharitable—to insist that Quine had [PS] in mind as the principle of substitutivity. I think that we would be better off in this case to try to extrapolate the principle from the examples. Doing so obviously favors [PS'] instead of [PS] as Quine's principle of substitutivity.[15,16]

Third. Neale's criticism, even if it were right as far as it goes, does not get to the heart of the matter. There are a couple of ways to see this: one rather fancy and one quite plain. First the fancy way. Remember that Neale concedes, in the third part of his argument against Quine, that if definite descriptions were quasi-referring terms then modal contexts would be opaque (on Neale's understanding). But, he says, there is no reason to think that natural languages contain quasi-referring terms, and a fortiori no reason to think that definite descriptions are quasi-referring terms. But now suppose that we extend English by introducing terms that we *stipulate* to be flaccid referring expressions. If we did this, then Neale would have to concede that modal contexts are opaque in this extension of English. But those, like Neale, who find quantifying into modal contexts intelligible would still find such claims—claims like (2)—intelligible even in this extension of English. Given this, if there is something importantly wrong with Quine's argument, it must involve (P2). And so, even if Neale's criticism is right as far as it goes, it does not satisfy.[17]

Now for the plain way. It is dialectically ineffectual to decide on an interpretation of "opacity" in (P1) without examining (P2). Let's just grant Neale that Quine defines opacity in terms of [PS]. But now suppose that Quine has a very good argument that modal contexts are, say, muddy (where failure of [PS'] is criterial for muddiness), which he mistakenly thinks is a good argument that modal contexts are opaque. Suppose he also has a very good argument that quantification into a muddy context is illegitimate, which he mistakenly thinks is a good argument that quantification into an

opaque context is illegitimate. Who would care then that modal contexts are not, narrowly speaking, *opaque*? The interest would be in whether or not they are muddy. Or to put it in a different way, we might say that what exactly opacity *is* is defined by its role in Quine's argument, regardless of what exactly he (confusedly and confusingly) *says* about what it is for a context to be opaque. Charitable interpretation of the argument as a whole should drive the interpretation of "opacity" and so an attack of (P1) makes good dialectical sense only in the context of a compelling argument for (P2), which fixes the meaning of the term "opacity." Thus any compelling criticism of Quine's argument against quantifying into modal contexts must turn on the status of (P2).

All this leaves this essay's title question largely unanswered. Charitable interpretation must drive our understanding of the term 'opacity.' If we are guided by Quine's nonmodal examples in conjunction with his view that names are disguised descriptions then it seems that a context is opaque if and only if [PS'] fails in it. On this reading modal contexts are indeed opaque. Charitable interpretation though demands even more: opacity is in part defined by the best case that can be made for (P2). But that task must remain for another essay.[18, 19]

Notes

[1] At least this is the contemporary understanding of a metaphysically essential property. According to an older tradition, the metaphysical essence of a thing is the set of properties in virtue of which it is the thing that it is. I will concern myself solely with the more recent conception. Unless I indicate otherwise, when I say 'essential property', I mean a metaphysically essential property. We can of course talk about other varieties of essential properties: for example, a nomologically essential property of a thing is one that it could not fail to have and yet conform to the laws of, say, physics.

[2] Well, one might get away with the first three of my examples of trivial essentialist claims, since an explanation can be given for those: no matter how one describes me, it is (arguably) analytic that I am such that it is raining or it is not raining and so on.

[3] Here 'H' stands for 'is human', 'E' for 'exists' and 't' for 'Teresa.' For those who worry about the use of "existence as a predicate," (1) may be rewritten—with slight violence to ease of understanding—as this: $\Box[(\exists y)\ y= t \to Ht]$. (2) may be rewritten along similar lines. Thanks to Don Marquis for bringing up this issue and to Sarah Sawyer for offering a suggestion—very similar to the one given here—about how to avoid it.

[4] I should make it clear that I do not think that *Quine* intended to argue from the incoherence of quantifying into modal contexts to the incoherence of essentialist claims. There are two reasons why I say this. First, Quine took it as a given that

essentialist claims are incoherent or otherwise mysterious: as Kaplan (1986, p. 249 and following) points out, one of Quine's arguments against quantified modal logic is that it is committed to (the intelligibility of) essentialist claims; this *alone* was supposed to be condemnation enough. Second, Quine does not argue in a parallel way in the case of belief claims: Quine does not take the purely logical point about the illegitimacy of quantifying into a belief context to impugn the intelligibility of de re belief; this indicates that Quine would not take the purely logical point about the illegitimacy of quantifying into a modal context to impugn the intelligibility of de re modality. (But I should at least note that Quine did eventually have a change of heart about the belief case: in "Intentions Revisited" (1977), the similarity between the belief and the modal cases causes him to regard the former with suspicion rather than to regard the latter with trust.)

⁵ Soames (1994, p. 5) and Neale (1990, p. 133) break the argument down in a similar way.

⁶ Because of the complexity of Kaplan's position, I haven't the space in this essay even to explain it, let alone to make the case against it. I have done so elsewhere ("Modal Contexts, Quantifying-in, and Essentialist Claims" (ms)).

⁷ Henceforth I will refer only to Neale, since I will be quoting from his work. It seems to me that his understanding of Smullyan is accurate.

⁸ I adopt the usual custom of calling *sentences* true and false, even though, strictly speaking, it is the *propositions* that sentences express that are taken by most—including me—to be the primary bearers of truth value.

⁹ Or at least this is how things appear.

¹⁰ Definite descriptions violate (R1): We understand 'the present king of France is bald' even though there is no referent of 'the present king of France' (and hence even though no referent can be identified). They violate (R2): A proposition is expressed by 'the present king of France is bald' even though the definite description has no referent. They violate (R3): In a counterfactual situation it is not necessarily Osama bin Laden who enters into the truth conditions of 'the leader of Al Qaeda has thus far eluded capture' but instead *whoever*, in the situation, satisfies the 'the leader of Al Qaeda.'

¹¹ I refer interested readers to Neale 1990, p. 141.

¹² Although Quine does in general concern himself with necessity interpreted as analyticity, I should note that sometimes he is concerned with necessity interpreted as *validity* (1953b, p. 165).

¹³ Gideon Rosen pointed out to me that I should be a little more careful here, since surely Frege recognizes opacity, even though for him, [PS'] cannot fail. For Frege, '*a*' and '*b*' will not be co-designative, since they will, in such contexts, designate not their "customary referents" (which are the same) but their "indirect referents" (which are different). In light of this, (i) should be understood to say that '*a*' and '*b*' have the same customary referent.

¹⁴ Actually, Neale would probably say that (6)–(8) do not constitute a failure of even [PS'], since Neale equates singular terms with referring expressions: if one equates these, then since, on Russell's view, (7) does not contain a genuine referring

expression, clause (i) of [PS'] is not met. I would respond by changing clause (i) to say merely there is a unique object that answers both to '*a*' and to '*b*.'

[15] In fact, most commentators *have* taken [PS'] rather than [PS] to be the relevant principle of substitutivity. Hence, the terms 'opaque' and 'non-extensional' are by and large used interchangeably. Neale regards this as an "unfortunate tendency in the literature," since, given his understanding of opacity the two notions come apart (1990, p. 133). Where Neale sees an unfortunate tendency, I see charitable interpretation.

[16] I can imagine Neale protesting, reasonably enough, that we had better take Quine to have meant [PS] rather than [PS'] because the latter is a "principle" without principle: one should not expect that anything significant can be said about statements that are so different in their deep form as genuine identity statements (which involve only genuine referring expressions) and their false cousins (which involve definite descriptions). I think it is good to be wary of—I don't say hostile to—appeals to deep form: to paraphrase Oscar Wilde, only shallow people don't judge by appearances. One can grant the Russellian that there is, in certain respects, a huge gulf between genuine referring expressions and quantified noun phrases *while at the same time* maintaining that there is, in other respects, a great similarity between genuine referring expressions and definite descriptions—even when the latter are analyzed as quantified noun phrases. [PS] and [PS'] are both respectable enough principles.

[17] I thank Scott Soames for this criticism. Neale does have a response open to him, which is to take back the charity he extended to Quine when he allowed that an identity statement could involve quasi-referring terms. But this move is subject to a version of my first criticism: why think that Quine had [PS] in mind rather than, say [PS''], where the latter has as its first clause that *a* and *b* are referring terms, either genuine or quasi, that have the same referent?

[18] I address this issue in "Modal Contexts, Quantifying-in, and Essentialist Claims" (ms).

[19] I thank Don Marquis, Stephen Neale, James Page, Gideon Rosen, Nathan Salmon, Jennifer Saul, Sarah Sawyer, and Scott Soames for conversations on these topics.

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