Minimising Existence.
Or How to Stop Worrying and Love the Barcan Formulae*

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The paper is intended to provide a full-scale defence of the infamous Barcan Formulae. Not only do I put forth some arguments, both semantic and metaphysical, against recent criticism; I also take pains at supplying some rationale in favour of the formal semantics underlying the Formulae, namely Possibilist quantification. Such a task is carried out through an argument for Compositional Nihilism, according to which nothing but mereological simples ever exists, and consequently through an informal sketch of the metaphysics of possible worlds grounded upon Compositional Nihilism. The paper closes by surveying the main reasons why the account championed here isn’t defective with respect to other possibilist accounts of existence and modality presently on stage.

Keywords: Barcan Formulae, Possibilism, Actualism, existence.

1. Guest Star: SQML

Amongst both modal logicians and metaphysicians of modality the debate over Barcan Formula (BF) and Converse Barcan Formula (CBF) runs restlessly. As is too well-known to deserve nothing but a passing mention, some classes of quantified modal logics (QML) do not validate the following

\( (\text{BF}) \forall x \Box \varphi x \supset \Box \forall x \varphi x; \)

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1 Barcan Formulae are not peculiar concern to metaphysicians of modality only. As a matter of fact, the debate reaches to the philosophy of mathematics; see G. Hellman, Mathematics without Numbers, Clarendon Press, Oxford – New York 1989.
(CBF) □∀xφx ⊃ ∀x□φx.

None the less, the main reason why such modal logics are designed to resist both BF and CBF is philosophical at its finest. As it happens, the Formulae should be denied validity by any «striving-for-contingency theorist» (as Vittorio Morato has felicitously epitomised the issue at stake). To see why, let’s firstly sketch a QML system out of (a) – (d) to follow and call it SQML.2,3

(a) Propositional Logic (PL)
1. φ ⊃ (ψ ⊃ φ)
2. φ ⊃ (ψ ⊃ χ) ⊃ ((φ ⊃ ψ) ⊃ (φ ⊃ χ))
3. (¬φ ⊃ ψ) ⊃ ((¬φ ⊃ ¬ψ) ⊃ φ)

Modus ponens (MP): ψ follows from φ ⊃ ψ and φ

(b) Classical Quantification Theory (CQT)
4. ∀αφ ⊃ φα/τ, if τ is substitutable for α in φ (UI)
5. ∀α (φ ⊃ ψ) ⊃ (φ ⊃ ∀αψ), if α does not occur free in φ

Generalization (GEN): ∀αφ follows from φα/τ

(c) =
6. x = x
7. x = y ⊃ (φ ⊃ φ’), where φ’ is the result of substituting y for some, but not necessarily all, occurrences of x in φ, provided that y is substitutable for x at those occurrences.

(d) S5 Modal Logic (ML)
8. □(φ ⊃ ψ) ⊃ (□φ ⊃ □ψ)
9. □φ ⊃ φ

2 Every symbol will be henceforth used autonomously, thereby letting context disambiguate where required.
10. ◊ϕ ⊃ □◊ϕ

Rule of Necessitation (RN): □ϕ follows from ϕ.

In SQML both BF and CBF are derivable as theorems. There is more than that, however; we also come up with an allegedly disturbing upshot, namely (the theorem of) Necessary Existence (NE), viz.

\((NE) \forall x \exists y (y = x)\).

The derivation of NE in SQML is as straightforward as the following:

(1) \(\forall x \exists y (y = x)\) \[CQT^*\]
(2) \(\exists y (a = x)\) \[EI\]
(3) \(\square \exists y (a = x)\) \[RN\]
(4) \(\forall x \square \exists y (y = x)\) \[GEN\]

Where (4) is NE. Since NE is a theorem of SQML, we are therefore allowed drawing an even worse consequence, that is, □NE. Many theorists find both unacceptable: for the former draws to the conclusion that no individual whatsoever fails to exist in any possible world, while the latter states that there could not have been contingent existents. To put it otherwise, then, on SQML we are bound to conclude that whatever exists does so out of necessity. But this is wildly at odds with the widespread and firmly entertained belief that most things exist only contingently. For as regards concreta, the only thing that has been widely thought to

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4 For axiomatic proofs see Menzel, Actualism, cit.; for tree-validity see R. Girle, Modal Logics and Philosophy, Mc Gill – Queen’s University, Montreal 2000, chap. 4; for natural proofs see J. Garson, Modal Logic for Philosophers, Cambridge University Press, Cambridge 2006, chap. 12.

5 Notice that, despite the independence between BF and NE, any SQML lacking 10 above must be enriched with BF as a further axiom, in that BF is logically true yet not syntactically derivable in SQML; on the contrary, CBF does instead admit of a derivation in SQML minus 10. Actually, for BF to be derived as a theorem no system weaker than B will do, hence the need for 10 or its Brouwersche counterpart. See Menzel, Actualism, cit., Morato, Contingency, cit., p. 20-23, G. Hughes - M. Cresswell, A New Introduction to Modal Logic, Routledge, London-New York 1996, p. 244 ff. Notice further that, while classical quantifier rules entail the Formulae, free logics quantifier rules entail neither one, and this is regarded by some as a rationale for preferring free-QML over SQML (see for instance N. Salmon, Existence, in Id., Metaphysics, Mathematics, and Meaning, Oxford University Press, Oxford – New York 2005, pp. 9-49; C. Chihara, The Worlds of Possibility, Clarendon Press, Oxford – New York 1998).
necessarily exist is God. It goes without saying, however, that God's existence is extremely controversial. As to *abstracta* such as numbers, sets, propositions or properties, their modal status does not go fully undisputed either. To sum up, then, it is very hard to accept such a strong claim as NE (not to mention its modalised counterpart □NE).

It follows in turn that, since even the most undemanding first-order modal calculus, viz. SQML, does validate NE, and NE is highly disputable, to say the least, so must be SQML. More in detail, what is supposed to be controversial with SQML is (some of) its semantic machinery, namely ∀ and □ being commutative. It is this very machinery, moreover, to make the Formulae logically valid. For if classical rules for quantifiers are adopted, then there is no choice other than accepting the Formulae, since SQML entails them. From the semantic point of view, this is so just because the usual condition on models of SQML might be dubbed *Never Expand, Never Contract*: never do domains grow (monotonicity condition) or shrink (anti-monotonicity condition) as we move across accessible worlds, so that

\[
\text{(NENC): If } w_i Rw_k, \text{ then everything in the domain of } w_i \text{ is in the domain of } w_k \text{ & if } w_k Rw_i, \text{ then everything in the domain of } w_k \text{ is in the domain of } w_i.
\]

When NENC is in place, domains are said to be invariant across worlds. And this is the semantical effect of countenancing BF + CBF in SQML. As previously hinted at, the problem with accepting such conditions is that models in which NENC holds also validate the counterintuitive claim to the effect that if something possibly exists, then it exists of necessity. To summarise, then: if you like the Formulae, you must abide by NENC; but if you abide by NENC, you must swallow NE. Resist NE and you will come up with rejecting the Formulae.

What is worse, moreover, is that according to some the Formulae are counterintuitive on independent grounds, that is, even letting NE aside. This is so because accepting the Formulae is tantamount to coming to terms with *possibilia*, in that the former involve quantification over the latter; and since *possibilia* are commonly regarded as *entia non grata*, it follows that SQML has really nothing to recommend and therefore should be either abandoned or deeply revised, mainly through resorting

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6 In a nutshell, commutivity boils down to treating the semantic clauses for □-statements and ∀-statements as unexceptionlessly interchangeable.

7 This holds true for SQML. For some QML such that BF does not entail the contracting condition (i.e. moving “downward” across worlds) see J. Garson, *Unifying Quantified Modal Logic*, «Journal of Philosophical Logic», 34, 2005, pp. 621-649.
to actualist quantification (Kripke models being the most outstanding result of such a revision).

Quite recently, however, Bernard Linsky and Edward Zalta (LZ) have delivered a seminal paper in which they advocate SQML by way of showing that (i) the semantics for the quantifiers involved in SQML, namely possibilist quantification (also known as Constant Domain Semantics, CDS) admits of an interpretation that is entirely acceptable by the enemies to possibilia (usually supporters of actualist quantification, also known as Varying Domain Semantics: VDS) and that (ii) NE is not so upsetting a result as its opponents prima facie take it to be.

In what follows I purport to improve on LZ attempt at giving second wind to the Formulae. Such a task will be two-stepped. In the first place, I shall show why the only non question-begging reading of the Formulae entails CDS, and in order to accomplish this I shall expand on LZ account of possibilist quantification without aligning with them in defence of the contingently nonconcrete. Secondly, I shall sketch a substantive account of the interplay between modality and existence according to which CDS fares better than VDS with respect to an overall ontological claim to be independently advocated.

I shall then conclude by suggesting some reasons why my account is no worse off than the main alternatives to be found within the modal realist camp.

2. The Formulae: Pros and Cons

If you believe in possible worlds and, further, take a realist stance over their existence – they exist mind-independently and comply with LEM – then the Formulae should suit you finely. Yet, why is it not so? As is widely recognised, the main reason lies in whether quantifiers should be regarded as commutative or not with modal operators. For the time being, however, let’s lay this question aside, and turn our attention downright upon the Formulae. In the present section I intend to argue that the Formulae are essential part to PW talk and technology. In the section to follow I shall contend that some putative counterexamples to them beg the question against matters quantificational.

8 Roughly, LZ hold that CDS is acceptable even by actualists on condition that the latter countenance contingently nonconcrete objects whose actual existence is suited to satisfactorily replace possibilia. The main discomfort with contingently nonconcretes is their yielding an even strengthened form of the dilemma David Lewis has raised against so-called ‘Magical Ersatzism’, for which see D. Lewis, On the Plurality of Worlds, Blackwell, Oxford – Malden 1986, espec. pp. 174-191. For an insightful discussion of Lewis’ dilemma see J. Divers, Possible Worlds, Routledge, London – New York 2002, p. 286 ff.
To begin with, let’s focus on BF. BF is susceptible of a harmless reading: If everything satisfies a given condition $\varphi$ in all accessible worlds, then in all accessible worlds everything satisfies $\varphi$. Spelled out this way, it sounds like triviality. What’s wrong with it, then? Suppose for example that $\varphi$ equals to being pink. Hence, if everything is necessarily pink, then it straightforwardly follows that any thing at any accessible world is pink, since no accessible world is such that some thing exists therein, yet is not pink. So far, one is tempted to say, much ado about nothing: all in all, this is simply how PW-semantics works. Hence, the Formulae could be taken as nothing but an instance of the commitment to so a basic semantic constraint that any PW-theorist from the realist camp is bound to accept, viz. the so-called Principle of Possibility (PP).\(^9\)\(^10\)

$$(\text{PP}) \; \text{It is possible that } p \text{ iff there is some possible world } w \text{ such that } p \text{ at } w.$$  

Indeed, if possible worlds are to fill semantic roles, that is, if they are invoked with a view to making sense of the truth-aptness of our declarative modal sentences, then there is no denying that every well-formed declarative modal sentence is to be rated as truth-evaluable, on pain of utter semantic failure and, thereby, of discounting realism over possible worlds. To state it otherwise: once PP is accepted, the Formulae should count as instances of what is called for in order to assure that no possibility be left out, viz., that no modal statement be evaluation-free. Hence, if it is the case it is necessary that all $x$s are $\varphi$, then PP assures that, for any $x$ whatsoever, there is no world such that $x$ falls short of being $\varphi$ therein. As long as PP is concerned, therefore, it seems one cannot accept the antecedent while resisting the consequent.

So far so good. What is contentious with the Formulae, though, is the risk of coping with too many a possibility at once. This is best grasped upon considering the existentialised version of BF:

$$(\text{BF}^*) \, \Diamond \exists x \varphi x \supset \exists x \Diamond \varphi x.$$  

As above, it is PP itself to require that, if it is possible that $x$ be $\varphi$, then $x$ is $\varphi$ at least with respect to one possible world $w$. According to PP, such an inference should be warranted: if it is possible that $x$ exist

\(^9\) True, the Formulae are intuitively invalid where $\Box$ reads as a tense, deontic or epistemic operator. At any rate, this will not bear upon our present question for we are here concerned with alethic modalities only; more on this shortly.

\(^{10}\) For this label see Divers, Possible Worlds, cit., p. 47, p. 181.
and be such-and-so, then there is a world where $x$ is such-and-so (the same holding, by parity of reasoning, for $\forall$ and $\square$). At first glance this is no magic, since it is just the canonical conception of PW-semantics. Resist the Formulae, and you’ll violate PP much in the same way as you did were you to reject the claim that it is possible that unicorns exists: if the unicorn predicate is well-formed and consistent, then there is some world where unicorns exist, or else PP is unsound. There is an allegedly compelling reason, however, for the Formulae to be resisted. In a nutshell: What if unicorns do not actually exist?

To put it otherwise, the main retort levelled against BF* is that, while de dicto ascriptions aren’t related to any particular individual, the same does not hold of de re ones: predication de re is invariably about some individual in particular. For, even though it is true that $x$ possibly exists, it does not thereby follow there is some actual thing $y$ such that $y = x$ at $w$. The drawback with BF* (and consequently with the Formulae as a whole) is just dispensing with such a crucial difference between kinds of modal predication. What is wrong with unicorns, for instance, is that from the fact that possibly there are unicorns we cannot derive there is actually something that somewhere else is a unicorn, simply because it could happen there is actually something that, suitably modified, is a unicorn in a different world. And should one stand unconvinced because horses come too close to unicorns, to the effect that actual-worldly horses might in fact be changed into unicorns at different worlds, consider the following counterexample to BF*, as put forth by John Divers:

((R)) It could have been that (actually childless) Richard had a son, even though no actual individual is such that it could have been the son of Richard.

Now, there is no denying that the antecedent of R is intuitively true: barring some metaphysical oddity undeserving the mention, it is possible that Richard have (or had) a son. It does not follow, though, that the actual world is such as to include some individual which is eligible for being Richard’s son: as a matter of fact, if Richard is childless, then Richard’s son does not exist at the actual world! Needless to say: if R is sound then BF* is invalid.

In the section to come I shall advance a reply to R related to how handle matters quantificational. Basically, it consists in showing how and

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11 For the sake of simplicity, I am here ignoring Kripkean arguments against the metaphysical possibility of unicorns or other non-actual natural kinds.

12 Divers, *Possible Worlds*, cit., p. 213.
why such counterexamples can be shown to beg the question against SQML. I shall also consider the covert import of Divers’ case, and show that even that can be fruitfully countered.

3. Quantifiers, and Origin

Confront BF* with the following bit of a conversation between A and B. A: «John might meet a woman»; B: «Which woman might he meet?». Even though both utterances are well-formed and sensible, an ambiguity between the speakers looms large: as things stand, B is unable to understand whether A conversationally implies (i) ‘He needn’t meet any particular woman: he might just meet some woman or other’, or (ii) ‘He might meet some particular woman’, say L. This is tantamount to asking whether A meant (i) ◊∃x (Wx & Mx) or (ii) ∃x (Wx & ◊Mx), thereby telling apart de dicto wide-scope and de re narrow-scope quantifiers.

My claim is that (i) & (ii) perfectly match what’s going on with BF*, for the ambiguity just displayed parallels the criticism against BF* exemplified by R: even if it is possible that John meet some woman, perhaps there is actually none such that she is possibly made a date by John. Whence the aversion to the Formulae: they overlook the platitude that one thing is asserting that an x will be picked out from the Women Set, one different thing is asserting that L, and not someone else, will do. Accordingly, the Formulae are intuitively invalid in that they obliterate the aforesaid distinction.13

If the present analogy stands, however, we should conclude that R is defeasible. In point of fact, nothing prevents us from reading John’s case as follows: If (it is true that) John might meet a woman, then the individual to be possibly met is a woman, and not – say – a man, a relative, or a child. In other words, it might be contended that it is not possible for John to meet a woman unless there is some to be met: ‘No woman, no meeting’, to paraphrase Bob Marley. Indeed, if resistance to (ii) is fostered by the conviction that it shouldn’t be taken for granted there’ll always be some woman to meet, then such a counter is misplaced. For if it cannot be granted there’ll always be some woman to meet, then it is (i), viz. BF* antecedent, to be false, not (ii), viz. BF* consequent: it is not possible that John meet any. The Formulae enthusiast, though, is not concerned with (i), because what is at stake is BF* soundness, and not its

‘ex falso’ validity. Consequently, if it isn’t in fact possible that John meet a woman, much the worse for the antecedent, since BF* would thereby be valid no matter what. Antecedent’s being false, then, won’t carry to the whole inference. On the contrary, upon assuming it is possible that John meet some x such that x is a woman, it is illegitimate to infer that no x is such that she is possibly made a date by John just on account of matters epistemic, such as our being unwarranted in selecting some given woman as the one with respect to which predication de re is in fact correct. Some women must be eligible for predication de re, however, or else BF* would turn out trivially valid.14

How does the foregoing bear upon R? The answer is straightforward: What goes for John’s case likewise does for R. Actually, for the antecedent to be true the constraint to be imposed on the truth-conditions for quantified sentences is that the range of the quantifiers doesn’t shift in-between, that is, when moving from the antecedent to the consequent, on pain of utter ignoratio elenchi. Hence, the second quantifier must read as the first. And since it is uncontroversial that BF* first ∃ varies over every accessible world, so should the second. For, if we agree in believing to be possible for Richard to have a son (if only for the sake of the argument) then how to dismiss different worlds as the only suitable place to find Richard’s son? For, if it is possible that Richard have a son, then Richard’s having none in the actual world entails that he has one in some different world. All this sounds trivial, of course. But this is exactly the reason why ∃x◊ψx cannot be interpreted as if the quantifier had its range restricted to the actual world, so that it is actual-worldly L (and not someone else) to be met by John. Thus, rather than asserting there is an actual x such that x is ψ at w, it is legitimate to read ∃x◊ψx as saying there is an x (sans phrase, as it were) that is ψ at some world, whereas it presumably is not-ψ at some others, including the actual world.

Accordingly, far from counting as a sound counterexample, R is especially instructive in that it sheds light on why the Formulae are this animadverted. If the case from John really fits BF*, it is apparent what is wrong with R: its unfairness with respect to quantifying-in. As a matter of fact, R bespeaks the extra proviso that Richard’s son belong to the set of actual worldly individuals, while this is the very issue at stake. In other words, R begs the question against the range of the quantifiers.

14 A further remark: the locution ‘Some women must be...’ should not be taken literally, as though it entailed that a principle as strong as Axiom B (or even S5) is being invoked here. It is just because the only interesting case is the one featuring the truth of the antecedent, that I have taken the liberty of infecting the phrase above with spurious modality. In no way is it being suggested here that BF* comes out logically true only in B or S5.
involved. Recall (i) and (ii): opponents to BF* treat the latter as implying that some particular woman is the chosen one, and that’s just fine. But then they go on and deny that we are entitled to pick out one amongst the Women Set. And this they aren’t in turn entitled to infer unless they read the second $\exists$ differently than the first: some one must be eligible on pain of falsifying the antecedent.

However, the real counter Divers has possibly in mind by R is much subtler than the foregoing. As a matter of fact, his focusing upon such a peculiar predicate as ‘being a son of’ is anything but fortuitous. For, the reason why R is intended as an ingenuous counterexample to BF* is as follows: that some $x$ is such to be Richard’s son in some world while not so in some other offends the sensible essentialist claim according to which origin is not contingent over existence. In fact, far from counting as an ordinary property of objects, origin qualifies as the (most salient) criterion for transworld identity, so that $a$ at $w_i$ and $b$ at $w_k$ are the same object iff they share the same origin, that is, they derive from the same closely-antecedent entities. According to the leading proponent of the necessity of origin is of course Saul Kripke, but such a claim has been also championed by Colin McGinn in C. McGinn, On the Necessity of Origin, Journal of Philosophy, 73, 1976, pp. 127-134, and by Graeme Forbes in G. Forbes, The Metaphysics of Modality, Clarendon Press, Oxford 1985. Even if herself unsympathetic to this solution see also P. Mackie, How Things Might Have Been. Individuals, Kinds, and Essential Properties, Clarendon Press, Oxford 2006.


16 Of course, take ‘Richard’s son’ as a placeholder and not as a definite description.
Mondi possibili

essentiality of origin. But no theorist will be likely to be moved by it, and thereby to rebut the Formulae, without preventive commitment to the doctrine that certain properties of things are properties they could not fail to have, except by not existing. But in so far as this doctrine has no adequate proof, it shouldn’t be employed in order to serve a different purpose, like assaulting an additional thesis. For, whenever some conclusion to be resisted is, all things considered, safer and saner than the argument intended to undermine it, then, barring further disadvantages, the trade-off should incline towards the former. Hence, if assailing a given claim whose overall plausibility adds to \( m \) is carried through an argument whose plausibility amounts to \( n \), where \( n < m \), then the initial claim should stand undefeated.

Be this as it may, I nevertheless believe Divers’ counter to be incorrect because of a graver reason. Broadly speaking, Divers misinterprets the alleged counterexample by means of adulterating the modality involved. As a matter of fact, \( \text{BF}^* \) is not concerned with metaphysical possibility, but rather with the purest alethic possibility, namely logical possibility. Even assuming that metaphysical modalities are alethically behaved, the Formulae are not at all concerned with ontological categorising or the like; so they shouldn’t be taken as asserting something about the fundamental structure of reality or modal space. In reality the Formulae are instead concerned with such semantic facts as whether quantifiers and modal operators are or not commutative. And in this respect, the conclusion of the argument from the necessity of origin, viz.,

\[
(\text{NO}) \quad \text{IF } 
\Diamond \exists x \varphi(x) \text{ THEN } \exists x \Box \varphi(x)
\]

constitutes no reason whatsoever to deny \( \text{BF}^* \) whenever the modality involved is strictly logical. Indeed, the truth of \( \text{NO} \) does not tell against the truth of \( \text{BF}^* \), in that \( \text{NO} \) actually entails \( \text{BF}^* \). Consider the consequent of \( \text{NO} \). If \( \Diamond \) is interpreted as pure logical possibility, then: if \( x \) is necessarily \( \varphi \), then \( x \) is \( \varphi \); if \( x \) is \( \varphi \), then \( x \) is possibly \( \varphi \). But that \( x \) is possibly \( \varphi \) is just what is claimed by the consequent of \( \text{BF}^* \). We can therefore conclude that even the ‘essentialist’ objection against \( \text{BF}^* \) can be successfully defeated.

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18 \( \Box \) and \( \Diamond \) are said to be alethically behaved iff the underlying logic validates the following inferences (capital letters for the semantic ascent): IF \( p \) THEN \( \Box p \); IF \( \Box p \) THEN \( p \).
Thus the moral to be drawn is: Clearly is BF* invalid if it reads as covertly switching from some unspecified world (as mentioned in the antecedent) to the actual world (as mentioned in the consequent). To this respect, however, not only have we argued that this needn’t be so; we have also taken pains at showing that R is not fallacy-free as regards the semantics of the quantifiers involved: if one takes the second ∃ (respectively, the first ∀ for BF) as wide as possible, that is, as ranging over the whole set D of individuals (and not merely over some pre-assigned sub-domain d such that d ⊂ D), what BF* asserts is clear-cut enough. Since the supporter of the Formulae takes ‘everything’ and ‘some’ at face value, viz. to whatever world the assignments of elements of D happen to belong, the conflation of de re and de dicto quantified statements mirrors quite naturally the structure of modal space. No wonder, then, this turns out so. Hence, even though the Formulae conflation of de re and de dicto possibility might at first strike us as in contrast with our prior modal intuitions, the latter are not to be counted on; at least, not necessarily so. As far as I know, on the other hand, no sound alethic counterexample to the Formulae has been provided to date as long as quantifiers read univocally across each Formula. As I have tried to show, the counter that there are possibilities de dicto that are not possibilities de re lands wide of the mark, in that it carries an unspoken devotion to the set of actually existing individuals.

However, it should be clear by now that since the Formulae crucially depend for their plausibility on how quantifiers are to be read, there is no hope to convincingly support them without merging deeper into matters semantic. Indeed, if the Formulae are to be well-credited on account of CDS, why should CDS be conferred alike plausibility?

3.1 Possibilism vs. Actualism

The debate over the validity of BF and CBF thus discloses a deeper divide between the parties to the dispute. In a nutshell, such a divide boils down to the following: How to relate being and existence? Two main answers are serviceable: (a) Possibilism, (b) Actualism. Given that LZ devote a great deal of their paper to exposing and criticising most

19 Forbes’ famous counterexamples are therefore convincing only if either BF or CBF are met with covertly actualist instances (see G. Forbes, The Metaphysics of Modality, Clarendon Press, Oxford 1985, p. 23 ff.). Quite to the contrary, if the interpretation of quantifiers is kept fixed throughout, Forbes’ cases fare as non-starters. If I got him right, moreover, Martin Davies seems to similarly complain against unwarranted actualistically-oriented readings of SQML quantifiers: see M. Davies, Meaning, Quantification, Necessity. Themes in Philosophical Logic, Routledge and Kegan Paul, London 1981, pp. 220-222.
of actualist theories currently on offer, I shall presently limit myself to rehearsing some pros with Possibilism.

While Actualism contends that everything that exists is actual, Possibilism claims that domains of quantification must contain no less than all the possible objects, and not merely the objects actually existing (how each theorist from the possibilist camp treats impossible objects needn’t concern us in the remainder). As a result, Possibilism reads quantifiers as existentially *unloaded*: \( \exists x \varphi x \) means that there is an \( x \) such that \( x \) is \( \varphi \), without this implying that \( x \) actually exists. This is in turn made possible by resorting to one and the same domain of quantification for every world. Usually, when asked why to endorse CDS, possibilists reply it is for the sake of classical quantifier rules, in that the denotation function is never relativised to subsets of \( D \). They allege this is the best overall strategy conducive to the rescue of UI, viz. \( \forall x \varphi x \supset \varphi t \), where \( t \) is free for \( x \) in \( \varphi \). UI relies in fact upon whether or not the object denoted by \( t \) falls within the range of the quantifier; if domains of quantification may vary across worlds as in accordance with VDS, it cannot be taken for granted that \( t \) denotes at each world. Hence, the inference as it stands is no more logically valid.

Needless to say, salvaging the inference is one and the same with defending the Formulae: as it happens, BF and CBF come out unscathed only on account of CDS. Once UI is denied unexceptionable validity, there is no way for deriving either Formula. Roughly speaking, this is so because (the denotation of) \( t \) might exist in worlds different than the one over which the quantifier ranges.

According to CDS, moreover, not only are the Formulae made innocuous. What is most important is that no ambiguity between different meanings for the quantifiers will be lingering on anymore. As a matter of fact, CDS has no need to highlight actual world existence through distinguishing different kinds of quantifiers or resorting to free-QML; by employing one single domain and no denotation function, possibilists are in fact left with further freedom of movement in that they can introduce existence as a syntactic predicate in order to highlight some further ontic fact, such as the concern for the actual world, thus fittingly mimicking actualist VDS semantics, according to which quantifiers are to be treated as existentially *loaded* so that ‘there is’ cannot be divorced from ‘there exists’. Possibilists, however, take no care of such a reluctance to distinguish the two senses because they claim that CDS and VDS are not on a par as to expressive power: in so far as one is willing to accept NENC and employ unloaded quantifiers, VDS can be simulated by CDS, while the converse does not hold.20 As a matter of fact, possibilists are allowed

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20 So argue both LZ and Max Cresswell in M. Cresswell, *In Defence of the Barcan*
referring to any sort of entity included in the domain without there being need of distinguishing between existing and nonexisting ones.

Quite to the contrary, actualists cannot simulate CDS without somehow coming to terms with possible objects, whereas the very countenance of such entities seems to infringe the hallmark of Actualism, viz. that everything that exists is actual. For, a major discomfort with VSD is its half-way commitment to possible objects: while actualists are inclined to quantify over possible worlds, they refuse to do the same with respect to certain world-making elements such as possible individuals. The reason why they do so is that they claim that possible worlds are actual, albeit abstract, entities, while only possible individuals are to be regarded as genuine possibilia. This contention is of course debatable, if only because (as LZ have suggested) actualists’ abstract entities suspiciously look like genuine possibilia.\footnote{Linsky - Zalta, In Defense, cit., p. 445. I submit that such an ambiguity on the part of actualists is likely to depend on their flat refusal of analysing away modal notions from the metalanguage. Chris Menzel’s or Charles Chihara’s deflationist approaches to modality (as expounded in C. Menzel, The True Modal Logic, «Journal of Philosophical Logic», 20, 1991, pp. 331-374, and in Chihara, The Worlds, cit., espec. chaps 5-8) might be telling exception to the extent that one is able to make sense, roughly, of how any Tarskian in spirit semantics is all there is to provide a satisfying account of PW-semantics.}

Eventually we can come to terms with NE, that is, the main discomfort with SQML. CDS makes NE tolerable since, short of entailing that everything has necessary existence, it just asserts that everything is necessarily identical to itself; and this is quite a weak claim to agree to. For, once quantifiers are deprived of existential import, the theorem is concerned with such a platitude as the claim that all existentially construed sentences are true only in domains containing at least one member. Since on classical logic a formula is logically true if true in every non-empty domain, no wonder that the same goes for modal logics, to the extent that the latter are proper extensions of the former.

Basically, then, NE is innocent because supporters of CDS employ quantifiers only for the sake of telling apart valid and invalid inferences concerned with predicate logic. To put it otherwise, possibilists hold that quantifiers should serve the sole purpose of sanctioning correct patterns of reasoning involving multiple generality, and not of settling matters existential. For, in order to accomplish the latter task, many possibilists

\textit{Formula, «Logique et Analyse», 135-136, 1991, pp. 271-282. However, the primacy of CDS over VDS does not go uncontested: see M. Fitting - R. Mendelsohn, \textit{First-Order Modal Logic}, Kluwer, Dordercht – Boston – London, 1998, espec. chaps. 4, 8. However, their claim that VDS and CDS are interchangeable is in turn suspect because it is centred on a technique drawn from free logics, namely admitting empty domains, which Possibilism parts company with.}
will resort to an overt non-logical predicate, viz. ‘exist(s)’, being allowed for having different extensions at different worlds.\textsuperscript{22}

All this notwithstanding, it is my conviction that the foregoing reasons for preferring \textit{CDS} over \textit{VDS} are not decisive. Moreover, even if \textit{LZ} are right in contending that no actualist account can in the end dodge covert commitment to possible objects, if only in the metalanguage, the great divide has not yet been settled. For the whole issue revolves around whether to accept or not such a semantic constraint as \textit{NENC}. But it is apparent we eventually came to a dead-end. Upon resorting to semantics in order to settle matters of existence, we ended up with confronting with existence assumptions once again: what reasons, if any, militate for the claim (i) that objects that exist in a world continue to do so with respect to any other world, and (ii) that no further objects come into existence as we move across different worlds? For, granted that \textit{NENC} allows for a simpler semantics, how to warrant the very claim that no object ever comes into or gets out of existence?

At this stage it is to be suspected that the parties to the dispute are on the verge of talking past each other. However robustly one could manage to back the Formulae, such efforts are likely to be useless against the actualist-oriented refusal to read the quantifiers as unrestricted all over. However sensible \textit{LZ} actualist-friendly interpretation of \textit{SQML} might look, it is hardly conclusive: if you cannot make sense of fixed domains for the quantifiers, then you will not make sense of the Formula either. As a result, defending the Formulae is an idle task in so far as their defence comes across much-disputed matters over what there is and there’s not. It is no far-fetched a claim that, aside from technical elegance and simplicity, possibilist quantification has no decisive lead over actualist one. None the less, all there is to \textit{SQML} is not, perhaps, just matter of taste. Even granting that Quine, Dummett and Wright are right in holding that the objects over which standard quantifiers range are those that exist, it doesn’t follow that matters of existence consist only in fixing the right domain of quantification, and that’s that. Aside from the Possibilism vs. Actualism debate, \textit{QML}-semantics for the quantifiers comes in fact in so many varieties that it cannot by itself settle such controversies or

\textsuperscript{22} For crisp remarks over the debate ‘Loaded vs. Unloaded’ see D. Lewis, \textit{Noneism or Allism?}, «Mind», 99, 1990, pp. 23-31. As to existence’s varying in extensions across worlds, it must be stressed that any theorist who holds relativised predication to be utterly inconsistent will likewise do for the existence predicate. Accordingly, then, the above claim is immaterial. All things considered this is not that worrisome since it is very likely that the enemy to relativised predication is a counterpart theorist, as such having no need of the existence predicate.
otherwise put them at rest. Therefore, for these to be resolved, we must turn elsewhere. For it seems there is more to existence than semantics. Lurking behind are, for instance, matters of vagueness and composition. Therefore, it is now time for philosophical argument to set the stage. In what is left we shall bite the bullet and put forth philosophical arguments intended to confer a bit more appeal to CDS and NENC. To anticipate a little, I shall argue that Possibilism stems most naturally from Compositional Nihilism (CN), and that the latter is not so implausible as an overall ontological claim.

3. The Problem of the Many: An Argument for Compositional Nihilism

We saw above that Possibilism and Actualism differ over what really exists. While the former maintains that such objects as the Lord of the Rings and Santa Klaus are in principle no different than our old familiar mailman, the latter sticks unabashedly with the actual-worldly, ordinary objects: mailmen, chairs, tables, trees and the like. This is why resorting to existentially unloaded quantifiers cannot by itself settle the dispute: anyone holding there is an unbridgeable gap between daily objects and fairy tales as to their ontic status is not likely to be convinced to rebut Actualism simply by invoking existentially unloaded quantifiers. For it is just because many theorists believe daily objects to massively differ from Trolls and unicorns that Possibilism is charged with confusing what actually and what possibly exists. Let’s now try and sabotage such a firmly-held conviction by asking: What if not even these ordinary actual things were to exist?

As a matter of fact, it can be urged that no composite entity such as chairs, tables, trees, iguanas, ants, plankton, spores (and even people) do exist. Such a view originates from a peculiar solution to a well-known problem about material constitution, the so-called Problem of the Many.

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23 Three kinds of domain are usually distinguished: (i) Disjoint Domains, with no transworld identity (counterpart-theoretic semantics), (ii) Fixed Domains, (iii) Overlapping Domains, with transworld identity. Furthermore, (iii) will vary in accordance with whether either monotonicity or anti-monotonicity hold (when both hold (iii) can – but need not – collapse into (ii)). For details see R. Girle, Possible Worlds, McGill-Queen’s University Press, Montreal 2003, chap. 3.

24 In any event, really stating what actualists have in mind when stressing what the main difference between actual things and possibilia comes to is not an easy task at all. In fact they cannot stick with the claim that only actual things can be experienced of, on pain of clearing their own ontology of abstract entities too. But they simply can’t do that, or else they will dispense with the best suited proxies for genuine possibilia. So what else do they mean by holding there is no more clear-cut ontic difference than the one obtaining between actual and possible objects?

25 See for example P. Unger, There Are No Ordinary Things, «Synthese», 41, 1979,
To begin with, suppose that commonplace objects do exist; suppose it is true that the chair where I am sitting right now exists, that is, is an irreducible feature of the world (as such, it will be included in the domain of actual-worldly objects). Call my chair ‘Chair’. Assume that Chair occupies a certain portion of space at t, say S. It is sensible, therefore, to assume the existence of a set which has as its members all and only those material simples that compose Chair at t. Consequently, there is such a set that we hereby name ‘Set’. Set contains all and only the material simples that compose Chair at t; at least, Set turns out to be sufficient for some collection of material simples to compose a chair at a time t. We can then draw to the following: The members of Set have what it takes for Chair to count as a chair at t; now, since Chair is a chair and since Set contains all and only the simples that compose Chair at t, those elements manage to satisfy (what we might dub as) a chair-constituting Condition at t, viz. sufficiency in respect to chairhood: it is in fact apparent that Set has all it is required in order to comply with the Condition.

Now problems start to peep out. Allegedly, Set is very large; still, the mereological fusion of its members doesn’t take up all that much room. As a matter of fact, there are a lot of things left over, some of them being very close to the members of Set. Consider some simple in the neighbourhood of Chair’s left front leg which is not a member of Set at t and call it ‘Left’. Consider further some outermost simple on Chair’s right back leg which is a member of Set at t, and call it ‘Right’. We are now in a position to characterise a new set of simples (call it Set*) as follows: Set* includes all the simples found in Set except Right, and Set* contains no other element except Left. As a result, each of our two sets has exactly one member the other lacks, and so neither set is a subset of the other. If we agree to call the fusion of Set at t ‘Fusion’, and the fusion of Set* at t ‘Fusion*’, then we will also realise that, on the assumption of classical mereology, neither Fusion nor Fusion* is a part of the other, even if both the intersection of the two sets and the overlap of the two fusions are huge.


26 ‘Being very close’ is an ambiguous predicate, of course. We want it to change into a vague one, by stipulating that it denotes a real interval between at least one element from the mereological fusion of Set and at least one neighbour not included in Set. Please remark that S too is taken to have fuzzy boundaries.
Let’s now focus upon Set*. Its members at \( t \) differ only very minutely from Set’s. No doubt, moreover, that Set*’s elements satisfy the chair-constituting Condition as well: what Set* is composed of is sufficient to make a chair out of it. But then there is no reason to suppose the following ‘no-difference’ principle to be false:

\[(\text{ND}) \text{ If } x \text{ is a paradigm } \Phi (\Phi \text{ might stand for ‘horse’, ‘chair’, ‘human being’ or what have you: at any event, take it as a sortal) and } y \text{ is an entity that differs from } x \text{ in any respect relevant to being a } \Phi \text{ only very minutely, then } y \text{ is } \Phi.\]

On the face of it, the principle is sound: how can very small differences make it the case that a chair is a chair no more? How can the replacement of minuscule bundles of molecules make a difference between a paradigm chair and something not being a chair at all? But if ND is sound it cannot be denied that the chair-composing Condition is insensitive to differences as overwhelmingly insignificant as those holding between the members of Set and of Set*. As a consequence, we are entitled to believe that if the fusion at \( t \) of members of one of these sets is a chair at \( t \), the fusion at \( t \) of the members of the other set is a chair at \( t \) as well. This is puzzling, however. Sensible though as it may sound, ND is deadly in that it triggers a sorites paradox. The reason is that, upon accepting it, locations start to get crowded at \( t \). For Fusion is located in \( S \) at \( t \), but Fusion* too is located in \( S \) at \( t \). And since we have agreed that Fusion is a chair at \( t \), then we are committed to the claim that Fusion* is a chair at \( t \) too.

So how many chairs are in \( S \) at \( t \)? Didn’t we suppose from the outset that Chair was the only chair occupying \( S \) at \( t \)? Well, we might still hope we were then caught in a blunder; perhaps we clumsily conferred three different names to the same object. But this won’t do, however. In point of fact, Fusion is not identical to Fusion*, for Fusion has Right as a part at \( t \) while Fusion* has not Right as a part at \( t \); and no object both does and does not have something as a part at the same time. So it would seem that we have at least two chairs in \( S \) at \( t \), contrary to what we assumed at the outset: reductio.

We can now move to the strived-for last step: IF, if Chair exists then a contradiction obtains, THEN Chair does not exist. As is easily seen, the foregoing argument can be generalised to any composite entity because we agreed that ND holds for any composite entity whatsoever. It in fact is ND to yield the contradiction, and to do it no matter what, since resistance to ND is also troublesome: if one denies it, then one is not entitled to assert that there is one chair only in \( S \). For Fusion* isn’t
less paradigmatic as a chair than is Fusion: since neither is a paradigm chair, then it is wholly conventional which one satisfies at $t$ in $S$ the chair-constituting Condition. Hence many different entities are allowed to simultaneously satisfy it in $S$. But this contradicts again our starting assumption that only Chair exists in $S$ a $t$.

Hence the argument for $\text{CN}$ can be got into an argument-schema whose conclusion is: There are no such things as composite entities.\footnote{For the record: while Unger is a (former) full-blown $\text{CN}$, this being viewed as unexceptionable, more recently Peter van Inwagen and Trenton Merricks have argued (with some differences) for Soft $\text{CN}$, according to which the only composite objects to exist are living things, such as tadpoles, crickets, humans and the like: see P. van Inwagen, \textit{Material Beings}, Cornell University Press, Ithaca – London 1990; T. Merricks, \textit{Objects and Persons}, Oxford University Press, Oxford – New York 2001.} This adds up to minimizing existence ($\text{ME}$): only very minuscule things really exist, and these are the purest mereological simples (whatever they in fact amount to).

4. $\text{ME}$ and Domains: Actualism Sabotaged

As a matter of fact, $\text{ME}$ does not bear at all upon the question as to what such elements are in the actual world (subatomic particles or what have you). The argument is more encompassing since it draws to the conclusion that, for any composite object whatsoever, there really nothing is over and above its constituents, without committing itself to any empirical theory about the nature of such constituents. Thus $\text{ME}$ just claims that, whatever composite objects are constituted of, this ‘whatever’ is what quantifiers should range over. If sound, $\text{ME}$ is likely to raise some worries for actualists with respect to dealing with interpreted model structures, namely universes of discourse. Since $\text{ME}$ shows that nothing but simples does exist, it follows that composition is somewhat arbitrary, this depending on issues unconnected with semantics. Hence, whenever actualists contend the privileged domain of quantification to be the one consisting of actual-worldly individuals, such as our old mailman and his bike, because there is a nonnegotiable difference between actual and possible things, the aforesaid argument allows possibilists to retort that not even the former do exist, and therefore that the seemingly rock-bottom difference rests on no firm ground. And since there is no need to tell apart mailmen and Trolls, for neither exist, the need to distinguish between different domains will also dramatically decrease. So the actualist charge according to which Possibilism illegally conflates what does and what might exist needs revision, to say the least. In fact, $\text{ME}$ threatens the opportunity of sensibly distinguishing between the
content of different domains since the alleged difference between – say – horses and unicorns doesn’t cut any philosophical ice; and if VDS is fostered by underlying insights about what counts as real, then ME is intended just to shake those very insights. Thus, when actualists contend that such fictional entities as Hamlet don’t exist because they are not found in the actual world, ME supplies possibilists with the following retort: Neither ordinary people do exist, for that matter; thus, since actuality has been pinned down to mereological simples, actualists must accept genuine *possibilia* if they want to avail themselves of mimicking reference to composite entities; and to this extent, commitment to the actual world won’t be enough because ME undercuts the very prospect of distinguishing within the actual world between supposedly-ordinary things and supposedly-fictional ones.

It is my contention that exploiting ME further could allow CDS to take the lead over VDS. This should be accomplished by way of showing that all there is to constitute any possible object is already included in the fixed domain of simples. Accordingly, both ordinary things such as mailmen and more exotic ones such as Trolls will be found inside D, for both will be grown out of recombining simples and properties. Technically, this is to be done through plural quantification along the lines of such a system as PFO+.28 Letting technicalities aside, the underlying ideas can be informally sketched out as follows.

Replace every occurrence of:

(a) ‘there is an x such that’ with ‘there are xs such that’;
(b) ‘for every’ with ‘whenever there are xs such that’;
(c) ‘is part of’ with ‘are among’, so that the xs are among the ys iff whenever something is one of the xs is one of the ys as well;
(d) ‘is identical to’ with ‘are the same things as’, so that the xs are the same things as the ys iff for any thing, it is one of the xs iff is one of the ys as well.
(e) every singular predicate with a plural predicate: ‘being *P*’ becomes ‘being arranged *P*-wise’, which becomes in turn ‘are arranged *P*-wise’.29


29 Notice this is basically why we need an extension of the simplest plural quantification language: predicates can be non-distributive over some of the singular terms involved.
Rather than pursuing the formal modelling, I'll devote the remainder to the philosophical rationale for the chosen type of model. More in detail, I shall tackle the following topics. First, discussing what looks as the most pressing objection to ME. Second, suggesting some reasons why despite initial implausibility ME sits well with supporting Possibilism.

As to the main objection, it sounds like this: «ME merely pushes matters one step farther, but it is no real solution to the dispute between CDS and VDS. Even though it is true that composite entities don’t exist, you haven’t yet advanced any argument for fixed domains. For, whatever one fills domains with, it is still to be explained why the same stuff has to exist in all accessible worlds. To this extent, it is really no difference to fill domains with simples rather than composites, for you’re likely to face the very same question: Why any simple whatsoever should exist in every accessible world? ME says nothing about that. Moreover, the appeal to CN discloses a gross misunderstanding of Actualism; in fact, Actualism is not a claim as to what there really exists but, rather, a claim as to the modal status of whatever happens to exist, viz. being actual; hence, if you should succeed in showing that only simples exist, much the worse for composites. But this wouldn’t count as an argument against the actualist conflation of existence and actuality».

To state it otherwise, the retort has it that, even provided that ME supplies a good counter against actualists’ too facile intuition between what counts as actual and what does not, it just readdresses the old problem without meeting it with solution. For supporters of VDS want the possibilist to show why the domain must be one and the same, regardless of its content: whether it includes simples or more complex stuff is an otiose concern. To sum up, then, the task we are confronted with is explaining how every different accessible world can be built out of simples without falling prey to actual-world chauvinism: how to avoid taking possible worlds as entities somehow expanding the actual world?

Even though this objection is troublesome, I don’t believe ME to be more committed to actual-world chauvinism than any competing theory. Well, perhaps it is in some extent, yet not in a greater one than that infecting any different account of possible worlds currently on offer.

Prior to arguing for this, however, I wish to insist on why ME does not imply that what the actual world is made of exhausts what is found in D. This is so firstly because of distribution. Basically, stuff can be differently distributed across worlds: if an object can have a spatiotemporal position other than the one it in fact has, then we will have two different possible worlds (and not just one) sharing the same elements, even though variously arranged. Hence, distribution is what ‘wise-predicates’ are really about. An example will help clarifying this point. Consider
clocks: whenever you want to know what time it is, you are likely to check your watch and take it as a unified object. But when your watch is out of order and your watch-repairer shows you the damaged cogwheel, you are not likely to take your watch as a unified object anymore, or else you wouldn’t ask her to trade the old cogwheel for a working one. Even if the foregoing example is wholly intraworld, in that the difference between the scattered and the unified watch is just temporal – assembled at \( t_1 \), disassembled at \( t_2 \), assembled again at \( t_3 \) – nothing interferes with extending such a picture to transworld relationships, so that predicates are differently satisfied at worlds depending on how stuff is spread out in each world. For example: suppose that \( w \) is a world where clocks are never disassembled on account of certain metaphysical facts, and \( w^* \) is a world where the converse holds: cogwheels are never assembled. Therefore, even if the simples are numerically the same in each world, the predicate ‘being arranged clock-wise’ will be satisfied at \( w \) but not at \( w^* \). This in turn entails that \( w \) and \( w^* \) are different. This case might be improved so as to amount to a full-blown theory of possible worlds. This will consists in regarding possible worlds as plural predicate-satisfiers for different arrangements of simples, so that the plural predicate ‘being arranged Troll-wise’ is satisfied at world \( w \) iff certain fusions of simples from \( D \) are arranged such-and-such at \( w \).

Secondly, \( D \) is not confined to the furniture of the actual world because different possible worlds can be seen as variously recombing elements from \( D \), and recombinations can occur though copy (thereby making ME consistent with counterpart-theoretic semantics). Suppose for the sake of the argument that \( D \) contains just simples \( a, b, c, d \). Take now a world \( w \). It hasn’t to be taken for granted that \( w \) is confined to including just \( a, b, c, d \), if only differently distributed. It might be also the case that \( w \) is made up by duplicates of the starting elements, thus being constituted – say – by \( a, a, a, b, b, c, d \). Insofar as worlds are not set-theoretic entities, it could be maintained that \( w \) and the actual word differ as to their content.

Admittedly, the real problem ME faces is how to deal with less-populated-than-\( D \) worlds. For if PP is sound we are bound to recognize the existence of worlds where only \( a \) and \( b \) exist – ontologically diminished worlds, so to speak. Why to maintain, then, that such worlds feature \( c \) and \( d \) as well? This is a serious problem for which the only solution consistent with PP is to downright stick to the conflation of actuality and possibility into being through existentially unloaded quantifiers. It is then well-advised, albeit quite discomforting, to maintain that as long as less complex worlds are concerned, ME cannot play any significant role. In such a case, Possibilism can be supported only by semantic devices.
such as the ones already mentioned. In any event, it is not this case to make the present account worse off than other varieties of Possibilism. Rather, both ME and other possibilist accounts are presumably on a par as regards how to cope with less complex worlds.

What is most important is that the formal dressing of ME should suffer from no disadvantage with respect to any modal metaphysics currently on offer inside the realist camp: it seems to enjoy every benefit shared by other accounts without featuring any additional drawback. As it happens, ME faces no problems which do not also arise for other theories of modality. Moreover, ME exhibits the following pros: (i) it avoids taking NE as unpalatably denying contingent existence by means of reading the quantifiers as unloaded; (ii) it is consistent both with predication as relativised at worlds (such as LZ’s or Meinongian Possibilism) and with unrestricted predication (such as counterpart-theoretic Possibilism) in that simples are not disallowed duplication across worlds, as required by Counterpart Theory; (iii) it ensures that Barcan Formulae are derivable, thus requiring no divorcing from CQT*. Finally, and despite appearances to the contrary, (iv) it’s likely to take no preliminary stance as to whether worlds are to be regarded as concreta or abstracta. For, although the argument for CN is solely concerned with physical entities, it is not thereby implied that possible worlds should be conceived of as spatiotemporal entities only. In truth, even non-physical worlds can be accommodated within ME as long as non-physical entities are conceived of as devoid of parts. For, if no non-physical object can be made up by parts, being instead absolutely simple in nature, then ME won’t be at odds with any such world. What will be needed in such a case is just to augment D with every non-physical simple to be reckoned with across modal space. Hence we would come up with a proper extension of D, D* including every non-physical simple in addition to the physical simples already included in D. And this extension is likely to tell the whole story about non-physical worlds.

Finally, ME is not worse off than rival accounts of possible worlds with respect to actual-world chauvinism. This is best seen upon considering the most serious worry every view of possible worlds has to reckon with, viz. the problem of alien properties. Roughly, these are properties that are not instantiated by any object with which we are acquainted, or (and more importantly) such that are not analysable as conjunctions built up from constituents that are all instantiated in the actual world. Take for instance unicorns. Unicorns might be regarded as sum of (parts of) white-coats, (parts of) hooves, (parts of) horns, (parts of) feathered wings and so on, whereas every part of unicorns is found in the actual world. The problem lurking here is that, as long as we look for things which recombine individuals drawn from the actual world, there is no difficulty in generating more
and more objects, such as unicorns. After all, unicorns merely recombine items all taken from the actual world: there is nothing radically alien in unicorns, for to be a unicorn is to have certain parts that instantiate certain properties, and to have those parts arranged in a peculiar way. Accordingly, the property *being a unicorn* is not so foreign. In a sense, it can be analysed out of properties with which we are acquainted: take a horse, change some of its properties and you’ll end up with a unicorn. But this does not hold in general. If some alien #*° entity is possible, then there is a world where alien simples are arranged #*°-wise. This simple fact shows by itself that Distribution & Recombination do not exhaust what there is in D, since they cannot provide us with the means for dealing with alien individuals such as #*°, their properties being in fact unnameable. Accordingly, the fact that alien properties cannot be analysed through actual properties makes it almost impossible to talk about them: they are ineffable, as it were. Yet, PP requires that there be worlds such that some of their parts instantiate properties which are alien to the actual world. But what are they? It is not possible to answer, since such primitives cannot even be thought of, let alone expressed through predicates.

To plug this gap is a head-aching quandary. Indeed, it is likely to stand as the most demanding task any PW-theorist has to cope with, to the point that some regard this difficulty as utterly intractable. It is in fact contended that once the concern with alien properties gets the upper hand, there is no way for any theory of modality to get rid of the charge of actual-world chauvinism. Be this as it may, ME poses no peculiar problem in this respect either: if alien properties are troublesome for any theory of modality inside and – I dare say – even outside the realist camp, then ME is just no exception to this. But no theory can be charged with inadequacy just because of its inability to satisfactorily deal with what rival theories are likewise unable to solve. Quite to the contrary, the problems attaching to alien properties point to what any PW-theorist should steer clear of, namely taking conceivability as a guide to metaphysical possibility. For the tension between PP and alien properties shows that the claim that our ability to conceive of a scenario where \( p \) obtains should count as a reason for supposing that \( p \) is metaphysically possible is at odds with the sensible refusal of taking the inconceivability of \( p \) as a reason for supposing that \( p \) is metaphysically impossible.\(^\text{10}\)

\(^{10}\) Anyone interested in these fascinating matters should refer to T. Szabó Gendler - J. Hawthorne (eds.), *Conceivability and Possibility*, Clarendon Press, Oxford 2002.