

ACTUALIST COUNTERPART THEORY*

Jennifer Wang

Stanford University

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Here are two different ways of talking about other possibilities. The first involves using the explicitly modal locutions ‘possibly’ and ‘necessarily’ to say things like ‘Possibly, there is a flying hedgehog.’ The second involves directly describing the inhabitants of other possible worlds: ‘In some possible world, there is a flying hedgehog.’ There seems to be a systematic correlation between these two ways of talking, as characterized by the so-called ‘Leibnizian biconditionals’:

Possibly P is true iff *P* is true in some possible world.

Necessarily P is true iff *P* is true in every possible world.

However, apart from this correlation, the Leibnizian biconditionals don’t tell us very much. What are possible worlds, and how should we evaluate truth in a possible world?

According to *modal realists* like David Lewis¹, possible worlds are like our world in kind. Possible individuals inhabit other worlds just as we inhabit ours. There are many different Lewisian worlds corresponding to the many different ways the actual world could be. When it comes to purely qualitative or *de dicto* possibilities, it is easy to see how the Leibnizian biconditionals interact with modal realism: if it’s possible that there is a flying hedgehog, then there is a Lewisian world in which some flesh-and-blood hedgehog flies. The story gets more complicated when it comes to *de re* possibilities for particular individuals like Karen, such as the (mere) possibility that Karen has a brother. Since each Lewisian world is spatiotemporally independent of the others, Lewisian individuals are ‘worldbound’: no individual inhabits more than one world. There is no Lewisian world in which Karen herself has a brother. Fortunately, inhabiting a world and existing according to a world are two different things. Lewis endorses *counterpart theory*, on which an individual exists according to some world just in case the individual has a counterpart—an appropriately similar individual, as determined by context—who inhabits that world. For Karen to possibly have a brother just is for some appropriately Karen-like individual to have a brother in some other world.²

Modal realism and counterpart theory together form a powerful modal theory (MRCT). MRCT delivers entities to be quantified over in possible worlds talk and thus the start of a metaphysical explanation of modal truths.³ The Leibnizian biconditionals are strictly speaking

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¹ *On the Plurality of Worlds* (New York: Blackwell, 1986).

² Counterpart theory is developed in Lewis’s *On the Plurality of Worlds* and “Counterpart Theory and Quantified Modal Logic,” this JOURNAL, LXV, 5 (March 7, 1968): 113–126. More details of counterpart theory will be provided in section II.

³ I won’t take a stance on the nature of metaphysical explanation; note only that it stands in contrast with other kinds of explanation, such as nomological, teleological, or historical. For two ways to cash out metaphysical explanation

neutral on the order of explanation between possible worlds claims and modal claims. But MRCT offers some details: *de re* possibilities for individuals are accounted for by their counterparts in other worlds and the worlds themselves provide the *de dicto* possibilities. MRCT thus yields an explanation of the *de re* in terms of the *de dicto*.

Nonetheless, the modal realist ontology is a hard pill to swallow. Among those who deny modal realism are (*modal*) *actualists*, who insist that everything actually exists.⁴ The actualist need not forego the benefits of possible worlds talk. Actualists have proposed theories of ersatz worlds, which are entities like states of affairs, fictions, sets of sentences or propositions, or properties of worlds.⁵ There are ersatz individuals as well: fictions about individuals, properties of individuals, and so on. These are maximal qualitative ways that worlds and individuals could be. The actualist story is typically told in terms of representation: ersatz worlds and individuals stand in for Lewisian worlds and individuals by representing worlds and individuals that could exist.

A problem immediately arises. Ersatz individuals, like Lewisian individuals, are worldbound, since they encode all the qualitative relations that an individual stands in to the world she inhabits. As such, an ersatz individual that represents Karen as brotherless cannot itself represent Karen as having a brother.⁶ But as Lewis⁷ himself suggests, the actualist is free to borrow counterpart theory. On Actualist Counterpart Theory (ACT), the ersatz individual that represents Karen as brotherless has as a counterpart an ersatz individual that represents a Karen-like individual as having a brother; the rest of the story proceeds as before.⁸ ACT not only retains the benefits of counterpart theory, it provides a solution to one of Lewis's two problems of descriptive power, that of accounting for the possibility of *alien*—that is, non-actual—individuals. Nonetheless, ACT has not been fully embraced by the actualist community. There are two main objections. The first is Lewis's other problem of descriptive power, the problem of indiscernibles, which concerns the possibility of qualitatively indiscernible possible individuals. The second is the Humphrey objection, a charge of irrelevance against counterpart theory.

I will argue that both objections may be traced to the mistaken idea that ersatz individuals should play the same theoretical role as Lewisian individuals. After all, ersatz individuals aren't individuals—they're ways for individuals to be, or properties that individuals can instantiate.

in recent literature, see Jonathan Schaffer on grounding in "On What Grounds What," in David Chalmers, David Manley, and Ryan Wasserman, eds., *Metametaphysics: New Essays on the Foundations of Ontology* (Oxford: Oxford, 2009), pp.347–383; and the discussion of metaphysical semantics in chapter 7 of Theodore Sider, *Writing the Book of the World*, (Oxford: Oxford, 2011).

⁴ There are interesting issues of how to characterize actualism, as discussed in Karen Bennett, "Two Axes of Actualism," *The Philosophical Review*, CXIV, 3 (July 2005): 297–326.

⁵ See for instance Robert Adams, "Theories of Actuality," *Noûs*, VIII (September 1974), 3: 211–231; Alvin Plantinga, *The Nature of Necessity* (Oxford: Clarendon Press, 1974); and Robert Stalnaker, "Possible Worlds," *Noûs*, X, 1 (March 1976): 65–75.

⁶ Ersatz individual strictly speaking do not represent particular individuals like Karen—they represent maximal qualitative ways—but I will sometimes write as if they do for ease of presentation.

⁷ *On the Plurality of Worlds*, p. 237.

⁸ Other defenders of versions of ACT include Stalnaker, "Counterparts and Identity," *Midwest Studies in Philosophy: Studies in Essentialism*, XI (September 1986): 121–140; Tony Roy, "In Defense of Linguistic Ersatzism," *Philosophical Studies*, LXXX, 3 (December 1995): 217–242; Alan McMichael, "A Problem for Actualism About Possible Worlds," *The Philosophical Review*, XCII, 1 (January 1983): 49–66, and "A New Actualist Modal Semantics," *Journal of Philosophical Logic*, XII, 1 (February 1983): 73–99; and Mark Heller, "Property Counterparts in Ersatz Worlds," this JOURNAL, XCV, 6 (June 1998): 293–316, and "Anti-Essentialism and Counterpart Theory," *The Monist*, LXXXVIII, 4 (October 2005): 600–618.

Too much emphasis has been placed on representation. While it is not incorrect *per se* to say that ersatz individuals represent possible individuals, it is more fruitful to focus directly on how qualitative ways for individuals to be help explain *de re* possibilities. In assuming that ersatz individuals must play the same theoretical role as Lewisian individuals, actualists commit the *particularist fallacy*: the inference from the actualist's requirement that the possible is explained by the actual to the stronger requirement that there is a unique actual 'stand-in' for every possible individual. This stronger requirement is tacitly assumed in non-instrumental uses of both Kripke semantics and standard counterpart semantics. I will argue that actualists should instead adopt a non-standard counterpart semantics that makes explicit the role that qualitative ways play in explaining modal truths. The end result is a forceful and intuitive reply to both the problem of indiscernibles and the Humphrey objection. But first, let me provide more details of ACT.

I. ACT: Ersatz Worlds and Individuals

Actualists have defined ersatz worlds and individuals as states of affairs, fictions, sets of sentences or propositions. The differences between these views are not so important here. What matters is that these entities represent qualitative ways for worlds and individuals to be. A recurring theme of this paper is that we must be careful in distinguishing ersatz worlds and individuals *qua* representations from what they represent (qualitative ways). This distinction is significant because part of the work such entities are meant to do is explanatory. What matters to the explanation of modal truths is not the representation, but what is represented. For instance, 'Possibly, there is a flying hedgehog' is true not because of the existence of (e.g.) a fiction according to which a hedgehog flies, but because being a flying hedgehog is a way for an individual to be. Notice that this distinction matters to MRCT as well when it comes to *de re* possibilities. What explains the possibility that Karen has a brother is not Karen's counterpart *qua* representation, but the fact that she is relevantly similar to Karen and has a brother.

Nonetheless, representations are useful for characterizing how the qualitative ways explain possibilities. In proceeding I will define ersatz worlds and individuals linguistically, even though I am happy to be a realist about properties and will help myself to talk of properties when convenient. The linguistic characterization should in no way be understood to imply that possibilities may be reduced to linguistic entities on ACT.⁹

Ersatz worlds are sentences of some interpreted non-modal language—that is, a non-modal language with truth conditions. In broad strokes, the idea is that this language is used to describe each of the ways that a world could be with respect to qualitative properties. We then use these descriptions to provide truth conditions for sentences of a modal language. Since the non-modal language is interpreted and contains no modal vocabulary, we thereby show how to generate truth conditions for the modal portion of a modal language given the truth conditions for the non-modal portion. Providing such truth conditions qualifies as giving an explanation of other possibilities so long as we stick to non-instrumental uses of the relevant semantics.

The worldmaking language in question cannot be a natural language, on pain of descriptive impoverishment. It must at least be rich enough to describe all the non-modal

⁹ The view that ersatz worlds are linguistic entities is called *linguistic ersatzism*. Defenders of versions of linguistic ersatzism include Roy; Joseph Melia, "Reducing Possibilities to Language," *Analysis*, LXI, 1 (January 2001): 19–29; Heller, "Property Counterparts in Ersatz Worlds"; and Sider, "The Ersatz Pluriverse," this JOURNAL, XCIX, 6 (June 2002): 279–315. My view is more like views on which what does the relevant explanatory work are world properties, as in Stalnaker, "Possible Worlds." I am not claiming that all actualists share my view that fictions, sets of sentences, etc. are not themselves explanatorily relevant.

features of this world. Thus, let the worldmaking language **L** be infinitary and *Lagadonian*, where a Lagadonian language is one in which each property or relation serves as its own predicate.¹⁰ Let's also stipulate that we have the usual Boolean connectives and quantifiers, and that we have an abundant property ontology. The target language is a modal language, one with the resources to express claims like 'Possibly, there is a flying hedgehog.' We may take this modal language to be $L\Diamond$, the language that is just like **L** but is finitary¹¹ and includes the modal operators \Diamond ('possibly') and \Box ('necessarily'). In the rest of this paper, I will focus on \Diamond alone, since \Diamond and \Box are interdefinable.

Thus equipped, the actualist may say that ersatz worlds are maximal consistent sentences of **L** in canonical form, where a sentence *S* is (i) *maximal* just in case for each sentence of **L**, either it or its negation is entailed by *S*, (ii) *consistent* just in case *S* could be true, and (iii) in *canonical form* only if it is the existential closure of a series of conjunctions of literals and a 'that's all there is in the world' clause. Ersatz worlds are stipulated to be in canonical form for presentational convenience. Maximality is required so that each ersatz world 'decides' the truth or falsity of every non-modal sentence.¹² Consistency is required so that no ersatz world allows contradictions. One ersatz world might look like this:

$$\exists x \exists y \dots (\sim Fx \wedge Fy \wedge Rxy \wedge \dots \wedge x \neq y \wedge \dots)^{13}$$

This may be read: 'There exists some *x*, some *y*...such that *x* is not *F*, *y* is *F*, *x* *R*s *y* ... and *x* is not *y* ...' One ersatz world corresponds to the actual world.

We may also define ersatz individuals, each of which is a complete description of the features of some possible individual with respect to qualitative properties. Ersatz individuals are open formulas that are free with respect to one variable—they are the result of removing one existential quantifier from an ersatz world. Each ersatz individual exists according to the ersatz world that it 'mirrors'. One ersatz individual might look like this:

$$\exists y \dots (\sim Fx \wedge Fy \wedge Rxy \wedge \dots \wedge x \neq y \wedge \dots)$$

This open formula is just like the sentence above but with ' $\exists x$ ' removed. It may be read: '*x* is such that there exists some *y*...such that *x* is not *F*, *y* is *F*, *x* *R*s *y* ... and *x* is not *y* ...' Just as there is an ersatz world for the actual world, there is an ersatz individual for each actual individual.

Note that consistency, left unreduced, is a primitive modal notion. However, many actualists aren't after a reduction of modality. Robert Adams¹⁴ explicitly takes consistency as a

¹⁰ See p.145 of *On the Plurality of Worlds*. Problems concerning cardinality are discussed in Phillip Bricker, "Reducing Possible Worlds to Language," *Philosophical Studies*, LII, 3 (November 1987): 331–355; and Roy. Since cardinality issues arise for just about everyone, I won't address them here; see for instance John Hawthorne and Gabriel Uzquiano, "How Many Angels Can Dance on the Point of a Needle? Transcendental Theology Meets Modal Metaphysics," *Mind*, CXX, 477 (January 2011): 53–81.

¹¹ The restriction to a finitary language allows us to ignore the complications of giving an infinitary semantics, which, while interesting, is not needed for the project at hand.

¹² If maximality fails, we may still hope to do the same work with sets of partial descriptions; since the sentences to be evaluated are finite, we don't need infinitely long sentences.

¹³ The reader should mentally insert a 'that's all there is in the world' clause into each ersatz world or individual discussed in this paper, which might look like this: ' $\forall t(t=x \vee t=y \vee \dots)$ '.

¹⁴ "Actualism and Thisness," *Synthese* XLIX (1981): 3–41.

primitive modal notion. Other actualists locate primitive modality elsewhere: Robert Stalnaker¹⁵ takes as primitive the ways things could be and Alvin Plantinga¹⁶ endorses primitively possible states of affairs. Others hold that there are primitive incompatibilities between certain properties and relations.¹⁷ Any of these may form the basis of an account of consistency. Of course, some actualists do want a reductive theory of modality; for instance, David Armstrong¹⁸ proposes a combinatorialist theory. ACT as formulated is thus neutral on the question of primitivism versus reductionism about modality. In fact, a benefit of ACT is precisely the separation of *de dicto* from *de re* modality. Since the worldmaking language only has access to qualitative properties, what the actualist effectively does when she helps herself to consistency is presuppose an account of *de dicto* modality—that is, of the purely qualitative modal truths.¹⁹

II. ACT: Counterpart Theory

On MRCT, Karen possibly has a brother in this world just in case she has a Lewisian counterpart who has a brother in some other world. What makes another individual Karen's counterpart is tied to similarity on Lewis's view: Karen's counterpart in a world is the individual most similar to her in the relevant respects in that world. In general, similarity is a context-sensitive matter, since we care about different respects of similarity in different contexts. Pal—the portrayer of Lassie—and Rin Tin Tin are more similar to each other than Lyndon Johnson's dog Blanco in respect of being actors, but Pal is more similar to Blanco than Rin Tin Tin in respect of being a collie. With little adjustment, the actualist may borrow counterpart theory. On ACT, the relevant counterparts are ersatz counterparts rather than Lewisian counterparts. Karen possibly has a brother iff ersatz Karen has an ersatz counterpart that represents a Karen-like individual as having a brother. What matters to ersatz counterparthood is not the similarity of ersatz individuals, since these are linguistic entities. Rather, two ersatz individuals are relevantly *similar** just in case they represent relevantly similar ways for individuals to be.

To explain what makes two ersatz individuals similar*, the actualist may defer to Lewis. The ordinary notion of similarity that Lewis appeals to is not a primitive notion—the similarity of two individuals may be explained further by the properties that the individuals respectively instantiate. For instance, Lewis thinks that there are more or less natural properties and that the sharing of the natural properties makes for objective similarity. Thus, in a context where naturalness is relevant—e.g. the metaphysics seminar room—what determines counterparthood is the sharing of natural properties. Or suppose that we're concerned with whether or not two individuals are psychologically similar. In this context, what determines counterparthood is the sharing of mental properties. We may impose more general restrictions on what counts for similarity as well, depending on our metaphysical scruples. For instance, suppose some principle of essentiality of species is true: 'If some individual is of species x, then necessarily, if that individual exists, it's of species x.' In this case, even if Karen is more similar to a statue in a human-less world than anything else in that world, she does not exist according to that world.

¹⁵ "Possible Worlds."

¹⁶ "Actualism and Possible Worlds," *Theoria*, XLII, 1–3 (1976): 139–160.

¹⁷ See Michael Jubien, *Possibility*, (Oxford: Oxford, 2009); and my "From Combinatorialism to Primitivism," *Australasian Journal of Philosophy*, XCI, 3 (2013): 535–554.

¹⁸ *A Combinatorial Theory of Possibility* (Cambridge: Cambridge, 1989), and *A World of States of Affairs*, (Cambridge: Cambridge, 1997).

¹⁹ Given this discussion of consistency, it should now be clear that there may be elements of the modal in the predicates of the worldmaking language.

The actualist may evaluate the similarity* of ersatz individuals using these same observations, since ersatz individuals just are representations of the properties and relations that an individual would instantiate if actualized. The properties and relations shared by the individuals represented may be assessed by comparing the conjuncts in their ersatz representatives.²⁰ While some may be disappointed by the lack of analysis of the ersatz counterpart relation, not every non-primitive notion requires necessary and sufficient conditions.²¹

In adopting counterpart theory, ACT enjoys its benefits. According to those who accept inconstancy, what modal properties should be attributed to an individual depends on context. The question of whether Karen could be taller, or an angel, or born to different parents, has different answers depending on which features of Karen are salient given what we care about. This seems to be the case even if we focus on metaphysical modality and not other strengths of modality. The context-sensitivity of the counterpart relation accounts for this. It also yields solutions to various puzzles of material constitution. For instance, the statue cannot survive squashing but the lump of clay can, despite the fact that the statue is identical to the lump of clay. The attribution of incompatible modal properties may be explained by whether we're concerned with the statue or with the lump of clay in different contexts.²²

Another benefit of ACT is that it provides a solution to one of Lewis's problems of descriptive power: the problem of aliens, or individuals that do not actually exist. The actualist can account for the possibility of alien individuals by the existence of ersatz worlds according to which there are individuals not identical to any actual individual. But she runs into trouble when it comes to *de re* possibilities for alien individuals.²³ Consider a so-called 'McMichael sentence': 'Possibly, Karen has a brother who is a doctor but who is possibly not a doctor.'²⁴ Given that ersatz individuals are worldbound, the ersatz individual that represents Karen's brother as a doctor is distinct from the ersatz individual that represents Karen's brother as a clown.

²⁰ Some adjustments would be needed to simplify the process of comparing conjuncts, since there are many logically equivalent maximal consistent sentences.

²¹ For the debate over analyzing the ersatz counterpart relation, see pp.237–8 of *On the Plurality of Worlds*; p.303 of Sider's "The Ersatz Pluriverse," and "Beyond the Humphrey Objection," manuscript; Berit Brogaard, "Two Modalisms: Fictionalism and Ersatzism," *Philosophical Perspectives: Metaphysics*, XX (December 2006): 77–94; and Richard Woodward, "Ersatz Counterparts," in Karen Bennett and Dean Zimmerman, eds., *Oxford Studies in Metaphysics* (Oxford: Oxford, forthcoming).

²² Of course, the framework of counterpart theory is not by itself committed to these results. A counterpart theorist may retain the framework but deny the context-sensitivity of the counterpart relation; for a version of ACT that is essentialist, see L.A. Paul, "The Context of Essence," *Australasian Journal of Philosophy*, LXXXII, 1 (March 2004): 170–184, and "In Defense of Essentialism," *Philosophical Perspectives: Metaphysics*, XX (December 2006): 333–372. A counterpart theorist may also deny that counterparthood is tied to similarity; see Heller, "Anti-Essentialism and Counterpart Theory"; and Delia Graff Fara, "Relative-Sameness Counterpart Theory," *Review of Symbolic Logic*, I, 2 (August 2008): 167–189. A modal realist, on the other hand, may identify the counterpart relation with identity, resulting in an austere necessitarianism given modal realism without overlap. This maneuver divests her of a tidy explanation of inconstancy, but it is permissible. In general, we should be careful to separate counterpart theory from the various Lewisian theses with which it is often bundled, such as anti-essentialism and haecceitism. I am not assuming anti-essentialism below, but I am assuming anti-haecceitism. For more discussion, see chapter 4 of *On the Plurality of Worlds*.

²³ The problem of aliens is often introduced as a problem for *haecceitism* (or *quidditism* in the case of properties): the view that there can be two possible worlds that differ only with respect to which individuals (or properties) are which. However, the question of haecceitism is a red herring; the problem of aliens is really more general. It arises for any actualist who thinks that an alien individual could be otherwise. This is essentially what McMichael, "A Problem for Actualism About Possible Worlds," and Roy point out.

²⁴ See McMichael, "A Problem for Actualism About Possible Worlds," for the original formulation of the problem.

Two assumptions underlie the problem of aliens. The first is *transworld identity*, on which individuals are represented as existing according to more than one world by having the same representative in more than one world. The second assumption is a fairly standard theory of truth conditions for modal claims: Kripke semantics. The now-familiar Kripke semantics relativizes truth to worlds and adds a clause for the modal portion of the language.²⁵ Suppressing the accessibility relation, here's what (a simplified version of) Kripke semantics says about quantified and modal clauses: where w and v are 'worlds' and ϕ is a formula of $\mathbf{L}\diamond$,

- (K \exists) $\exists\alpha\phi$ is true at w iff for some u in the domain of w , ϕ is true of u at w .
(K \diamond) $\diamond\phi$ is true at w iff there exists some world v such that ϕ is true at v .

On ACT, the worlds in question are ersatz worlds, and the domain associated each ersatz world is populated by ersatz individuals. This leads to a mild complication. Normally, a predicate is satisfied by or true of an individual just in case the individual instantiates the property denoted by the predicate. However, an ersatz individual doesn't itself have the properties that it represents an individual as instantiating. We must instead interpret a predicate P as being satisfied by an ersatz individual at a world w just in case $\Pi\alpha$ appears as one of its conjuncts.²⁶

To illustrate, consider the following sentence and its regimentation in $\mathbf{L}\diamond$:

- (1_S) Possibly, Karen has a brother who is a doctor but who is possibly not a doctor.
(1_R) $\diamond\exists x(\text{Bkx} \wedge \text{Dx} \wedge \diamond\sim\text{Dx})$

1 involves (loosely speaking) attributing a *de re* modal property to an alien individual, namely, Karen's merely possible brother. It should be true; just as Karen has *de re* modal properties, her merely possible brother would have *de re* modal properties if he were to exist. But 1 is predicted to be false for the actualist given transworld identity and Kripke semantics. Here is (informally) what Kripke semantics produces as its truth conditions. First, applying K \diamond and K \exists , 1 is true at a world w just in case there exists some world—call it ' w_1 '—such that for some u in the domain of w_1 , $\text{Bkx} \wedge \text{Dx} \wedge \diamond\sim\text{Dx}$ is true of u . Applying K \diamond again, the right conjunct, $\diamond\sim\text{Dx}$, is true of u at w_1 just in case there exists some world—call it ' w_2 '—such that $\sim\text{Dx}$ is true of u at w_2 . Putting these together, we (informally) get: 1 is true at w just in case for some worlds w_1 and w_2 , some u in the domains of w_1 and w_2 , u is Karen's brother at w_1 , u is a doctor at w_1 , and u is not a doctor at w_2 .²⁷ However, an ersatz individual cannot represent an individual as both a doctor and a non-doctor.

²⁵ This framework was introduced by Saul Kripke, "Semantical Considerations on Modal Logic," *Acta Philosophica Fennica*, XVI (1963): 83–94. 'Kripke semantics' may refer to model-theoretic semantics, which concerns logic rather than truth conditions, or the theory of truth conditions that (arguably) results from considering the 'intended model' of the logic. I am only concerned with truth conditions. Note also that the Lewisian and ersatz worlds in question are conceptually distinct from the 'worlds' that figure in model-theoretic semantics or natural language semantics. These uses of 'worlds' are purely instrumental and are not of direct relevance to the metaphysical aims of this paper.

²⁶ More carefully: let predicate P of arity n be true of a tuple $\langle u_1, \dots, u_n \rangle$ at world w iff (1) $\Pi\alpha_1 \dots \alpha_n$ appears as a conjunct in w , and (2) for each u_i , u_i is the individual formula with one free variable α_i such that w is the result of prefixing u_i with the quantifier $\exists\alpha_i$.

²⁷ I'm making the simplifying assumption that only individuals in the domain of a world can satisfy predicates at that world.

Lewis would also face the problem of aliens if he accepted transworld identity and Kripke semantics. But in accepting counterpart theory, he rejects transworld identity and correspondingly, Kripke semantics. A counterpart theorist typically endorses a version of counterpart semantics which adds a counterpart relation CPT to Kripke semantics and replaces $K \diamond$ with something like this:

(C \diamond) $\diamond \phi$ is true at w iff for the relevant individuals u_1, \dots, u_n in the domain of w , there exists some world v such that for some u^*_1, \dots, u^*_n in the domain of v , $CPT(u_i, u^*_i)$ for all i , and ϕ is true of the u^*_1, \dots, u^*_n at v .

1 is true just in case there is an individual in w_1 who is Karen's brother and a doctor, who has a counterpart in w_2 who fails to be a doctor. This counterpart may be a distinct individual. Thus, given MRCT, standard counterpart semantics predicts 1 to be true, as desired. The actualist may follow suit and adopt the counterpart theorist's truth conditions for 1. This is not a mere technical maneuver. The actualist has good reason to endorse counterpart theory so long as she endorses this thought: the modal properties of an individual depend upon the non-modal properties that it instantiates. I will return to this point in section V.

Note that I have not said anything about whether defenders of MRCT or ACT should also be counterpart theorists about properties as well. The motivation for doing so is that it seems like alien properties—properties that do not actually exist—are also possible. We might therefore turn to second-order logic and make the same moves as in the case of individuals, but we would then inherit of the baggage of second-order logic. This is the strategy pursued by Heller in "Property Counterparts in Ersatz Worlds." I will only talk about the first-order case, with the understanding that the discussion may be extended to the second-order case.

III. The Problem of Indiscernibles

So far, ACT is an attractive theory for the actualist given the benefits of counterpart theory in accounting for *de re* inconstancy, puzzles of material constitution, and the problem of aliens. However, it doesn't so easily escape Lewis's other problem of descriptive power.

Consider a world in which two or more individuals have all the same properties and stand in all the same relations, like Max Black's²⁸ two-sphere world: a symmetric world in which there exist only two qualitatively indiscernible spheres of uniform composition. These spheres have all the same qualitative properties, such as *being made of iron* and *being such-and-such distance from a sphere with such-and-such properties*. Pretending that predicate S encodes all the properties instantiated by one sphere, including its relations to the other sphere, the ersatz Max Black world looks like this: ' $\exists x \exists y (Sx \wedge Sy \wedge x \neq y)$ '. The apparent problem is that there is only one ersatz Max Black sphere, which looks like this: ' $\exists y (Sx \wedge Sy \wedge x \neq y)$ '. One might think that there is another ersatz sphere, which looks like this: ' $\exists x (Sx \wedge Sy \wedge x \neq y)$ '. However, although these are syntactically distinct formulas, they are not two different ways for an individual to be.²⁹

²⁸ "The Identity of Indiscernibles," *Mind*, LXI, 242 (April 1952): 153–164. Some deny the possibility of a Max Black world, but this maneuver is usually tied to accepting the identity of indiscernibles: no distinct things can have all the same properties. I am assuming that the identity of indiscernibles is false, at least when restricted to qualitative properties. If the identity of indiscernibles is in fact true, then the problem of indiscernibles doesn't arise—but so much the better for ACT.

²⁹ Again, there is an analogous problem for properties, though I will focus on the individual version of the problem.

Of course, the fact that there is just one ersatz sphere is not itself a problem. There is only a problem if the impoverishment of ersatz spheres leads to an impoverishment of possibilities. John Divers³⁰ frames the problem as one concerning singular reference: the actualist only has the means by which to singularly refer to one of the indiscernible spheres, not both. But the actualist should flatly reject that we can singularly refer to non-actual individuals. The problem can instead be understood in terms of truth conditions. The problem of indiscernibles arises when we encounter sentences like 2:

- (2_S) Possibly, there exist two qualitatively indiscernible spheres.
 (2_R) $\Diamond \exists x \exists y (Sx \wedge Sy \wedge x \neq y)$

By $K\Diamond$, 2 is true just in case $\Diamond \exists x \exists y (Sx \wedge Sy \wedge x \neq y)$ is true at some world—namely, the Max Black world. By $K\exists$, we see that this is true at the Max Black world—call it ‘m’—iff the formula ‘ $Sx \wedge Sy \wedge x \neq y$ ’ is true of two distinct individuals u_1 and u_2 in the domain of m. But on ACT we only have one such ersatz individual. Thus, 2 is false rather than true.

The move to a (simplified version of) standard counterpart semantics does not solve this problem. Recall that counterpart semantics adds to Kripke semantics a counterpart relation CPT that holds between individuals in different worlds, and it replaces $K\Diamond$ with something like this clause:

- (C \Diamond) $\Diamond \phi$ is true at w iff for the relevant individuals u_1, \dots, u_n in the domain of w , there exists some world v such that for some u^*_1, \dots, u^*_n in the domain of v , $CPT(u_i, u^*_i)$ for all i , and ϕ is true of the u^*_1, \dots, u^*_n at v .

This revised clause doesn’t help with 2, since the ‘ \Diamond ’ in 2_R doesn’t have any free variables in its scope. We may observe the undesirable effects of C \Diamond using a sentence that involves quantifying into a modal context:

- (3_S) There is a thing and another thing such that possibly, each is one of two qualitatively indiscernible spheres.
 (3_R) $\exists x \exists y \Diamond (Sx \wedge Sy \wedge x \neq y)$

We want 3 to come out true at some world—for example, a world just like the Max Black world except there exists a third thing located closer to one sphere than the other. Call this world ‘n’. Each of the spheres in n could be one of the spheres in the Max Black world. But as with 2, we do not have enough ersatz individuals in the Max Black world m for 3 to be true at world n. In particular, C \Diamond tells us that 3 is true at n iff for individuals u_1 and u_2 in n, there exists a counterpart u^*_1 of u_1 and counterpart u^*_2 of u_2 in some world such that u^*_1 and u^*_2 satisfy ‘ $Sx \wedge Sy \wedge x \neq y$ ’. But there aren’t two such individuals in any world. Where indiscernible individuals are concerned, ACT does not have the resources to provide more than one ersatz individual to stand in for it.

Two solutions have been proposed in the literature: the ‘arbitrary representatives’ strategy and the ‘pluriverse’ strategy.

³⁰ See pp. 84–5 of *Possible Worlds* (Abingdon: Routledge, 2002).

Consider first the ‘arbitrary representatives’ strategy. The idea, as Roy³¹ puts it, is to appeal to ‘arbitrary names as place-holders for non-actual individuals’. We may do this by replacing the ersatz individuals representing alien individuals with arbitrary representatives, such as the ordered pair consisting of the letter ‘N’ and some actual individual a: <N,a>. The arbitrary representatives are not worldbound, since there is no descriptive connection between an arbitrary representative and the alien individual it represents.³² To solve the problem of indiscernibles, two arbitrary representatives populate the domain of the ersatz Max Black world. Given Kripke semantics, 2 is predicted to be true, as desired. To solve the problem of aliens, arbitrary representatives are permitted to populate the domains of different ersatz worlds. Karen’s merely possible brother in w_1 is represented by the same arbitrary representative who represents Karen’s merely possible brother in w_2 . Given transworld identity and Kripke semantics, 1 is predicted to be true, as desired.

Plausibly, this sort of theory produces correct truth conditions when the aim is merely to predict the correct distribution of truth values. But the aim isn’t simply this; it’s to provide a metaphysical explanation of the modal truths in terms of actually existing entities. Since the representatives for alien individuals are mere artifacts of the model, the actualist who adopts this strategy does not have what McMichael calls a ‘realistic’ semantics. This is not in itself an objection. As McMichael notes, ‘To be sure, an actualist must reject the idea of there *really being* nonactual possibles. Nonetheless, he or she is entitled to employ a semantics which includes *so-called* nonactual possibles.’³³ But for a non-realistic semantics to be adequate, we must have a way of distinguishing the significant aspects of the semantics from the artificial aspects. This is a project that Stalnaker³⁴ undertakes. Whether or not his project succeeds, it would be all other things equal preferable if we could devise a realistic semantics that straightforwardly provides an explanation of the modal truths.³⁵

The second proposed solution is the pluriverse strategy, which is defended in Sider’s “The Ersatz Pluriverse.” The idea is to replace the Lagadonian worldmaking language **L** with a possible worlds language, one which extends **L** by adding quantification over world variables and which extends each n -place predicate to an $n+1$ -place predicate by adding a world place to each. Using this possible worlds language, we may formulate maximal consistent descriptions of *pluriverses* rather than of worlds. Pluriverse sentences look something like this:

$$\exists w_1 \exists w_2 \dots \exists x \exists y \dots (Faw \wedge \dots \wedge \sim Fxw \wedge Fyw \wedge Rxyw \wedge \dots \wedge \dots \wedge x \neq y \wedge \dots)$$

This may be read, ‘There exist some worlds w_1, w_2, \dots and there exist some individuals x, y, \dots such that a is F at $w \dots$ and x is not F at w , y is F at w , x Rs y at $w \dots$ and x is not $y \dots$ ’ The w ’s are dedicated world variables and n -place predicates F, G, etc. (except for identity) are now $n+1$ -place predicates with an extra world slot. There is no need to introduce arbitrary representatives

³¹ p.228 of Roy.

³² This view as described by Roy and Melia involves arbitrary *names*, and should really be paired with a substitutional semantics rather than a Tarskian semantics. To preserve continuity of discussion, I have instead posited arbitrary representatives for individuals. Heller also endorses arbitrary representatives in “Property Counterparts in Ersatz Worlds,” though his view appeals to counterpart theory rather than transworld identity.

³³ p.62 of “A Problem for Actualism About Possible Worlds,”

³⁴ *Mere Possibilities* (Princeton: Princeton, 2012).

³⁵ McMichael suggests that if we did have a way of ‘factoring out’ the artificial elements, we’d end up with a realistic semantics anyways.

for alien individuals, since we may now represent an alien individual as existing in different worlds by description.

To an approximation, ‘In some possible world, *P*’ is true just in case all ‘correct’ pluriverse sentences entail ‘In some possible world, *P*.’ The correct pluriverse sentences are those that are verified by all the same models that verify the set of true modal sentences, using a Kripke-style model theory. Thus, the correct pluriverse sentences describe individuals as existing in different worlds and they also describe the existence of two distinct Max Black worlds that differ only in which sphere is which. However, these results are only ensured by admitting true modal sentences, including 1 and 2, as constraints on correct pluriverse sentences.

Sider introduces a counterpart-theoretic semantics for the possible worlds language which gets around the worry about taking all the modal truths for granted since we then only take the *de dicto* modal truths for granted. However, there remains a worry that this strategy produces a non-realistic semantics. For Sider’s purposes, this might be acceptable. Although Sider presents the pluriverse strategy as a solution to the problems of descriptive power, it is not clear that his aim is to provide a metaphysical explanation of the modal truths. Sider’s stated aim is to provide truth conditions for the possible worlds language.³⁶ May the actualist adopt the pluriverse strategy for the purposes of explaining the modal truths? I suspect not. I take it that ersatz worlds are compelling substitutes for Lewisian worlds because they are descriptions written in an *interpreted* non-modal language. The pluriverse strategy, on the other hand, starts with an *uninterpreted* possible worlds language. Absent an account of how to factor out the artificial elements, the resulting semantics is non-realistic.³⁷

IV. The Particularist Fallacy

I think that the actualist has a better response to the problem of indiscernibles: reject both Kripke semantics and standard counterpart semantics in favor of a non-standard counterpart semantics that more clearly illuminates the explanatory role of ways individuals could be. In particular, the actualist should reject the assumption that there must be two ersatz spheres to stand in for both spheres. Let me explain. We have been implicitly assuming that ersatz individuals play the same theoretical role purportedly occupied by Lewisian individuals—that is, we have been thinking of them as representations of *particular* individuals. It then makes sense to represent a particular individual as existing in different worlds by placing its representative in the domains of different worlds. But the actualist should reject the requirement that she provide representatives for particular alien individuals. The simple reason is that the actualist denies that alien individuals exist, and only existing entities are particular entities.

For one extreme in the other direction, consider the actualist theory defended by Plantinga in *The Nature of Necessity*. Plantinga endorses the view that there is a *haecceity* for every actual and merely possible individual—that is, an essence of the individual, or the property of being identical to that individual. Just as Karen is represented by her haecceity in every world, Karen’s merely possible brother is represented by his haecceity. The problem is that this view appears to be actualist in spirit only; to reject the existence of alien individuals only to accept their haecceities is (so to speak) to merely move the bulge in the carpet.

The sort of actualism under consideration rejects alien haecceities and other ways to assign ‘particularity’ to non-actual individuals. This is a point that Melia recognizes in his

³⁶ In fact, Sider’s view may count as a version of structuralism about possible worlds; see pp.309–10 of “The Ersatz Pluriverse.”

³⁷ I suspect that once we factor out the artificial elements, we end up with the view that I defend.

discussion of the arbitrary representatives strategy as a solution to the problem of indiscernibles. Melia agrees with the letter of Roy's 'arbitrary representatives' view, but not the justification, as he is dissatisfied with the use of arbitrary names as 'empty singular terms' for the actualist. He proposes instead: 'Roughly: to distinguish two possibilities differing only over which entities play which roles the ersatzer merely needs a way of representing whether or not the unnamed individual/property which plays a particular role at one possibility is identical to that individual/property which plays a particular role at the other possibility.'³⁸ The suggestion is that what matters is not representing which individual is which, since there are no particular aliens, but representing the transworld identity of aliens.

But the arbitrary representatives strategy is still too accommodating of the idea that we need actual representatives for particular alien individuals. *Were* some ersatz individual to be actual—that is, were it to accurately represent some individual—then there *would* exist a particular individual which is as it represents. For instance, were the Max Black universe to exist, there would be two particular spheres, each of which would qualitatively be as some ersatz individual represented. But here is the key point: it does not follow that there must be two particular actual entities to account for this fact, and hence it does not follow that there must be two ersatz spheres for the two spheres. To insist on this is to commit the *particularist fallacy*.

The actualist should instead take seriously the idea that ersatz individuals represent ways for individuals to be, rather than particular individuals. And a way for an individual to be need not do the duty of a Lewisian individual. It has its own duties to attend to. Ersatz individuals are naturally construed as representations of maximal consistent properties such as *being a hedgehog and a flying animal and such that some swans are white and ...*³⁹ More generally, ersatz worlds and individuals are representations of n-place maximal consistent properties, where ersatz worlds represent 0-place properties and ersatz individuals are 1-place properties. In addition to ersatz worlds and individuals, we can also define ersatz pairs, ersatz triples, and so on; these represent 2-place properties, 3-place properties, and so on.⁴⁰ (From here on, I will use 'property' instead of 'relation'.)

The switch to property talk is significant. Clearly, many ordinary properties like *being a hedgehog* can be multiply instantiated. It should also be clear that many maximal consistent properties, like the one instantiated by Karen, cannot be multiply instantiated. But in some cases, the instantiation of a maximal consistent property requires that it be multiply instantiated—e.g., the property *being one of two qualitatively indiscernible spheres*, which is represented by an ersatz sphere. The following fact is in a sense 'encoded' in the property itself: were this property to be instantiated, there would be two indiscernible spheres. The single ersatz sphere is thus a

³⁸ pp.24-25 of Melia.

³⁹ A maximal consistent property is just a property represented by a maximal consistent sentence of *L*, which was characterized in section I.

⁴⁰ Jeffrey Russell draws attention to the following complication in "Actuality for Counterpart Theorists," *Mind*, CXXII, 485 (January 2013): 85–134. Hazen makes the point (accepted by Lewis in *On the Plurality of Worlds*, pp.233-4) that some possibilities are joint possibilities for more than one individual; see "Counterpart-Theoretic Semantics for Modal Logic," this JOURNAL, LXXVI, 6 (June 1979): 319–338. The upshot is that although *c* is a counterpart of *a* and *d* is a counterpart of *b*, $\langle c, d \rangle$ may not be a joint possibility for $\langle a, b \rangle$. In order to account for this complication, we may introduce a joint counterpart relation that holds between ersatz pairs, triples, and so on. This requires revising the presented semantics so that sentences are evaluated relative to a 'counterpart link' between two ersatz worlds in terms of which we may define the joint counterpart relation. I will stick to the simpler idea of individual counterparts for ease of presentation.

representation of the actually existing entity which explains the possible existence of two qualitatively indiscernible spheres.

The remaining task, when it comes to the problem of indiscernibles, is to provide a realistic semantics that takes us from maximal consistent properties to the possibilities they countenance.⁴¹ Both Kripke and standard counterpart semantics assume the existence of representatives for particular non-actual individuals. The semantics introduced in this section (Σ) defines a new role for ersatz individuals. Ordinarily, one of the jobs of individuals in a theory of truth conditions is to satisfy predicates. On Σ , ersatz individuals (which represent of maximal consistent properties) ‘entail’ predicates, or rather, atomic formulas of the form $\Pi\alpha$ (which represent properties). This notion of entailment is not ordinary first-order logical entailment, since logical entailment only holds between sentences rather than open formulas. It holds only between ersatz worlds, individuals, pairs, etc. in the first argument place, and formulas of $\mathbf{L}\Diamond$ in the second argument place. Call it Σ -entailment. Σ -entailment may be informally understood as representing a necessitation relation between properties. In particular, Σ -entailment holds between two ersatz worlds, individuals, pairs, etc. just in case the first represents a maximal consistent property, and any things that instantiate the first property must instantiate the second (where this second property may be non-modal or modal). Maximality should be understood along the lines of the maximality of sentences: a property P is maximal just in case for every property Q , Q or its negation is necessitated by P . That is, any things that instantiate P must also instantiate either Q or its negation.

This previews the response to the problem of indiscernibles. Consider the ‘Max Black sentence’ 2, which was: ‘Possibly, there exist two qualitatively indiscernible spheres.’ The truth conditions for this sentence at a world are that some ersatz pair of individuals Σ -entails the formula representing the 2-place property of being qualitatively indiscernible spheres (namely, ‘ $Sx \wedge Sy \wedge x \neq y$ ’). This represents the fact that there exists a maximal consistent property such that any things that instantiate it must also instantiate the property of being two indiscernible spheres. Likewise, consider the second ‘Max Black sentence’ (3), which was: ‘There is a thing and another thing such that possibly, each is one of two qualitatively indiscernible spheres.’ The truth conditions for this sentence at a world are that some ersatz pair of individuals, which are ersatz counterparts of some individuals in the evaluation world, Σ -entails the formula representing the 2-place property of being qualitatively indiscernible spheres (namely, ‘ $Sx \wedge Sy \wedge x \neq y$ ’). More details of the semantics are provided in the appendix.

This picture meshes well with the story that has been told so far. On ACT, what’s possible for an individual depends on (i) the large complex property it instantiates and (ii) the relation between this property and other large complex properties, as tracked by the ersatz counterpart relation between ersatz individuals. Σ -entailment aids in specifying truth conditions by (i) telling us when to move from a representation of one large property complex to another (its counterpart), and (ii) getting us from representations of large complex properties to the properties they necessitate. The resulting picture is that what’s possible and necessary depends ultimately on facts about properties and the relations between them.

V. The Humphrey Objection

⁴¹ McMichael himself proposes a non-standard semantics which is similarly properties-focused, but (i) he is not an ersatzer, and (ii) his semantics differs significantly from the semantics presented in the appendix. See footnote 46 of this paper.

I have now explained how ACT responds to the problem of indiscernibles by identifying the particularist fallacy and introducing a semantics better-suited to the actualist's explanation of modal truths. There is another advantage of ACT. ACT fares better than MRCT on the so-called 'Humphrey objection', inasmuch as it has any weight against counterpart theory. Consider the *de re* modal claim, 'Humphrey might have won the election.' On Lewis's view, this is true just in case Humphrey has a counterpart in some world who does win the election. Kripke⁴² objects, '...Humphrey could not care less whether someone *else*, no matter how much resembling him, would have been victorious in another possible world.' This is a charge of irrelevance: the wrong sort of thing figures in the explanation of why Humphrey could have won. Some other concrete individual, no matter how similar to Humphrey, cannot account for why Humphrey himself could have won.⁴³ There is an analogous objection to ACT: some maximal qualitative property cannot account for why Humphrey could have won.

Lewis's response to the original Humphrey objection applies here: the modal fact is about Humphrey himself. The appeal to a distinct individual does not discredit Humphrey's own involvement in the analysis—the distinct individual only matters insofar as he is similar to the man himself. Likewise, the actualist's reply is that the maximal qualitative property only matters insofar as it stands in the right second-order relation to the maximal qualitative property that Humphrey himself instantiates. Nonetheless, for one who is still tempted by the Humphrey objection, the defender of ACT has the intuitive advantage over Lewis. The actualist need not ever appeal to a distinct individual but only a property that Humphrey himself could have instantiated. This is certainly relevant to Humphrey himself.⁴⁴

Christopher Menzel⁴⁵ advances a more sophisticated version of the Humphrey objection that appears to be a special problem for ACT. Against McMichael's view (which is similar to ACT in the relevant respects), Menzel writes: 'McMichael suggests that we alter our understanding of what it is to say that an individual might have had a certain property. Thus, on his semantics, that Kripke might have been a carpenter is not ultimately a fact about *that* guy, *Kripke*, at least not directly. Rather it is a fact about the "maximal" purely qualitative property, or *role* that Kripke alone in fact exemplifies, viz., that some role "accessible" to Kripke's role includes the property of being a carpenter. This move abandons strong intuitions about *de re* modality and the semantics of names, and so, for my tastes anyways, is also unpalatable.'⁴⁶

⁴² p.45, note 13 of *Naming and Necessity* (Cambridge: Harvard, 1980).

⁴³ For a discussion of objections of irrelevance against Lewisian counterpart theory, see chapter 8, section 1 of *Divers*.

⁴⁴ Trenton Merricks also advances a line of Humphrey objections to actualist versions of counterpart theory in "The End of Counterpart Theory," this JOURNAL, C, 10 (October 2003): 521–549.. However, his objections only target counterpart-theoretic reductions of all of modality, and I have not claimed reduction as a goal. The motivation was the apparent usefulness of the Leibnizian biconditionals and the resulting need for an actualist theory of worlds. A worlds-based theory of modality may be useful, even if non-reductive; see Louis deRosset, "Possible Worlds for Modal Primitivists," *Journal of Philosophical Logic*, XLI, 1 (2014): 109–131.

⁴⁵ "Actualism, Ontological Commitment, and Possible Worlds," *Synthese*, LXXXV, 3 (December 1990): 355–389.

⁴⁶ pp.367–8 of Menzel. In "A New Actualist Modal Semantics," McMichael offers a nonstandard semantics for actualism which makes critical use of *roles*, which are the large complex properties I have been informally discussing. I am very much in sympathy with his metaphysical views. However, his semantic theory differs slightly from the one presented here. First, McMichael's account comes bundled with a theory of properties and relations and the property-entailment relations in which they stand. In contrast, I take for granted the notion of sentential consistency in order to remain neutral on *de dicto* modality. Second, although I stipulated for philosophical reasons that actual individuals are to be represented by ersatz individuals, my theory has the flexibility to easily allow actual individuals to represent themselves; McMichael's does not.

The response here is that ACT is only concerned with truth conditions for modal claims such as ‘Possibly, Humphrey wins the election’ and not with truth conditions for non-modal claims. It presupposes the truth conditions for non-modal claims. When we fix an ersatz individual as the semantic value of ‘Humphrey’, we’ve moved to the task of evaluating Humphrey’s modal features by comparing the maximal qualitative property he instantiates with appropriately similar maximal qualitative properties. In fact, the move to property talk nicely reinforces the point made in the last section that there is no ‘particularity’ of non-actual individuals. There is only the general fact that an individual with such-and-such properties exists—but fortunately, only these properties are relevant to the modal properties of any particular individual that might instantiate them. The supposed ‘particularity’ of a non-actual individual does not contribute to the modal facts, but neither does the actual ‘particularity’ of Humphrey.

ACT provides a framework for representing and systematizing the modal facts, given the plausible assumption that possibilities for individuals are determined by the properties they instantiate. Karen does not as a matter of brute possibility bear the property of possibly having a brother. She has that property because of certain other properties that she instantiates, and because of facts about those properties. Presumably, the relevant properties and facts fit this story: (i) Karen is a philosopher and political researcher who collects watches and musical instruments, etc., and was born to Audrey and Ken in such-and-such conditions, etc., and Audrey and Ken had another daughter but not a son, etc.; (ii) many of the properties involved are consistent with other properties that yield that Karen has a brother; and (iii) enough properties concerning the identity of Karen, Audrey, and Ken are preserved in the story.

This is not a trivial result. Consider for comparison Plantinga’s theory, discussed above, which appeals to haecceities of alien individuals. Plantinga is not in the business of reducing modality. However, his framework tells us something about possibilities for individuals. On Plantinga’s semantics, for some predicate Π and some name α , $\Diamond \Pi \alpha$ is true just in case the property expressed by Π and the haecceity denoted by α are possibly co-instantiated. Thus, possibilities for individuals are determined in part by the co-instantiability of haecceities and qualitative properties. Likewise, ACT tells us that what the possibilities for individuals are is determined by the consistency of qualitative properties, and by the relations between properties that are relevant for similarity. Assuming that the actualist does not want to be committed to haecceities of non-actual individuals, ACT should be very attractive. Given similar metaphysical scruples, she should also prefer this view to those views on which every individual that exists necessarily exists.⁴⁷

Appendix: System Σ

In what follows, I will give a more detailed presentation of the semantics. I consider the presented view to be an instance of a more general framework, since there are various semantic choice points that the framework is neutral on. These choice points also arise in standard counterpart semantics: what formal constraints, if any, should we impose on the ersatz counterpart relation? Should ‘ \Diamond ’ be given the *serious actualist* interpretation or not? (That is,

⁴⁷ These are advocated by Bernard Linsky and Ed Zalta, “In Defense of the Simplest Quantified Modal Logic,” *Philosophical Perspectives: Logic and Language*, VIII (1994): 431–458; and Timothy Williamson, “Necessary Existents,” in Anthony O’Hear, ed., *Logic, Thought and Language* (Cambridge: Cambridge, 2002), pp. 233–251.

can individuals have properties in worlds in which they don't exist?) For exposition, I will make various choices, but keep in mind that modifications are available.⁴⁸

Languages. As specified in section I, the worldmaking language is \mathbf{L} and the evaluation language is $\mathbf{L}\diamond$.

Definition of worlds and individuals. Ersatz worlds are maximal and consistent sentences of \mathbf{L} in canonical form. Since there are many logically equivalent maximal and consistent sentences, one sentence from each equivalence class is arbitrarily privileged; it alone counts as a *world* for the purposes of our semantics. This adds the complication of committing to the axiom of choice but simplifies the formalism. (It is possible to reformulate the semantics below so that worlds are equivalence classes of such sentences rather than arbitrary privileged sentences among such classes. Anyone who rejects choice should think of the formalism below as a presentational simplification.) Privileged ersatz worlds yield privileged ersatz individuals. Let an *individual* be any ersatz individual associated with a world. We may now introduce notation for worlds and individuals. If w is a world, then $w(\alpha)$ designates an individual associated with w for every variable α that appears in w . For example, $w(\alpha)$ is the sentence just like w minus the quantifier $\exists\alpha$. Similarly, $w(\beta)$ is the formula just like w minus the quantifier $\exists\beta$. This notation may be extended to cover the removal of multiple quantifiers at once: $w(\alpha, \beta)$. These are *pairs of individuals*, *triples of individuals*, and so on. Note: the removal of quantifiers is not ordered. Finally, let ' $w(\dots)$ ' abbreviate any formula of the form ' w ' or ' $w(\alpha_1, \alpha_2, \dots)$ ' for any number of variables in the parentheses.

Definition of CPT. Let there be a relation CPT that holds between individuals $w(\alpha)$ and $v(\beta)$ just in case $v(\beta)$ is an ersatz counterpart of $w(\alpha)$. We may add syntactic constraints if desired, such as that each individual must have a counterpart in every world or that it must have at most one counterpart in every world.

Definition of R. Let there be a binary 'accessibility' relation R that holds between worlds.

Definition of a variable function. Let V be the set of variables. A function p is a variable function iff p maps V to V. Let's also say that a variable function q is an $\alpha_1 \dots \alpha_n$ -variant of variable function p just in case it maps the same variables to each variable as p except possibly in what it assigns to $\alpha_1 \dots \alpha_n$. Variable functions are needed because of the fact that worlds are arbitrarily privileged world sentences among equivalence classes of world sentences. A world of the form ' $\dots \exists\alpha \dots (\dots \wedge \dots \wedge F\alpha \wedge \dots)$ ' should Σ -entail the sentence ' $\exists\beta F\beta$ ', even if ' $F\beta$ ' never appears among the conjuncts. Variable functions 'align' the variables in question so that we get the right results.

⁴⁸ Since we are assimilating the representation of actual individuals to the representation of merely possible individuals, the worldmaking language lacks names. However, we may evaluate names in our target modal language by associating each name with an ersatz individual in the designated actual world. Here we face a choice point: do we allow names to refer to ersatz individuals in other worlds as well? On one strategy, each of these counterparts is associated with the name in different worlds (though it is not automatically the case that counterparts of counterparts are associated with the name). On another, the name is not associated with the counterparts; rather, the job of evaluating names when they occur within the scope of a modal operator is done by the modal operator itself. For discussion of the various difficulties associated with names on counterpart semantics, see Russell.

Definition of truth at a world. Σ -entailment is symbolized as ‘ \Vdash ’. For all formulas ϕ , all worlds w , ϕ is true at w iff for all variable functions p , $w \Vdash_p \phi$. Truth at world is truth at a world relative to all variable functions for the same reason that on standard Kripke semantics, truth at a world is truth at a world relative to all variable assignments. Because of the way the clauses for non-atomic formulas are set up, the particular variable assignment appealed to when evaluating a sentence won’t matter in the end.

Definition of Σ -entailment \Vdash_p . In what follows, ‘ \vDash ’ should be interpreted as model-theoretic entailment in ordinary first-order predicate logic with identity, with some qualifications to be specified shortly. First, for the case of atomic formulas of the form ‘ $\Pi\alpha_1\dots\alpha_n$ ’ and ‘ $\alpha_i=\alpha_j$ ’,

- (V1) $w(\dots)\Vdash_p \Pi\alpha_1\dots\alpha_n$ iff $w(\dots)\vDash \Pi p\alpha_1\dots p\alpha_n$
(V2) $w(\dots)\Vdash_p \alpha_1=\alpha_2$ iff $p\alpha_1$ and $p\alpha_2$ are the same variable

As advertised, V1 and V2 capture the idea that in some sense, truth at a world is just entailment by the world. There is one hitch; it is odd to talk about entailment between atomic formulas (or any open formulas for that matter) rather than between sentences. Thus, interpret ‘ $w(\dots)\vDash \phi$ ’ in this way: In all models of first-order logic with identity (**FOL=**), for all variable assignments g , if $w(\dots)$ is true relative to g then ϕ is true relative to g .⁴⁹ For example, $\exists x(\sim Fx \wedge Fy \wedge x \neq y)\Vdash Fy$ iff for all FOL= models m and all g , $\exists x(\sim Fx \wedge Fy \wedge x \neq y)\vDash_{m,g} Fy$. V3 and V4 are familiar:

- (V3) $w(\dots)\Vdash_p \sim\phi$ iff not $w(\dots)\Vdash_p \phi$
(V4) $w(\dots)\Vdash_p \phi \wedge \psi$ iff $w(\dots)\Vdash_p \phi$ and $w(\dots)\Vdash_p \psi$ ⁵⁰

Next:

- (V5) $w(p\beta_1, \dots, p\beta_n)\Vdash_p \exists\alpha\phi$ iff for some α -variant q of p , $w(q\beta_1, \dots, q\beta_n, q\alpha)\Vdash_q \phi$ ⁵¹

To illustrate, consider the formula $\exists z\exists t(Fz \wedge \sim Ft)$. This is true at a world w iff for all variable functions p , $w \Vdash_p \exists z\exists t(Fz \wedge \sim Ft)$. By two applications of V5, this holds iff for some z -and- t -variant q of p , $w(qz, qt)\Vdash_q Fz \wedge \sim Ft$. By V4, V3, and V1, this holds iff $w(qz, qt)\vDash Fqz$ but not $w(qz, qt)\vDash Fqt$. Note that the variables ‘ z ’ and ‘ t ’ need not ever appear in w for this to hold; it suffices that appropriate variables that do appear in w can be picked out by a variable function. Finally, where the α_i are the free variables in ϕ ,

- (V6) $w(p\alpha_1\dots p\alpha_n, \dots)\Vdash_p \Diamond\phi[\alpha_1\dots\alpha_n]$ iff for some v such that R_wv , some $\alpha_1\dots\alpha_n$ -variant q of p such that $\text{CPT}w(p\alpha_i)v(q\alpha_i)$ (for all $i \in [1, n]$), $v(q\alpha_1\dots q\alpha_n, \dots)\Vdash_q \phi[\alpha_1\dots\alpha_n]$ ⁵²

⁴⁹ I should add, ‘when any term $q\alpha$ in $w(\dots)$ or ϕ is replaced by the variable that is the value of $q\alpha$ ’.

⁵⁰ The other Boolean connectives can be defined in terms of these.

⁵¹ As usual, \forall is the dual of \exists .

⁵² As usual, \Box is the dual of \Diamond . As mentioned, there is a choice of whether to interpret \Diamond in the serious actualist way or not. Serious actualism is the thesis that objects only have properties in worlds in which they exist. The following clause takes this into account:

To illustrate, consider the formula $\exists y \diamond Fy$. This is true at a world w iff for all variable functions p , $w \Vdash_p \exists y \diamond Fy$. By V5, this holds iff for some y -variant q of p , $w(qy) \Vdash_q \diamond Fy$. By V6, this holds iff for some world v such that R_{wv} , some y -variant r of q such that $\text{CPT}_{w(qy)v}(ry)$, $v(ry) \Vdash_r Fy$. By V1, this holds iff $v(qy) \Vdash_r Fy$. Intuitively, this means that something y in w is possibly F just in case some maximal consistent property appropriately similar to the maximal consistent property instantiated by y contains the property of being F .

The Max Black Sentences. Let's return to our original problem case, the sentence 2 ($\diamond \exists x \exists y (Sx \wedge Sy \wedge x \neq y)$). Its truth conditions are unpacked in this manner:

$\diamond \exists x \exists y (Sx \wedge Sy \wedge x \neq y)$ is true at w iff for all variable functions p ,	
$w \Vdash_p \diamond \exists x \exists y (Sx \wedge Sy \wedge x \neq y)$,	def
iff for some v such that R_{wv} , $v \Vdash_p \exists x \exists y (Sx \wedge Sy \wedge x \neq y)$,	V6
iff for some v such that R_{wv} , some x -variant q of p ,	
$v(qx) \Vdash_q \exists y (Sx \wedge Sy \wedge x \neq y)$,	V5
iff for some v such that R_{wv} , some y -variant r of q ,	
$v(rx, ry) \Vdash_r Sx \wedge Sy \wedge x \neq y$,	V5
iff for some v such that R_{wv} , some x -and- y -variant r of p ,	
$v(rx, ry) \Vdash_r Sx$ and $v(rx, ry) \Vdash_r Sy$ and not $v(rx, ry) \Vdash_r x=y$,	V4, V3
iff for some v such that R_{wv} , some x -and- y -variant r of p ,	
$v(rx, ry) \Vdash_r Srx$ and $v(rx, ry) \Vdash_r Sry$ and it's not the case that rx and ry are the same variable.	V1, V2

This semantics also generates the right results for sentences like 3 involving quantifying in:

$\exists x \exists y \diamond (Sx \wedge Sy \wedge x \neq y)$ is true at w iff for all variable functions p ,	
$w \Vdash_p \exists x \exists y \diamond (Sx \wedge Sy \wedge x \neq y)$,	def
iff for some x -variant q of p , $w(qx) \Vdash_q \exists y \diamond (Sx \wedge Sy \wedge x \neq y)$	V5
iff for some y -variant r of q , $w(rx, ry) \Vdash_r \diamond (Sx \wedge Sy \wedge x \neq y)$,	V5
iff for some v such that R_{wv} and some x -and- y -variant n of r such that	
$\text{CPT}_{w(rx)v}(nx)$ and $\text{CPT}_{w(ry)v}(ny)$, $v(nx, ny) \Vdash_n Sx \wedge Sy \wedge x \neq y$,	V6
iff for some v such that R_{wv} and some x -and- y -variant n of r such that	
$\text{CPT}_{w(rx)v}(nx)$ and $\text{CPT}_{w(ry)v}(ny)$, $v(nx, ny) \Vdash_n Sx$ and	
$v(nx, ny) \Vdash_n Sy$ and not $v(nx, ny) \Vdash_n x=y$,	V4, V3
iff for some v such that R_{wv} and some x -and- y -variant n of r such that	
$\text{CPT}_{w(rx)v}(nx)$ and $\text{CPT}_{w(ry)v}(ny)$, $v(nx, ny) \Vdash_n Snx$ and	
$v(nx, ny) \Vdash_n Sny$ and it's not the case that nx and ny are the same variable.	V1, V2

It should be intuitively true that a simple model theory for Σ can offer the same validities as a model theory for standard counterpart semantics, given that both can accommodate different

(V6*) $w(\alpha_1 \dots \alpha_n, \dots) \Vdash \diamond \phi[\alpha_1 \dots \alpha_n]$ iff for some v , if there exist $v(\alpha_1), \dots, v(\alpha_n)$ such that $\text{CPT}_{w(\alpha_i)v}(\alpha_i)$ (for all $i \in [1, n]$), then $v(\alpha_1 \dots \alpha_n, \dots) \Vdash \phi[\alpha_1 \dots \alpha_n]$

choices of constraints on the counterpart relation and different truth conditions for \diamond . Any potential logical issues with the logic of Σ may be assimilated to discussion of the logic of Lewisian counterpart semantics.