Harriet E. Baber*

Grounding Personal Persistence

Abstract: Modal counterpart theory identifies a thing's *possibly being F* with its having a counterpart that is *F* at another possible world; temporal counterpart theory identifies a thing's *having been F* or *going to be F*, with its having a counterpart that is *F* at another time. Benovsky, J. 2015. "Alethic Modalities, Temporal Modalities, and Representation." *Kriterion: Journal of Philosophy* 29: 18–34 in this journal endorses modal counterpart theory but holds that temporal counterpart theory is untenable because it does not license the ascription of the intuitively correct temporal properties to ordinary objects, and hence that we should understand ordinary objects, including persons, as transtemporal 'worms'. I argue that the worm theory is problematic when it comes to accounting for what matters in survival and that temporal counterpart theory provides a plausible account of personal persistence.

Keywords: personal identity, counterpart theory, Humphrey objection, exdurantism, perdurantism, grounding

Modal counterpart theory identifies a thing's *possibly being F* with its having a counterpart that is *F* at another possible world; temporal counterpart theory identifies a thing's *having been F* or *going to be F*, with its having a counterpart at another time that is *F*.

Benovsky (2015) in this journal endorses modal counterpart theory but holds that temporal counterpart theory is untenable because it does not license the ascription of the intuitively correct temporal properties to ordinary objects, and hence that we should understand ordinary objects, including persons, as transtemporal 'worms'. He argues that while counterparts at other worlds may represent objects' modal properties, counterparts at other times cannot represent the intuitively correct temporal properties of objects, hence that modal counterpart theories are plausible but temporal counterpart theories are not.

I argue that, given Benovsky's understanding of *representing* as an epistemic notion, the considerations he cites in support of modal counterpart theory do not support either modal or temporal counterpart theory. I suggest that representing is best understood as a *grounding* relation which provides a metaphysical

*Corresponding author: Harriet E. Baber**, Philosophy, University of San Diego, San Diego, USA,
E-mail: baber@sandiego.edu

explanation for non-fundamental modal and temporal facts in terms of more fundamental facts about objects' counterparts. And I argue that understood in this way modal counterparts represent objects' modal properties and temporal counterparts represent the intuitively correct temporal properties of objects, as required by modal and temporal counterpart theories respectively. Finally, I note that if, as I have argued, temporal counterpart theory, resists arguments like Benovsky's and is a tenable account of how things persist, then there are compelling reasons to favor it over the worm theory as an account of personal persistence.

In Section 1, I review the claims of modal and temporal counterpart theories, and the rationale for holding that, while modal counterpart theory is plausible, temporal counterpart theory is not.[1] In Section 2, I consider the Argument from Concern directed against modal and temporal counterpart theories and respond to Benovsky's contention that while modal counterparts may 'represent' what is possible for us, and so elicit our concern, temporal counterparts do not and so cannot represent the way things were or will be for us. In Section 3, I develop an account of counterparthood as a grounding relation and in Section 4 argue that the temporal facts about an object at a time are grounded in facts about its temporal counterparts. I conclude, in Section 5, with a discussion of personal persistence, arguing that if the temporal counterpart relation for *person* matters in survival then identity does not and, hence, that persons should be understood to be stages rather than transtemporal counterpart-interrelated aggregates of stages.

1 Counterpart Theories

1.1 Worm Theories and Stage Theories

According to modal counterpart theory, developed by David Lewis as an alternative to Kripkean possible worlds semantics for quantified modal logic, the way

---

1 I argue that considerations which support a modal counterpart theory likewise support a comparable temporal counterpart theory. So, I consider generic temporal counterpart theory vis-à-vis the analogous modal realist version of modal counterpart theory, introduced by David Lewis. I cite Ted Sider who, along with Katherine Hawley, popularized temporal counterpart theory, a.k.a. the 'stage theory', as a representative stage theorist, but nothing in my discussion appeals to special features of Sider's account. I cite David Lewis's worm-theoretical account of persistence as a representative worm theory. I *am* assuming a special feature of Lewis's modal counterpart theory, viz. his modal realism, in order to compare generic temporal counterpart theory, which is realist as regards counterparts at other times, with a version of modal counterpart theory that is realist with respect to counterparts at other worlds. It would go beyond the scope of this paper to consider a variety of different modal or temporal counterpart theories.

things are not but *can* be for an object is the way things are for some counterpart of it at another possible world: an object is possibly F in virtue of a distinct other-worldly counterpart's being F. According to temporal counterpart theory, 'the stage view', ordinary objects are instantaneous stages and persist in virtue of having counterparts at other times. A person or other ordinary object 'will be F iff it has a future temporal counterpart that is (tenselessly) F, and … was F iff it has a past temporal counterpart that is (tenselessly) F' (Sider 2006, p. 14).

Modal counterpart theory thus assigns modal properties to world-bound individuals in virtue of the way things are for their counterparts at other possible worlds; and temporal counterpart theory assigns historical, prospective, and 'lingering' properties to time-bound individuals in virtue of the way things are for their counterparts at other times.[2] Lewis, however, while holding that ordinary objects are world-bound and have modal properties in virtue of the way things are for their counterparts at other possible worlds, rejects the temporal counterpart theorist's claim that ordinary objects are instantaneous time-bound stages, which have temporal properties in virtue of the way things are for their counterparts at other times. Persons and other ordinary objects, Lewis holds, should be understood as transtemporal 'worms'—maximal counterpart-interrelated aggregates of stages that exist at different times. Lewis however rejects the suggestion that ordinary objects thus understood may be transworld as well, that is, that they may include stages at different worlds amongst their temporal parts, because this view yields highly counterintuitive results.[3]

To see this, suppose persons and other ordinary objects[4] are, as Lewis claims, transtemporal worms, but that some such worms have, amongst their temporal parts, stages at different possible worlds. I am a transtemporal worm consisting entirely of stages at the actual world. The life I actually live is the way things go for those actual world stages which, according to the worm theory, constitute me. But things could have gone differently for me in the past and can go in different ways in the future. I *could* have lived any of a number of different lives—the lives lived by transworld possible persons who share actual world stages with me. Amongst these there is a possible person consisting of my current and past stages at the

---

2 Vide (Hawley, 2001) for an extensive, plausible account of how stage theory handles the assignment of historical, prospective, and—adopting her useful terminology—'lingering' predicates.

3 See, e.g., Lewis, David. 1986. *On the Plurality of Worlds*. Basil Blackwell Ltd. Pp. 218–219.

4 'Ordinary object' as it currently figures in the literature is a term of art designating what used to be called 'middle-sized dry goods', the spatio-temporal objects with which we ordinarily do business, including persons—individuals that are 'things' or 'continuants' rather than events or processes, heaps or gerrymandered mereological sums. See, e.g., 'Ordinary Objects' in the *Stanford Encyclopedia of Philosophy*: https://plato.stanford.edu/entries/ordinary-objects/.

actual world but later stages at another possible world, w_1. I *could* have lived that person's life, or the life of a person consisting of my current and future stages at the actual world but past stages at w_2, or the life of a person consisting of past stages at w_3, my current stage at the actual world, stages tomorrow at w_4 and after that stages at w_5 … The possibilities are endless and the transworld persons living the lives I could have lived, who include my current stage amongst their temporal parts, are innumerable.

At any time, an ordinary object is wherever its stage at that time is. I am now where my current stage is, even though I have stages at other places, and so are all those innumerable possible persons who include my current stage amongst their temporal parts as well as other-worldly stages at other times. Those transworld persons are here now at the actual world in virtue of including my current stage. They occupy the same region I now occupy—the spatial region occupied by my current stage—and are indistinguishable from me. If those transworld worms are persons then, at any time and place in the actual world where I am, persons are legion. And the occupants of any region which we should ordinarily assume housed just one ordinary object of any kind at any given time are legion since, at any place, innumerable transworld worms overlap. The supposition that ordinary objects may be transworld individuals, therefore, results in massive over-population. And that is reason to reject the suggestion that persons and other ordinary objects may be transworld individuals.

The assumption that ordinary objects are transtemporal individuals does not by itself result in overpopulation because temporal counterpart relations are constrained in ways that modal counterpart relations are not. Times are ordered by the earlier-than relation, which in turn orders stages. Moreover, stages of ordinary objects are ordinarily understood to be bound together by causal relations—which is by itself another reason to reject the suggestion that ordinary objects may be gerrymandered transworld worms consisting of stages at different causally isolated worlds. Given these constraints on temporal counterpart relations for persons and other ordinary objects, barring science-fictional cases of fission and fusion, ordinary objects do not overlap: every stage belongs to just one maximal counterpart-interrelated aggregate of stages of a given kind so that there is no more than one object of that kind occupying a place at any time—as we commonsensically assume.

Lewis therefore rejects the doctrine that ordinary objects may be transworld individuals because it causes trouble, and endorses modal counterpart theory, according to which ordinary objects are world-bound individuals that have counterparts at other worlds. He however endorses the doctrine that ordinary

objects are transtemporal individuals, which does not cause trouble, and rejects temporal counterpart theory, according to which they are instantaneous, time-bound stages. This nevertheless poses the question of why, given that he endorses counterpart theory as an account of modality he should reject temporal counterpart theory as an account of persistence.[5] An account of modality according to which ordinary objects are transworld individuals causes trouble and that is reason to reject it; an account of persistence according to which ordinary objects are transtemporal individuals does not cause trouble, but that by itself is no compelling reason to accept it. Benovsky, however, offers a friendly amendment to Lewis's account: there is, he argues, independent reason to reject temporal counterpart theory.

2 Counterparthood and Concern

Both modal counterpart theory and temporal counterpart theory elicit what has been called 'the argument from concern' (Rosen 2010, p. 239). Directed against modal and temporal counterpart theories, arguments from concern aim to establish that the way things will be, were, or can be for a person is not the way they are for counterparts at other possible worlds or times because, while persons care about how things will be, were, and can be for they themselves, they do not care in the requisite sense about how things are for others, including any counterparts they might have at other times or at other worlds.

In support of Lewis's contention that ordinary objects are world-bound but not time-bound, Jiri Benovsky argues that while modal counterpart theory resists arguments from concern, temporal counterpart theory does not.

2.1 The Humphrey Objection

Kripke's Humphrey Objection to Lewis's modal counterpart theory is the *locus classicus* for the argument from concern directed against modal counterpart theory:

---

5 Lewis does not make a case for adopting transtemporal worm theory in favor of temporal counterpart theory. Commentators suggest that Lewis assumes that the worm theory is (?) the default explanation for persistence and, absent any compelling reason to assume otherwise, no defense is required. See, e.g., Katherine Hawley, 'David Lewis on Persistence' 2015 in Barry Loewer and Jonathan Schaffer (eds.), *A Companion to David Lewis*. Wiley-Blackwell, pp. 237–49.

> The counterpart of something in another possible world is never identical with the thing itself. Thus if we say 'Humphrey might have won the election …' we are not talking about something that might have happened to Humphrey but to someone else, a 'counterpart'. Probably, however, Humphrey could not care less whether someone else, no matter how much resembling him, would have been victorious in another possible world. (Kripke 1980, p. 45)

Humphrey may care about his family and friends, and about how things go for other members of his party. He does not, however, care about how things go for them or, Kripke suggests, for any other-worldly counterparts he might have, in the peculiarly self-interested way that people typically care about how things go for themselves. We care in this sense about our possibilities, about how things *could* be for us, but not about how they are for our counterparts so our possibilities cannot be, as the modal counterpart theorist claims, our other-worldly counterparts' actualities.

Temporal counterpart theory is, likewise, vulnerable to Humphrey-style arguments from concern. I care in the requisite sense about how things will go for *me* —not the way they were or will be for others. I assume responsibility for *my* past actions—not the actions of others, including my earlier counterparts; I look forward to the way things will be for *me* in the future—not the way they are for others, including my later counterparts. So, the way things were and will be for me cannot be, as the temporal counterpart theorist claims, the way they are for any earlier and later temporal counterparts I may have.

Prima facie, arguments from concern are question-begging. If, as the modal counterpart theorist claims, Humphrey's possibly winning *is*[6] his counterpart's winning then, pace Kripke, what Humphrey cares about is precisely Counterpart-Humphrey's winning. Philosophically naïve Humphrey does not know that he has other-worldly counterparts so he does not care *that* Counterpart-Humphrey win. If, however, modal counterpart theory is correct then Humphrey cares *de re* of Counterpart-Humphrey that *he* win.

Humphrey-style objections, in addition, raise a more fundamental worry: assuming a Lewisian ontology of causally and spatio-temporally isolated possible worlds, what reason is there to believe that the way things are at those worlds has any bearing whatsoever on what is possible for individuals at our world? Suppose God arbitrarily, of his freedom, creates a plenum of worlds, some of which include my doppelgangers and near doppelgangers—my counterparts at their respective worlds. What do they have to do with me—in particular, with what is possible for me? Why should I care about them?

Arguably, caring is symptomatic of some further condition in virtue of which a state of affairs has import for us. And Benovsky suggests that condition is

---

6 We will leave the sense of 'is' open for now.

representing. We care about our counterparts insofar as the way things are for them 'represents' what is possible for us. He, therefore, challenges the modal argument from concern arguing that, whereas any temporal counterparts we might have cannot represent the way things were or will be for us, our modal counterparts, individuals who are at their respective worlds most similar to us, do represent what is possible for us. And so, he holds, the modal argument from concern, which purports to show that the way things are for our counterparts cannot represent the way things are for us fails.

2.2 Modal and Temporal Arguments from Concern

The modal argument from concern purports to show that while we care about what is possible for us but do not care in the requisite 'self-interested' sense about the way things go for others and so that the way things are for any counterparts we may have does not represent the way things could be for us, hence the Modal Argument from Concern:

(1) y's Φing represents x's possibly Φing only if x cares about y's Φing.
(2) x cares about y's Φing only if y = x.
(3) So, y's Φing represents x's possibly Φing only if y = x.
(4) But x's modal counterpart ≠ x
(5) So, x's modal counterpart's Φing does not represent x's possibly Φing

Benovsky challenges the argument with a thought-experiment describing a putative counterexample to (2).

– 'I have a doppelganger', he writes:

> His name is Jerry and not only is he very much like me, but he also likes doing the same things I do … Last week, Jerry did something I did not: he managed to climb up the Everest … I was really happy for him. But, after a few seconds of thought, I also started to feel happy for *me*, because if he managed to do it, that means that I could do it as well, given how similar we are … I myself – feel happy *for me*, because Jerry (not me) managed to climb up the Everest. Why? Because given how similar we are, the fact that he did it means that I could. (Benovsky 2015, pp. 2, 5)

Jerry's achievement, Benovsky suggests, 'represents' the possibility that Jiri himself climb Everest because Jerry is very much like him with respect to those characteristics that matter for mountain-climbing—lung capacity, general athleticism, and the like. Jerry's achievement makes Jiri happy 'for himself' because it shows what he, Jiri, *could* do. We care in a self-interested way about the achievements of world-mate counterparts who are similar to us because they show what it possible

for us so, likewise, we may care about how things are for our other-worldly counterparts—the individuals most similar to us at their respective worlds. Thus, Benovsky concludes, modal counterpart theory resists the argument from concern.

He argues, however, that even if the way things go for any temporal counterparts we might have represents how things went or will go for us, 'representing' is not good enough in the temporal case:

> I can boast that I *can* climb up the Everest even if I did not … somebody else's achievement represents the possibility of me being able to do it … Representation is fine and enough when it comes to alethic modalities … In the temporal case, I want to say that *I did it*, and not that although I didn't do it something represents me as having done it. If I didn't do it, then I didn't do it, and no representation can be of any help. (Benovsky 2015, p. 14)

If representation is understood as similarity then the modal counterpart theorist's claim that x possibly Φs if some other-worldly counterpart represents the possibility that x Φ is plausible. It is not however plausible that x did or will Φ just in case another object at some earlier or later time Φs so, in the temporal case no representation can help. Similarity shows what is possible—not what was or will actually be. So the argument goes.

2.3 Representation and Similarity

Without a fuller account of counterparthood and representation, however, this objection to temporal counterpart theory misses the mark. Jerry's climb 'represents' what is possible for Jiri because Jiri and Jerry are similar with respect to properties that facilitate mountain-climbing. If counterparthood is understood as similarity then, certainly, whereas the doings of our counterparts may show what is possible for us they do not show how things were or will be for us. According to temporal counterpart theory, however, the temporal counterpart relation amongst stages is not similarity: objects, on this account, persist (or, if you must, 'persist') by being causally related in a way specific to their kind, to objects that exist at other times.

More importantly, even in defense of modal counterpart theory, the Jiri-Jerry scenario is inconclusive. It shows that we care about the achievements of others insofar as it is *evidence* of what we ourselves could do—of what is possible for us. Modal counterpart theory, however, purports to provide a metaphysical explanation of modality. On this account, the way things are for our modal counterparts

does not merely *show* what is possible for us; it is, rather, what *makes* things possible for us and so licenses the ascription of modal properties.[7]

This poses the question of whether we can provide an account of representation and counterparthood that licenses the ascription of properties to an object *in virtue of* the way things are for its counterparts. In particular, it poses the question of whether the causal relation, which holds on temporal counterparts at different times, licenses the ascription of temporal properties or if, as Benovsky and other critics of temporal counterpart theory suggest, only identity will do in the temporal case—where for worm theorists the identity in question is the identity of persons understood as maximal aggregates of person-counterpart-related stages. A person, according to the worm theory, has a temporal property at a time if their stage at that time is I-related to a stage at another time that has a more fundamental property, where the I relation is induced on person-stages by the identity of persons of which those stages are parts.[8]

3 Representation as Grounding

Granting that we can and do care about the achievements of counterparts that *show* what is possible for us, it remains to be seen whether the achievements of our counterparts *explain* what it is for something to be possible for us as required by modal counterpart theory or, as required for temporal counterpart theory, whether the way things go for our temporal counterparts explains how things were and will be for us. 'Representing' understood as an epistemic notion, as it is in the Jiri-Jerry scenario, is of no help in support of modal counterpart theory or, as will be argued, temporal counterpart theory. Arguably, in defense of both modal and temporal counterpart theories, representation should be understood as a *grounding* relation.

3.1 Grounding

Jiri cares about the possibility that he climb Everest and is 'happy for himself' that Jerry has climbed Everest because what Jerry did *shows* what he himself *could* do.

---

7 Ryan Wasserman in (Wasserman 2016, p. 244) notes that we should distinguish the ontological claim of perdurantist and, it should be added, exdurantist accounts from the explanatory claim. 'to say that an object persists by having temporal parts is to say that facts about persistence are grounded in, or obtain in virtue of, facts about temporal parts. This conception of perdurantism goes beyond the ontological account since ontological claims are not, by themselves, explanatory.'
8 See p. 15 below for a definition of the I-relation.

But it is not Jerry's climb *per se* that Jiri cares about: he is not going to help finance Jerry's mountaineering projects. Jerry's climb 'represents' the possibility that Jiri climb Everest in that it provides evidence that Jiri is up to the job. Representing in this sense is an epistemic notion: Jerry's climb provides compelling evidence that Jiri could climb Everest—just as the results of a physical exam might provide evidence of his mountaineering capabilities and, likewise, make Jiri happy for himself.

According to modal counterpart theory however the way things are for an object's counterparts does not merely show what is possible for it. Rather, modal counterpart theory purports to provide a metaphysical explanation of what it is *in virtue of* which objects have modal properties. On this account it is possible that Jiri climb *because* he has a counterpart at some possible world who climbs: Jiri *can* climb *in virtue of* Counterpart-Jiri's climbing. Likewise, temporal counterpart theory purports to provide a metaphysical explanation of what it is *in virtue of* which objects have temporal properties. For the purposes of both modal and temporal counterpart theories therefore, arguably, we should understand representing as a *grounding* relation, where 'because' and 'in virtue of' are amongst the locutions that signal grounding.

Grounding is a species of asymmetrical ontological dependence between non-fundamental facts and more fundamental facts on which they depend.[9] So, to cite some of the less contentious examples, the existence of a set is grounded in the existence of its members and the truth of a sentence, proposition, belief, or other truth is grounded in its truth-maker. The existence of Socrates is more fundamental than the existence of {Socrates}: {Socrates} exists *because* Socrates does and not vice versa, which is to say, the existence of Socrates *grounds* the existence of {Socrates}. 'Snow is white' is true if and only if snow is white, but 'snow is white' is true *because* snow is white and not vice versa insofar as the fact that snow is white is more fundamental that the fact that the sentence is true.

Intuitively, modal and temporal properties are less fundamental than non-modal and present-tensed properties. And, arguably, the claim of counterpart theories is that modal or temporal facts about objects are grounded in more fundamental facts about their counterparts at other worlds or other times. Representation, on this account, is understood as a grounding relation. A counterpart of an object, *x*, *represents x*'s having a non-fundamental property, *F** in this sense just in case *x*'s counterpart's being *F grounds* x's being *F**, and so provides a

---

9 It is controversial whether the relata of grounding relations are facts or whether other sorts of items can ground and be grounded. That is left an open question for the purposes of this discussion and, for stylistic purposes I shall sometimes slip into talk about properties grounding properties—again, as a *façon de parler*, without assuming ontological commitment to properties.

metaphysical explanation, for x's being F^*. Understood in this way what the modal counterpart theorist holds is that the way things could be for an object is grounded in facts about its other-worldly modal counterparts and what the temporal counterpart theorists needs to show is that the way things were or will be for an object is grounded in facts about its temporal counterparts.

Grounding is explanatory but it is not a causal relation. It does not even require that facts about objects be grounded in more fundamental facts about things that are in spatio-temporal proximity. The fact that Socrates exists grounds the fact that {Socrates}, which is not spatio-temporal at all, exists. And according to modal counterpart theories of the robustly realistic variety, arguably, the fact that an object possibly Φs is grounded in the fact that a counterpart at some causally isolated possible world Φs.

Grounded facts are nothing 'over and above' their grounds but are not identical to their grounds. The existence of {Socrates} is nothing 'over and above' the existence of Socrates. And, according to modal counterpart theory, an object's possibly Φing, is nothing 'over and above' its modal counterpart's Φing. But grounding is not identity. Socrates $\neq$ {Socrates} and the fact that Socrates exists $\neq$ the fact that {Socrates} exists. And, according to modal counterpart theory, this-worldly objects are not identical to any other-worldly counterparts they may have, nor are modal facts about this-worldly objects identical to facts about counterparts in which they are, on the current account, grounded. Moreover grounding, unlike identity, is asymmetric: {Socrates} exists in virtue of Socrates existing but not vice versa and, once again, according to modal counterpart theory as understood here, an object's having the modal properties it has is grounded in more fundamental facts about its counterparts but not vice versa.

Finally, grounding relations, unlike entailment, are non-monotonic.[10] Entailment as understood in classical logic is monotonic: if $\Gamma \vDash \Phi$ then $\Gamma, \Psi \vDash \Phi$ for any arbitrarily chosen Ψ. Nothing added to a set of sentences, Γ, which entail Φ damages the entailment. Grounding however is an explanatory relation and explanation is selective because it purports to be illuminating. Since adding arbitrary conditions to the explanans does not further illumination but, indeed, obfuscates, doing so damages the explanation. Intuitively, if Φ, is *fully* grounded in Γ then every element of Γ plays some role in making it the case that Φ (Rosen 2010, p. 116). Adding additional conditions, therefore, can and does undermine grounding claims—in particular, it will be argued that since the counterpart relation on stages fully grounds the grounding of temporal properties the *counterpart-relatedness together with the character of aggregates of stages of which they are parts* does not.

---

10 This is controversial. See, e.g., (De Rizzo 2021).

3.2 Counterparthood and Representation: Grounding Grounding

Grounding may itself be grounded: not all grounding relations are fundamental. Where Φ grounds Ψ we may still want to know what *makes* Φ ground Ψ, that is, what grounds the fact that Φ grounds Ψ. Modal and temporal facts, we may hold, are grounded in more fundamental facts about objects at other worlds or other times. This however poses the question of what *makes* those more fundamental facts ground the modal and temporal facts that they do. And the claim by modal and temporal counterpart theories is that it is counterparthood that grounds the grounding of modal and temporal facts in more fundamental facts about objects that exist at other worlds and other times.

According to modal counterpart theory, it is possible that an object, *x,* be *F* if and only if *x* has a modal counterpart at some possible world that is *F*; that other-worldly object's being *F* grounds *x*'s possibly being *F* because it is *x*'s modal counterpart. According to temporal counterpart theory an object, *x*, was or will be *F* because *x* has a temporal counterpart at some earlier or later time that is *F*. In general, we may understand counterparthood in the generic sense as a family of relations that license the ascription of non-fundamental properties of a given category, C, to objects *in virtue of* their C-counterparts having more fundamental properties:

> **Counterparthood:** *y* is a C-counterpart of *x* if and only if *x* has C properties *in virtue of* *y*'s having more fundamental properties.

This is intended to be a perfectly general account of counterparthood—temporal, modal, or other. Rudolph Giuliani is Donald Trump's legal counterpart if and only if Trump does legal business *in virtue of* Giuliani's filing paperwork, pleading in court, and doing whatever it is that lawyers do in representing clients. On the current account, an individual, *y*, at some world is a modal counterpart of an object *x* if and only if *x* has modal properties *in virtue of* *y*'s having more fundamental properties. Likewise, a stage, *y*, is a temporal counterpart of a stage, *x*, if and only if *x* has temporal properties *in virtue of* *y*'s having more fundamental properties. And the temporal counterpart relation, which grounds the grounding of temporal properties, is what matters in survival.

In general, when an object, *x*, has a non-fundamental C-property, *F**, in virtue of its C-counterpart, *y*, being *F* we say that *y*'s being *F represents x*'s being *F** and so recognize *y* as *x*'s representative with respect to C-properties. Representing thus understood is not merely an exotic phenomenon that does service in meta-physical accounts of modality and persistence. It figures in a variety of ordinary

arrangements amongst world-mates. Lawyers, stockbrokers, and other surrogates act as our legal counterparts. We buy and sell stock, enter pleas in court, and do other business *in virtue of* our legal counterparts' actions on our behalf. Our engaging in these transactions is 'nothing over and above' what they do. And their activities represent our engaging in these transactions *because* they are our legal representatives. So, my legal surrogate's doing what she does grounds my transacting the business I do, and our legal counterpart relation grounds the grounding.

Likewise, we have modal and, arguably, temporal properties in virtue of the way things are for our modal and temporal counterparts. According to modal counterpart theory, as I suggest it should be understood, my possibly Φing is grounded in some other-worldly counterpart's Φing, and that grounding fact is itself grounded in the modal counterpart relation holding on me and my modal counterpart. My counterpart's Φing *represents* my possibly Φing in the requisite non-epistemic sense *because* we are modal counterparts—because the modal counterpart relation grounds the grounding of modal properties. According to temporal counterpart theory my having Φd or going to Φ is grounded in my temporal counterparts' Φing, and what grounds that grounding is the temporal counterpart relation for *person* which holds on person-stages that exist at different times. In general, counterpart relations ground grounding. Facts about my counterparts *represent*, in the requisite sense, the way things were, will be, or could be for me in virtue of our counterpart-relatedness.

Understood in this way, Benovsky's suggestion that representation is fine when it comes to alethic modalities but not in the temporal case should be understood as the claim that whereas a thing's having modal properties is grounded in its modal counterparts' having more fundamental properties, those facts about the temporal properties that we should ordinarily ascribe to an object are not grounded in more fundamental facts about any temporal counterparts it might have. And that will be disputed.

4 Temporal Facts

Benovsky grants that whereas facts about earlier and later stages might represent objects as having temporal properties, but suggests that the properties represented are 'not the ones we want' and hence that temporal counterpart theory does not provide a plausible account of persistence and change.

> To take Sider's example, if we say 'Ted was once a boy', we are ascribing a certain temporal property to Ted (who exists now). But if we endorse temporal counterpart theory, it is not the property of 'once being a boy', but rather, the property of 'once there being a counterpart of

> Ted that is a boy' … Sider's response can only appear to be satisfactory if one takes the expression 'once being a boy' to be a suitable paraphrase of the expression 'once there being a counterpart of x that is a boy'. (Benovsky 2015, p. 14)

This paraphrase, Benovsky suggests, 'strains the limits of credibility' (that is to say, induces the incredulous stare) so that while representation may account for what is possible for us, it does not account for the way things actually were or will be for us. Modal counterpart theory, therefore, is plausible but temporal counterpart theory is not.

It is not clear how seriously we should take the worry about the implausibility of admitting the temporal counterpart theorist's paraphrase of 'once being a boy' as being a 'suitable paraphrase' of 'once there being a counterpart of x that is a boy' as the temporal counterpart theorist claims. Metaphysics in the raw almost always evokes the incredulous stare and, as accounts of transtemporal persistence, both the worm theory and the stage view are, *prima facie*, repugnant to commonsense. According to temporal counterpart theory, the stage view, ordinary objects are instantaneous stages which do not, in the strict and philosophical sense, persist; according to the worm theory we, who experience the world from our temporally bound perspectives, are never aware of ordinary objects in their entirety. Both worm theorists and stage theorists however make compensatory semantic moves to square their accounts with ordinary talk about ordinary objects and how they persist. And, both the worm theory and the stage theory license commonsensical diachronic identity statements concerning ordinary objects. Moreover, according to both the worm theory and the stage theory an object's having a temporal property at any time is grounded in facts about earlier or later stages that are counterpart-related to its stage at that time and agree also that the counterpart relation grounds the grounding of temporal facts. They disagree however about how the persistence of ordinary objects is to be understood.

According to the worm theory, ordinary objects are maximal counterpart-interrelated aggregates of stages, and diachronic identity statements, in which ordinary objects of a kind K are identified by descriptions true of them at different times, are true when stages at different times that satisfy those descriptions are temporal parts of the same K object:

> **Worm-Theoretical Persistence:** An ordinary object of a kind, K, is a maximal K-counterpart-interrelated aggregate of stages. At any time, t, a K object was or will be F at t' because its stage at t is part of the *same K* as an earlier or later stage at t' that is F.

Ted was once a boy because Ted, a maximal person-counterpart-interrelated aggregate of stages, includes an earlier boy-stage amongst his temporal parts. Identity *matters* in the ascription of temporal properties in that it grounds the

grounding of temporal facts. Ted, identified as the author of *Four-Dimensionalism* in 2006 was once a boy because the *person*, i.e., the maximal R-interrelated aggregate of person-stages, of which his adult authorial stages are parts = the *person* of which earlier boy-stages are parts. And, at all times, 'Ted' names that transtemporal object.

The stage theory also provides an account of persistence and the assignment of temporal properties. Facts about earlier and later stages ground a *K*'s having been or going to be *F* at a time *because* the *K* at that time, a stage, is counterpart-related to an earlier or later stage that is *F*. According to the stage-theoretical account temporal properties are assigned according to the scheme that Benovsky finds objectionable so that 'once being a boy' … [is] a suitable paraphrase of the expression "once there being a counterpart of x that is a boy"' (Benovsky 2015, p. 14) 'Ted', according to stage-theoretical semantics I propose, is systematically ambiguous, naming boy-stages early on and, later, adult-stages. Ted was once a boy because the stage to which 'Ted' now refers is counterpart-related to an earlier boy-stage.[11]

> **Stage-Theoretical Persistence:** An ordinary object of a kind, *K*, is an instantaneous stage. At any time, *t*, a *K* object was or will be *F* at *t′* because it is *K*-counterpart-related to an earlier or later stage at *t′* that is *F*.

The disagreement between stage theorists and worm theorists is semantic rather than ontological.[12] It is an in-house disagreement amongst four-dimensionalists about what it is that expressions which purport to refer to ordinary objects pick out.

---

11 The choice between these accounts is in one respect comparable to the choice between Nominalist and Platonist accounts of how claims about objects being the 'same' color, shape, or kind should be understood. Platonists, as Quine puts it, 'hypostasize' universals. x and y are the *same shape* if and only if there exists a Shape of which x and y are instances. As Quine notes however, hypostasization is a move that we do not need to make (Perry 1972). Nominalists avoid hypostasizing shapes: x and y are of the 'same shape' if and only if x and y are similarly-shaped. Identity is paraphrased away and, the Nominalist suggest, we don't miss it since it's never done any real work in explaining how we classify objects. The temporal counterpart theorist, likewise, avoids 'hypostasizing' ordinary objects as temporally spread individuals of which stages are parts and paraphrases away identity which, it will be argued, is idle when it comes to accounting for the ascription of temporal properties and so explaining how things persist.

12 Ted Sider, a stage theorist notes in Sider 1996: "At one level, I accept the ontology of the worm view. I believe in spacetime worms, since I believe in temporal parts and aggregates of things I believe in. I simply don't think spacetime worms are what we typically call persons, name with proper names, quantify over, etc.? The metaphysical view shared by this 'stage view' and the worm view may be called 'four-dimensionalism', and may be stated roughly as the doctrine that temporally extended things divide into temporal parts." Stage theorists and worm theorists agree about ontology but disagree about semantics.

Stage theorists may agree with worm theorists that there are transtemporal aggregates of stages. They hold, however, that such transtemporal individuals are not 'ordinary objects'—that is to say, 'things' or 'continuants', rather than processes, sequences of events, or gerrymandered mereological sums. Objects of some kinds—baseball games, musical performances, and such—do seem best understood as transtemporal aggregates of stages. Speculatively, we understand objects of these kinds as transtemporal objects because they are essentially temporally structured whereas continuants are temporal heaps. There are scripts and scenarios for how a process has to go to count as musical performance or baseball game. We cannot at any instant determine whether something is a baseball game or musical performance and so are disinclined to regard such things as wholly present at any time. Continuants by contrast have no detailed histories characteristic of their kinds. At any time, what you see is what you get.

Speculation aside, there are, arguably, more compelling reasons to resist the worm-theoretical claim that ordinary objects, in particular persons, are transtemporal aggregates of stages. And there is a more compelling case to be made for temporal counterpart in light of the problem of personal persistence, question-beggingly styled 'the problem of personal identity'.

5 Personal Persistence

To avoid begging the question of how personal persistence is to be understood in favor of the worm theory we cannot understand survival as diachronic *identity* since, according to temporal counterpart theory, diachronic identity statements are to be paraphrased away in favor of claims about the counterpart relation for *person*, the R-relation, holding on stages. Both worm theorists and stage theorists, however, hold that temporal facts about objects at times are grounded in facts about stages that exist at other times. We can, therefore, understand personal persistence innocently, without favoring either the worm theory or the stage theory, as the possession of temporal properties at a time being grounded in facts about R-related stages at other times.

Worm theories and stage theories however disagree about 'what matters' in personal persistence and hence in the ascription of temporal properties where *what matters*, it will be argued, is the counterpart relation on stages that grounds the grounding of temporal properties. Stage theorists and worm theorists agree that what matters in the survival of persons is R-relatedness in that it is the temporal counterpart relation for *person* which grounds the grounding of temporal facts about persons. According to Lewis's rendition of the worm theory however identity, that is, the identity of a transtemporal object of which stages that exist at

different times are parts, is also 'what matters'. If, however, R-relatedness is what 'matters' in survival then, it will be argued, identity is not. Survival is fully grounded in R-relatedness. Identity is idle so personal persistence is not grounded in R-relatedness *and* identity. And so, pace Lewis, identity is not what matters in survival.

5.1 Mattering and Grounding

The way things were and will be for me elicits my self-interested concern. It *matters* to me whether I will, in the future, be married, tenured, or bald; it matters to me whether, in the past, I climbed Everest. And it matters to me and to the State whether, in the past, I cheated on my income tax return, stiffed contractors, or shot someone in broad daylight on Fifth Avenue, so that I am now liable for civil or criminal penalties: *person*, as Locke notes, is a 'forensic term'. Personal persistence consists in having such temporal properties. A relation on person-stages is *what matters in survival* if and only if it grounds the grounding of temporal facts about persons that matter in facts about earlier and later stages. And the R-relation, the personal counterpart relation on stages, matters in survival because it grounds the grounding of those temporal facts in facts about stages that exist at other times. A person at any time, *t*, was or will be *F* at *t′ in virtue of* an earlier or later stage-at-*t′* that is R-related to their stage-at-t being *F*.[13]

Temporal facts about persons are *fully* grounded in facts about earlier or later R-related stages. A person was or will be *F* if and only if some earlier or later stage that is R-related their current stage is *F*—and once it is established that some earlier or later stage of theirs is *F* there is nothing *more* that is relevant: their having been or going to the *F* is nothing over and above some stage that is R-related to their current stage being *F*. The R-relation is what matters in survival because it *fully* grounds the grounding of a person's temporal properties. If I now am R-related to a later stage then I will survive, regardless of whatever else happens, and if that later stage is *F* then I will be *F*, regardless of whatever else happens. R-relatedness is what matters to me, and all that matters to me, when I contemplate my prospects for survival.

---

13 Not all tensed or time-indexed predicates assign properties that are grounded in facts about earlier or later stages—or therefore guarantee survival. I may be famous in two years' time even if I do not live that long. Ordinary objects, including people, and events may be famous at times when they do not exist or occur: Cleopatra, the Library of Alexandria, and the Battle of Actium are famous *now*. So, in order to understand personal persistence as the possession of temporal properties we exclude temporal predicates like being famous that individuals may be true of things at times when they do not exist.

That is why the best candidate ('closest continuer') response to puzzle cases of personal fission is so intuitively unpalatable. I am about to undergo a brain-bisection and double brain-transplantation. If the best candidate theory is correct then I should hope that one, but only one, brain-hemisphere 'takes' because, on at least one popular rendition of this account, if *both* do then I will not survive. My pre-fission stages will be R-related to post-fission stages of each successor but, on this account R-relatedness is not sufficient: non-competition is necessary for survival. From my pre-fission perspective that seems crazy. If my left hemisphere takes so that my current stage is R-related to post-fission stages of Left Brain Fissee then it is irrelevant to me whether my current stage is R-related to some other concurrent post-fission stages as well. From my first-person pre-fission perspective, all that matters is R-relatedness. From my first-person perspective, R-relatedness is sufficient for survival.

Lewis, as a worm theorist, agrees that R-relatedness is what matters in survival. He holds however that identity is also what matters insofar as the I-relation, a relation induced on stages by the identity of a maximal R-interrelated aggregate of which they are parts, matters in survival because the I-relation tracks the R-relation, the temporal counterpart relation for person.

> **I-Relation:** A person-stage, *s,* is I-related to a person-stage, *s′,* if and only if there is a maximal R-interrelated aggregate of person-stages, *x,* of which *s* is a part and a maximal R-interrelated aggregate of person-stages, *y,* of which *s′* is a part, and *x = y*.[14]

According to the worm theory persons are maximal R-interrelated aggregates of stages so stages are I-related just in case they are temporal parts of the same person. Lewis concludes, therefore, that identity as well as R-relatedness is what matters in survival. This will be disputed. Granting that person-stages are I-related if and only if they are R-related, and that R-relatedness grounds the grounding of temporal facts, it does not follow that I-relatedness does. And, indeed, it will be argued that since R-relatedness *fully* grounds the grounding of temporal properties, I-relatedness does not.

5.2 Grounding the Grounding of Temporal Facts

Lewis holds that the I-relation *is* the R-relation (Lewis 1983, p. 60) insofar as person-stages are I-related if and only if they are R-related. However, given that R-relatedness grounds the grounding of temporal facts and granting that stages are

---

14 Note the indefinite article to accommodate puzzle cases of fission and fusion where there is not a *unique* person of which pre-fission or post-fusion stages are parts.

R-related if and only if they are I-related, it does not follow that I-relatedness grounds the grounding of temporal facts. Grounding is an explanatory notion. And even if a condition, *C*, explains a phenomenon, and condition C obtains if and only if condition *C′* does, it does not follow that *C′* explains that phenomenon. All and only creatures with hearts, Quine assures us, are creatures with kidneys. 'Creature with a heart' and 'creature with kidneys' are extensionally equivalent. But, whereas a creature's having a heart explains why its blood circulates, its having kidneys does not. Extensional equivalence isn't good enough for explanation or, therefore, for grounding.

The R-relation and the I-relation, of course, are not merely extensionally equivalent. They are necessarily equivalent: *necessarily* stages are R-related if and only if there is some maximal R-interrelated aggregate of stages of which they are parts, that is if and only if they are I-related. However, necessary equivalence is not good enough for explanatory purposes, or for grounding either. Necessarily, {Socrates} exists if and only if Socrates exists. But whereas the fact that Socrates exists explains, and grounds, the fact that {Socrates} exists, the fact that {Socrates} exists does not explain or ground the fact that Socrates does. Explanation and grounding are *hyperintensional*, where a position in a sentence is hyperintensional if even the substitution of necessary equivalents is not guaranteed to preserve truth value. '{Socrates} exists because Socrates exists' is true, but swapping 'Socrates' and '{Socrates}' does not preserve truth value. Hyperintensionality cuts more finely than necessity. And it cuts, in particular, between R-relatedness and I-relatedness.

Stages are I-related *because* they are R-related; they are not R-related *because* they are I-related. Stages are I-related just in case there is a maximal R-interrelated aggregate of stages of which they are parts. Stages are parts of a maximal R-interrelated aggregate of stages *in virtue of being* R-related; they are not R-related *in virtue of* being parts of a maximal R-interrelated aggregate of stages. The R-relation grounds the I-relation—not vice versa.

Since R-relatedness fully grounds the grounding of temporal properties I-relatedness does not *fully* ground the grounding of temporal properties. The I-relation partially grounds the grounding of temporal facts *because* it tracks the R-relation. An object's having a temporal property in virtue of some earlier or later stage's having a more fundamental property is grounded in the fact that they are I-related *and the fact that I-relatedness is grounded in R-relatedness*. It is the R-relation that does the fundamental explanatory work; the I-relation explains the grounding of temporal facts *because* it tracks the R-relation.

I-relatedness *per se* is therefore extraneous for explanatory purposes. If a person's stage-at-t is R-related to an earlier stage that is *F* then, at *t*, that person *was F*. We are not going to ask: 'but is there some maximal R-interrelated aggregate of person-stages of which these stages are parts such that those stages are I-related?'

There is, of course. And its existence is grounded in the existence of its R-related constituents. But it is the R-relatedness of its constituents that fully grounds the grounding of temporal facts. Identity is idle. At any time, a person was or will be *F* if their current stage is R-related to an earlier or later stage that is *F*. It adds nothing to note that, in addition, their current stage is a part of the *same* transtemporal object of which other stage is a part.

And, arguably, this is not a trivial result when it comes to adjudicating between the stage theory and the worm theory.

5.3 What are Persons?

According to the worm theory I survive if there is a transtemporal object of which my current stage and some later stage are parts: I will be *F* if my current stage is part of the same transtemporal object as a later stage that is *F*. But not just any transtemporal object will do. There are innumerable transtemporal objects of which my current stage is a part that are irrelevant to my survival—among them objects consisting of my current stage and a stage of Ivanka Trump tomorrow, my current stage and a stage of the moon in 2031, and innumerable strange gerrymandered objects which are irrelevant to my survival. Granting the worm theorist's assumption that persons persist in virtue of stages being parts of the same transtemporal object these gerrymandered objects won't do. According to the worm theory I survive *because* at least one of the (innumerable) transtemporal objects of which my current stage and some later stage are parts is the right kind of object, viz. a person.

That however is an assumption we do not need to make since, as has been argued, personal persistence is grounded in the R-relatedness of stages that exist at different times and not in stages being parts of the same transtemporal aggregate of stages. If this is correct then, though R-related stages will, of course be parts of transtemporal R-interrelated aggregates of stages there is no compelling reason why we should regard these transtemporal objects as *persons*. The R-relation fully grounds the grounding of temporal facts and is what matters for personal survival.

Apart from deflecting the incredulous stare, the worm theory has no advantages over the stage theory, when it comes to explaining personal persistence—why we care in a self-interested way about some past and future states of affairs and so assign temporal properties to persons in virtue of facts about their personal counterparts at other times. We care about how things go for our counterparts at other possible worlds, which represent our possibilities, because the way things are for their them is the way things could be for us. And, pace Benovsky, as I have

argued, we care about how things go for earlier and later stages that are R-related to us because the way things are for them is the way things were and will be for us.

Identity does no work in explaining past and future facts about persons and so is not what matters in survival. It is rather R-relatedness that grounds the grounding of temporal properties and so explains why we care about how things are for our temporal counterparts. And this seems to be a good reason to prefer the stage theory to the worm theory as an account of personal persistence.

References

Benovsky, J. 2015. "Alethic Modalities, Temporal Modalities, and Representation." *Kriterion: Journal of Philosophy* 29: 18–34.

De Rizzo, J. 2021. "Grounding Grounds Necessity." *Analysis* 804 (4): 639–47.

Hawley, K. 2001. *How Things Persist*. Oxford: Oxford University Press.

Kripke, S. A. 1980. *Naming and Necessity*. Cambridge, MA: Harvard University Press.

Lewis, D. 1983. "Survival and Identity." In *Philosophical Papers Volume I*. New York: Oxford University Press. https://doi.org/10.1093/0195032047.003.0005.

Perry, J. 1972. "Can the Self Divide?" *Journal of Philosophy* 69 (16): 463–88.

Rosen, G. 2010. "Metaphysical Dependence: Grounding and Reduction." In *Modality: Metaphysics, Logic, and Epistemology*, edited by B. Hale, and A. Hoffmann, 109–36. Oxford: Oxford University Press.

Sider, T. 2006. *Four Dimensionalism: An Ontology of Persistence and Time*. Oxford: Oxford University Press.

Wasserman, R. 2016. "Theories of Persistence." *Philosophical Studies* 173 (1): 243–50.