

# Stage-theoretical naming and counting

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**ABSTRACT:** According to the stage view, ordinary objects are instantaneous stages, which “persist” by being counterpart-related to stages that exist at other times. In this paper, I consider the respective merits of current proposals for a stage-theoretical semantics of proper names of ordinary objects and sketch what I argue is a better alternative. On any stage-theoretical account, names of ordinary objects refer to stages. I argue that names should be understood as temporally flexible, referring indeterminately over stages that constitute an object’s history, and sketch a stage-theoretical semantics for names of ordinary objects that yields the intuitively correct results for reference and counting in both ordinary cases and extraordinary puzzle cases of fission.

**KEY WORDS:** Stage theory, persistence, personal identity, fission, proper names.

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According to the stage view, ordinary objects are instantaneous stages, which “persist” by being counterpart-related to stages that exist at other times. I consider the respective merits of current proposals for a stage-theoretical semantics for proper names of ordinary objects and sketch what I argue is a better alternative. In Section 1, I consider two stage-theoretical semantics for proper names of ordinary objects: Ted Sider’s Present Stage View and Pablo Rychter’s Baptized Stage View. The Present Stage View poses problems for talk about individuals at times when they have no current stages. And *prima facie*, the Baptized Stage View cannot without modification account for reference to individuals baptized *in absentia* and so have no unique baptized stages to secure reference. In Section 2, I propose an alternative supervenient semantics for names of persons and other ordinary objects that provides a plausible, unified account of reference to the living and the dead and, as I argue in Section 3, to both ordinary individuals and to extraordinary individuals

that undergo fission. As reference goes, so goes counting, and, in Section 4, I suggest a stage-theoretical procedure for counting ordinary objects that yields the intuitively correct results for diachronic counting in both ordinary and branching cases.

## 1. Stage-theoretical semantics for proper names

Worm theorists, according to whom ordinary objects – persons, non-human organisms, artifacts, and such – are transtemporal aggregates of stages, and stage theorists, who hold that they *are* stages, agree about ontology but disagree about semantics. Both assume *four-dimensionalism*, the thesis that every spatiotemporal object has a (proper or improper) temporal part at each time it exists. However, for the stage theory, the devil is in the semantic details. Proper names of ordinary objects, on this account, refer to instantaneous stages and this poses the question of *which* stages they refer to.

According to the Present Stage View, proper names of ordinary objects refer to current stages, when such are available. When they are not available, the Present Stage View makes alternative arrangements. The Present Stage View is disjunctive and, *ceteris paribus*, that is something we would like to avoid. According to the Baptized Stage View, the names of individuals refer to their baptized stages. Names of individuals baptized by descriptions that take time to satisfy refer indeterminately over classes of stages that satisfy baptismal descriptions. I suggest that the restriction of reference to objects' baptized stages is unmotivated. If, as required by the Baptized Stage View, names may refer indeterminately, it is hard to see why they should not refer indeterminately over all stages that figure in an object's history.

### 1.1. *The Present Stage View*

According to the Present Stage View, proposed by Ted Sider (henceforth the PSV), the utterance of an ordinary proper name at any time refers to a stage that exists at that time. Following Kripke, Sider holds that names are introduced by an initial baptism which determines what their referents will be at other times (Sider 1996: 449). In particular, at any time, the referent of an ordinary proper name is a current stage that bears the relevant counterpart relation to the baptized stage. So “Obama” now refers to a stage that bears the temporal counterpart relation for *person* to the stage baptized as “Obama”. In what Sider calls “*de re* temporal

predications”, proper names are used to pick out a current stage and to express a singular proposition about it. So, in (1) “Obama” picks out a stage concurrent with the time of utterance and says of it that it is counterpart-related to an earlier stage that was a senator:

(1) Obama was a senator.

Statements about Socrates, like (2), cannot, however, be treated in this way since there is no current Socrates-stage to talk *about*.

(2) Socrates was a philosopher.

There are, of course, *past* Socrates stages, but none of them are, Sider notes, *distinguished*, so to pin reference to any one of them would be arbitrary. Consequently, he recommends treating temporal claims concerning Socrates and other individuals that do not have current stages as general propositions about what was or will be the case at some earlier or later time. “‘Socrates was a philosopher’, he writes, should be taken as the result of applying a sentential operator ‘WAS’ to the sentence ‘Socrates is a philosopher’; the resulting sentence means that at some point in the past, there is a Socrates-stage that is a philosopher” (Sider 1996: 450).

This is peculiar. Grammatically, (1) and (2) are of the same form. On Sider’s account, however, the propositions they express are not – and the difference comes about because of extra-linguistic circumstances: because in 2021 Obama is alive but Socrates is dead so that there is no current stage to anchor “*de re* temporal predications”. The PSV is, therefore, a disjunctive account: where a current stage is available, a proper name in a *de re* temporal predication refers to it; where there is no current stage to pick out for predication, absent any other non-arbitrarily selected stage to anchor *de re* temporal predications, names that occur in statements that *prima facie* assign properties to objects fail to refer and temporal claims are existential and general.<sup>1</sup>

Disjunctive accounts, even if suspect, are not *per se* objectionable. Pablo Rychter, however, suggests that there is reason to worry about this disjunctive account according to which the passage of time affects

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<sup>1</sup> Sider (1996) proposes an alternative hybrid account according to which names of individuals who lack current stages refer to transtemporal worms so that, for example, “Socrates” now refers to the aggregate of counterpart-interrelated of Socrates stages at every time during his life. This account is disjunctive though perhaps not so objectionably disjunctive as the PSV since on this account (1) and (2) are of the same form though they are about different kinds of objects. “Socrates” refers. However, the individual to which “Socrates” now refers is not, on the stage view, a person at all.

the *structure* of propositions expressed by sentences uttered at different times. If, as Sider assumes, sentences express “structured propositions”, then they should somehow reflect the kind of contribution made by each component of the sentence. So, Rychter writes, “it would be surprising if the passage of time... affected the *structure* of the proposition expressed and the *kind* of contribution made by each expression in the sentence... required by Sider’s (and the presentists’) semantics for proper names” (Rychter 2012: 373).<sup>2</sup>

The problem for the stage theorist who, unlike the presentist, recognizes the existence of merely past objects, is not that there are no past stages to serve as the referents of proper names, but that there are too many of which none are distinguished so that any selection from amongst them would be arbitrary.

### 1.2. *The Baptized Stage View*

If arbitrariness is a problem, then reference to individuals that have no current stages requires that there be some distinguished past stages non-arbitrarily selected for *de re* temporal predication. And, Rychter notes, even for individuals that have no current stages, there are, in a range of cases, stages that can be non-arbitrarily selected as objects of *de re* temporal predication, namely stages that are distinguished in virtue of having received Kripkean baptism (Rychter 2012).

Where individuals have no current stages, their baptized stages may be non-arbitrarily selected for reference in *de re* temporal predications – and there is no compelling reason why statements about individuals who have current stages should be treated differently. On this Baptized Stage View (henceforth the BSV), Rychter writes,

the referent of a proper name is the stage originally baptized with it. On this view, “Obama” refers to a 1961 baby-shaped stage – the stage originally baptized with the name... when we say things like “In 2007 Obama was a senator from Illinois”, we are saying *of the originally baptized stage* that it was the property of having been a senator from Illinois in 2007. This property turns out to be, on analysis, the property of being such as to have a temporal counterpart in 2007 which is, simpliciter, a senator from Illinois.<sup>3</sup> (Rychter 2012: 374)

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<sup>2</sup>This is not, of course, to say that the proposition a sentence expresses assumes a different structure with the passage of time, but that the sentence comes to express a different proposition, the structure of which is different from that of the original proposition. I am grateful to the anonymous referee for this journal for noting the ambiguity.

<sup>3</sup>This is not quite right and is likely an approximation for the sake of exposition. Baptism takes time, so there is no unique stage.

(1) says of a stage baptized “Barack Obama” that it had temporal counterparts which were senators and likewise, (2) says of a stage baptized “Socrates” that it had counterparts which were philosophers. Socrates and Obama are, therefore, on a par. On the BSV, (1) and (2) are to be understood as (3) and (4), respectively:

(3)  $o$  is a stage that is baptized “Obama” and  $(\exists x)(x$  is a senator and  $x$  is counterpart-related to  $o$ ).

(4)  $o$  is a stage that is baptized “Socrates” and  $(\exists x)(x$  is a philosopher and  $x$  is counterpart-related to  $o$ ).

The BSV, therefore, enables us to talk *de re* about individuals that have no current stages and so gives equal treatment to the living and the dead.

Baptism, however, takes time, so the act of baptism tags more than one instantaneous stage. And so it is also where an individual is baptized *in absentia* by a description that takes time to satisfy – as when “Julius” is introduced to designate whomever it was that invented the zip. The process of invention takes time: a great many stages participate and so the selection of any one of them as *the* baptized stage would be arbitrary. Since there is, in this case, no unique stage baptized “Julius”, Rychter proposes that the name “*vaguely refers* to each of the inventors of the zip”, noting that “indeterminacy in singular reference is an already familiar phenomenon and one that can be treated with the standard supervaluationist tools” (Rychter 2012: 378). So, on his account, where an individual is baptized by a description that takes time to satisfy, it gets the supervaluationist treatment.<sup>4</sup>

[T]he friend of *BSV* is committed to the idea that the referent of “Julius” is the stage baptized with that name – the stage that satisfies the reference-fixing definite description. But if there is no *one* single stage so baptized – so no single inventor of the zip – he should conclude that the name *vaguely refers* to each of the inventors of the zip... whereas it is clear is that the baptizer intended to pick one single referent for “Julius”, there is no particular stage that she intended to pick among the several suitable candidates. (Rychter 2012: 377)

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<sup>4</sup> It would be easy to read this as a disjunctive account, since Rychter writes: “*BSV* tells us that the referent of a name is *the* stage originally baptized with that name... we may take it to be *the* stage existing at the time of baptism that satisfies the reference-fixing descriptions, or is the object of ostension” (Rychter 2012: 376–377; emphasis added) and only notes the concern about multiple stages satisfying a baptismal description in the case of Julius’s baptism by description.

That is to say, the name “Julius” *refers indeterminately over a class of stages*, in that it “vaguely refers” to each of those stages.

Whether baptism is effected by the tagging of concurrent stages or by a description *in absentia*, names are always assigned indeterminately over stages belonging to a transtemporal baptismal class. On the BSV, therefore, the name of an ordinary object, *always* refers indeterminately over members of a class of baptismal stages.

This, however, raises questions about the motivation for the BSV. If names may refer vaguely to stages that satisfy a baptismal description, it is hard to see why they may not refer vaguely to *all* the stages that figure in an individual’s life history – in Julius’s case, not only those stages involved in the invention of the zip but also stages that are otherwise occupied. If supervaluationist tools are available, why restrict their use to the class of baptismal stages that figure in an object’s history rather than its entire history? According to BSV, (1) says indeterminately of 1961 baby-shaped stages baptized “Obama” that they are person-counterpart-related to much later senatorial stages. Restricting reference to those long past stages is unintuitive or, in any case, less intuitive than understanding (1) to refer indeterminately to *all* stages that are person-counterpart-related to a stage baptized “Obama” and to say of any such stage that it is counterpart-related to senatorial stages. This, arguably, comes closer to capturing our pre-theoretical intuition that (1) is about Obama – not Baby Obama, much less Obama at a short baptismal period during his babyhood. And intuitions aside, there is, arguably, no compelling reason to restrict reference to baptismal stages.

## 2. A supervaluationist account of ordinary proper names

If a name may, as Rychter suggests, refer indeterminately over a range of baptismal stages, it is hard to see why we should not take names of ordinary objects to refer indeterminately over *all* stages that figure in the histories of objects. And that is what will be proposed in the supervaluationist account of ordinary proper names that follows.

### 2.1. Indeterminate reference

On any stage-theoretical account, when we talk *about* ordinary objects, what we are talking about are stages. Selecting stages to talk about, however, raises difficulties similar to those posed by the Problem of the Many where, seeking to identify a cat on the mat, a cloud in the sky, or

any of a variety of other objects whose boundaries are vague, we discover that there are a plethora of qualified candidates: there are cats with more or fewer hairs and clouds consisting of more or fewer water droplets, many of which are eligible for reference but none of which is privileged. Any decision amongst them would be arbitrary. We can, however, adopt a supervaluationist account and embrace indecision. “[W]e cannot deny the arbitrariness”, David Lewis writes, “What we can deny, though, is that it is trouble.”

What shall we do...? The answer, surely, is to exploit the fact that very often our unmade semantic decisions don't matter. Often, what you want to say will be true under all different ways of making the unmade decision. (Lewis 1993: 172)

Whichever of the spatio-temporally overlapping cats we pick out is on the mat and that is good enough.

According to the supervaluationist rendition of the stage theory sketched here, persons' names refer vaguely to each of the counterpart-related stages that figure in their histories. Persons “persist” and have temporal properties in virtue of being counterpart-related to stages that exist at other times; the aggregate of stages existing at different times over which their names indeterminately refer are their *histories*.

The history of Julius<sup>5</sup> includes a great many stages that were engaged in non-zipper-related activities to which “Julius” vaguely refers. What makes it true that Julius invented this zip is that each of those stages is counterpart-related to person-stages involved in the invention of the zip. Socrates was a philosopher because any arbitrarily chosen person-stages to which “Socrates” vaguely refers, including unphilosophical infantile and adolescent stages, is counterpart-related to a philosophical stage and, likewise, Obama was a senator because any of the stages to which “Obama” vaguely refers is counterpart-related to a senatorial stage. Although it is indeterminate which of these stages a speaker picks out in saying that Socrates was a philosopher or that Obama was a senator, it does not matter: arbitrariness does not cause trouble.

Names of ordinary objects are always vague, insofar as they refer indeterminately over classes of counterpart-interrelated stages. But semantic indecision in cases like this is innocuous (Lewis 1993: 177-179), so there is no need to anchor *de re* predications of persons or other ordinary objects either to current stages when available or to baptized stages. *Any* arbitrarily chosen stage will do.

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<sup>5</sup> a.k.a Whitcomb L. Judson: [https://en.wikipedia.org/wiki/Whitcomb\\_L.\\_Judson](https://en.wikipedia.org/wiki/Whitcomb_L._Judson)



## 2.2. Names and reference classes

On the current account, names are ordinarily assigned to stages by baptism but baptized stages are not, as they are on the BSV, the sole *referents* of the names so assigned. Rather, a name,  $n$ , is assigned to members of a baptismal class and propagates to earlier and later stages that are counterpart-related to baptized stages. A stage at a time  $t$  is an *immediate referent* of a name,  $n$ , at  $t$  if and only if it is counterpart-related to a stage to which  $n$  is assigned by baptism. At any time of utterance,  $t$ , a name,  $n$ , refers indeterminately over all and only those stages that are counterpart-related to its immediate referent at  $t$ , which thereby constitute its *reference class at  $t$* .

In ascribing a property to an object,  $n$ , we consider not only the time of utterance, which selects the reference class of the name  $n$  at that time, but also the time of evaluation – the time at which  $n$  has the property in question. Where  $t$  is the time of utterance and  $t'$  is the time of evaluation:

At  $t$ ,  $n$  has  $F$  at  $t'$  if and only if  $n$ 's reference class at  $t$  includes a stage at  $t'$  that is  $F$ .

In ordinary non-branching cases, a name,  $n$ , selects the same reference class at every time, viz. the class of all and only those stages that are counterpart-related to the stage baptized as  $n$ . At any time of utterance,  $t$ , a sentence that ascribes a property to an individual at a time of evaluation,  $t'$ , is true just in case its reference class at  $t$  includes a stage at  $t'$  that has that property. (1) is true because the reference class of “Obama” at every time of utterance, which consists of persons-stages that are counterpart-related to a stage baptized “Obama”, includes a senatorial stage. Likewise, (2) is true because the reference class of “Socrates”, consisting of person-stages that existed in the late 5<sup>th</sup> century BCE, includes a philosophical stage.

In ordinary, non-branching cases, names select the same reference class at every time. To this extent, the current account mimics the standard worm view, according to which names are temporally rigid and at every time of utterance refer to the same transtemporal aggregates of stages. On the worm-theoretical account, “Obama” refers at every time to the same transtemporal aggregate of stages and (1) says of it that it includes senatorial stages. According to the current rendition of the stage view, “Obama”, at every time, refers indeterminately over just those stages and (1) is true insofar as each of those stages is counterpart-related to



senatorial stages, preserving the orthodox view that proper names are not context-sensitive – a virtue which, Rychter holds, provides reason to prefer the BSV to the PSV. The worm view, however, is equally virtuous in this respect and so, the results in ordinary cases provide no compelling reason to prefer the current account stage-theoretical account to the standard version of the worm theory or vice versa.

Where fission occurs, however, names *are* context-sensitive. On the current account, the names of individuals that undergo fission select different reference classes at different times and so *de re* temporal predications have different truth values at different times. This, pace Rychter, is a feature, not a bug. Arguably the current stage-theoretical account does better in dealing with branching cases, particularly cases of personal fission, than the worm theory precisely because, on this account, names are temporally flexible.<sup>6</sup> And the current stage-theoretical semantics not only provides a plausible account of reference to current and past individuals in ordinary cases but, it will be argued, a procedure *de re* temporal predication and counting yields the least-worst results in puzzle cases of personal fission.

### 3. Fission

Ordinarily, claims about what is true at a time do not change. Trump was President of the United States but no longer is. However, it is true at every time before, during, and after 2020 that Trump is [tenselessly] president in 2020, so adding any additional temporal qualifiers makes no difference. What Sider has called the Transfer Principle is intuitive:

Transfer Principle: [F]or any  $t, t'$ , [at  $t$ :  $\phi$ ] iff [at  $t'$ : at  $t$ :  $\phi$ ]. . . claims about what is true at a time do not change; in a sentence with *two* temporal qualifiers 'at  $t^*$ : at  $t$ :  $\phi$ ', the first qualifier 'at  $t^*$ ' is redundant. (Sider 2001: 167)

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<sup>6</sup> Perry's worm-theoretical account (Perry 1972) has this feature. In the "Lifetime language" he proposes names that refer to those transtemporal aggregates of stages that constitute *lifetimes*. Briefly, where fission occurs there are, *sub specie aeternitatis*, three overlapping lifetimes involved: a Y-shaped lifetime and two branch lifetimes which overlap prior to fission. Before fission, names which will refer to the branch lifetimes after fission and the pre-fission name in use all refer to the Y-shaped lifetime; afterwards the branch lifetime names shift reference from the Y-shaped lifetime to the branches and the pre-fission name is improper. More recently, Wolfgang Schwarz has developed a detailed account similar to Perry's which is not committed to either the stage view or the worm theory and is compatible with endurantism (Schwarz 2014). Arguably, a plausible reading of fission cases, whether stage-theoretical, worm-theoretical, or endurantist, requires an account of reference according to which names are temporally flexible.

The Transfer Principle, however, fails where sentences include referring expressions that are temporally flexible and refer to different individuals at different times. That is the case for definite descriptions and, on the current account, proper names of individuals involved in fission cases, which refer indeterminately over members of different reference classes at different times.

### 3.1. *Diachronic ambiguity*

Barring fission or fusion, personal names select the same reference class at every time of utterance. At 11 am on November 21, 2020, former President Trump was at the Trump National Golf Club in Potomac Falls, VA.<sup>7</sup> Assuming that Trump has not and will not undergo fission, “Donald Trump” selects that same reference class at every time, viz. the class of all and only those stages counterpart-related to stages so baptized, which includes an 11 am November 21, 2020 stage at the Trump National Golf Club. At every time of utterance, it is true that Trump is (tenselessly) at the Trump National Golf Club at the 11 am November 21, 2020 time of evaluation. Specifying time of utterance is, therefore, “redundant”, as per the Transfer Principle. At every time it either was, is, or will be the case that Trump was golfing at 11 am November 21, 2020.

Some definite descriptions are, however, temporally flexible. “The President of the United States” refers to different individuals at different times and within the scope of different temporal qualifiers – in 2020 to Donald Trump, but in 2015 to Barack Obama. Whereas in 2020, “The US President was born in in 1946” was true because “The US President” then referred to Donald Trump; it was not true in 2015 when “The US President” referred to Barack Obama, who was born in 1961. (7) is true, but (8) is false:

(7) In 2020, the President of the United States was born in 1946.

(8) In 2015, the President of the United States was born in 1946.

The initial temporal qualifiers in (7) and (8) fix the reference of “the President of the United States” are not redundant because “The President of the United States” picks out different people at different times. That is to say, it refers over members of different reference classes at different times: in 2015 over stages counterpart-related to stages baptized

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<sup>7</sup> See <https://factba.se/topic/calendar>

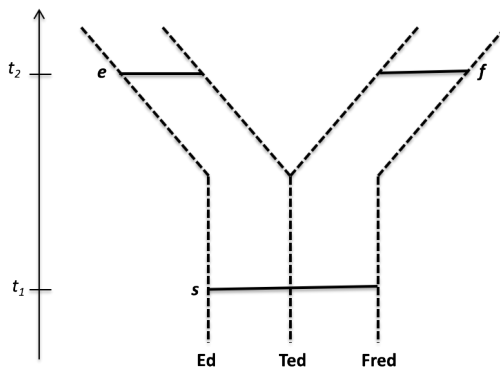
“Barack Obama”, but in 2020 over stages counterpart-related to stages baptized “Donald Trump”. The truth values of (7) and (8), therefore, depend upon the times of utterance indicated by their initial temporal qualifiers, which fix reference, as well as the time of evaluation indicated by the second temporal qualifier.

In branching cases, persons’ names, like temporally flexible definite descriptions, select different reference classes at different times, so the conditions for temporal predication have to indicate the (temporal) context of utterance, which fixes reference, as well as the (temporal) circumstance of evaluation. Canonical sentences ascribing properties to objects at times, therefore, are of the form:

*At t, n is F at t'*

$t$  is the temporal perspective from which  $n$  selects its reference class, determined by the time of utterance or temporal qualifiers;  $t'$  specifies which stage belonging to that class is  $F$ .

In puzzle cases where fission occurs, names select different reference classes at different times. So it is in the branching case represented by the illustration below, where Ted fissions to “become” Ed and Fred. Before fission each name refers indeterminately over the same reference class; afterwards, “Ed” and “Fred” select different reference classes and “Ted” is ambiguous.



FISSION: AN EXPLODED VIEW

Names are assigned to stages at baptism and propagate to counterpart-related stages. In the current scenario, a person-stage is baptized “Ted” at some time before fission and, before fission, refers indeterminately

over all stages that are counterpart-related to it, including  $s$ , Ted's stage at  $t_1$  and both post-fission stages  $e$  and  $f$  at  $t_2$ . Dotted lines track the person-counterpart-relation, which is intransitive so that while  $e$  and  $f$  are each counterpart-related to the pre-fission stage baptized "Ted" and to all other pre-fission stages, they are not counterpart-related to one another. After fission, stages on the  $e$  and  $f$  branches are baptized "Ed" and "Fred" respectively and those names propagate to earlier as well as later counterpart-related stages. Post-fission stage  $e$  is counterpart related to the pre-fission stage baptized "Ted", and to a post-fission stage baptized "Ed" but not to  $f$ ; post-fission stage  $f$  is counterpart-related to the pre-fission stage baptized "Ted" and to a post-fission stage baptized "Fred", but not to  $e$ .<sup>8</sup>

At any time,  $t$ , a stage at  $t$  is an *immediate referent* of a name,  $n$ , at  $t$  if and only if it is counterpart-related to the stage baptized as  $n$  and refers vaguely to its immediate referent at  $t$  and to that are counterpart-related to it. At  $t_1$ ,  $s$  is the immediate referent of "Ted", "Ed", and "Fred" alike since it is the stage at  $t_1$  that is counterpart-related to the pre-fission stage baptized "Ted" and to post-fission stages baptized "Ed" and "Fred". Before fission, unless Ted has issued a post-fission baptismal directive, the names "Ed" and "Fred" will not be in use. Nevertheless, baptism, in ordinary as well as extraordinary cases, fixes reference retrospectively as well as prospectively: names acquired late in life propagate to earlier as well as later stages.<sup>9</sup> And this is required by the most intuitive reading of the fission case, according to which Ed and Fred did not come into being

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<sup>8</sup> This is a case of fission, where Ted survives – not a case where Ted dies and is succeeded by Ed and Fred. So, after fission visitors asking after Ted will be directed either to Ed's room or to Fred's room, where the occupants will claim, with justification, to be Ted. Ed and Fred exist along with Ted both before and after fission insofar as the names "Ed" and "Fred" refer to Ted's pre-fission stages even though before fission they aren't in use and "Ted" refers ambiguously to stages of Ed and Fred after fission. I am grateful to an anonymous referee for this journal for bringing the concern about the pre-fission histories of Ed and Fred to my attention.

<sup>9</sup> Biographies of the author of *Huckleberry Finn* include baby pictures of the author captioned "Mark Twain" and state "Mark Twain was born in Hannibal, Missouri" in all innocence and without qualification even though the author, baptized early in life as "Samuel Clemens", did not take the penname "Mark Twain" until later in life. And in this case, where no metaphysically untoward events occur to suggest otherwise. Quibbling, claiming that the baby born in Hannibal was not Mark Twain but later became Mark Twain would be to import the puzzles posed by branching cases into the account of a perfectly ordinary case. All agree that in adulthood Samuel Clemens was Mark Twain. If Samuel Clemens was not Mark Twain before adopting the name "Mark Twain" then, without further negotiation, we should have to say that Samuel Clemens, who was not initially identical to Mark Twain *became* Mark Twain in adulthood – a degenerate case of fusion.

at fission but were around beforehand and, at pre-fission times, *were* Ted. At  $t_1$ , “Ted”, “Ed”, and “Fred” alike refer indeterminately over members of the same reference class, represented by the Y-shaped structure.

At  $t_2$ , however, the immediate referents of “Ed” and “Fred” are  $e$  and  $f$ , respectively, which are counterpart-related to  $s$  but not to one another. At  $t_2$ , therefore, “Ed” refers indeterminately over members of a reference class that includes  $e$  and  $s$  but not  $f$  and “Fred” selects a reference class that includes  $f$  and  $s$  but not  $e$ . The names “Ed” and “Fred” are, therefore, diachronically ambiguous. At  $t_1$ , both names refer indeterminately over the members of a class of stages that are counterpart-related to  $s$ , represented by the Y-shaped structure. Afterwards, neither does. After fission, at  $t_2$ , “Ed” refers over members of the class of stages that are counterpart-related to  $e$  and “Fred” refers over the class of stages that are counterpart related to  $f$ , represented by the left and right branches, respectively. “Ted” is also diachronically ambiguous and, after fission, synchronically ambiguous as well. Before fission, “Ted” refers over the class of stages represented by the Y-shaped structure. After fission, however, “Ted” may either refer over the class of stages represented by the left branch or over the reference class represented by the right branch.

### 3.2. *Surviving fission*

Ted survives as Ed and Fred. What is true of Ed and Fred after fission is what, at  $t_1$ , *will be* true of Ted – and of both Ed and Fred as well. After fission, Ed is employed at Rutgers and Fred at NYU:  $e$  is at Rutgers and  $f$  is at NYU. At  $t_1$ , Ted, Ed, and Fred are each going to be at Rutgers at  $t_2$ , and at  $t_1$  Ted, Ed, and Fred are each going to be at NYU at  $t_2$ . This is not to say that before fission Ted aka “Ed” aka “Fred” is going to be at Rutgers and NYU at  $t_2$ . At any given time, a person *will be* F if their stage at that time is counterpart-related to a later person-stage that is F. But while  $e$  is at Rutgers and  $f$  is at NYU at  $t_2$ , there is no person-stage that is at both places simultaneously at  $t_2$ : the fusion of  $e$  and  $f$  is not itself a person-stage. On this account, therefore, we have to be careful about conjunction. (9) is true, but (10) is false:

(9) At  $t_1$ , Ted will be at Rutgers at  $t_2$  and Ted will be at NYU at  $t_2$ .

(10) At  $t_1$ , Ted will be at Rutgers and NYU at  $t_2$ .

In (10), the conjunction is internal to the predicate. It says that at  $t_1$ , Ted has a  $t_2$  counterpart that is both at Rutgers and at NYU, from which it

follows that there exists a stage at  $t_2$  that is bilocated or is, perhaps, a gappy individual with spatial parts occupying non-overlapping regions in the New York metropolitan area. That is not the case. (9) says the conjunction of sentences (9') and (9'') is true:

(9') At  $t_1$ , Ted will be at Rutgers at  $t_2$ .

(9'') At  $t_1$ , Ted will be at NYU at  $t_2$ .

Both are true since Ted, at  $t_1$ , has a  $t_2$  counterpart at Rutgers and a  $t_2$  counterpart at NYU, from which it does not follow that there exists a stage at  $t_2$  that is located in both places. (9) is, therefore true.

We also have to be careful about the scope of negation. *Prima facie*, (11) is a contradiction:

(11) At  $t_1$ , Ted will be at Rutgers at  $t_2$  and Ted will not be at Rutgers at  $t_2$ .

(11), however, should not be confused with (12), which says that, at  $t_1$ , it both is and is not the case that Ted has a  $t_2$  counterpart that is at Rutgers.

(12) At  $t_1$ , Ted will be at Rutgers at  $t_2$  and it is not the case that Ted will be at Rutgers at  $t_2$ .

(12) is a contradiction. (11) is not. It says that, at  $t_1$ , Ted has a  $t_2$  counterpart that is at Rutgers and a  $t_2$  counterpart that is not at Rutgers. That is true.  $s$ , Ted's stage at  $t_1$ , is counterpart-related to  $e$ , a  $t_2$  stage that is at Rutgers, and to  $f$ , a  $t_2$  stage that is not at Rutgers. That is no contradiction. Ordinary people can look forward to being in different places at different times; *extraordinary people who fission can look forward to being in different places at the same time!*

As for Ed and Fred, they can, before fission, look forward to the same future as Ted since their pre-fission stages are counterpart-related to all and only the same post-fission stages as Ted's pre-fission stages. At pre-fission times, "Ed" and "Fred" select the same reference class, which includes a stage at NYU so, at  $t_1$ , Ed will be at NYU at  $t_2$ . After fission, however, "Ed" and "Fred" refer indeterminately over different reference classes. The reference class "Ed" selects at  $t_2$  does not include any stage at NYU, so at  $t_2$ , Ed is not at NYU at  $t_2$ . (14) is false. (13), however, is true, even though at  $t_1$  no one would say "Ed will be at NYU" since, before post-fission baptism, the name "Ed" is not in use.

(13) At  $t_1$ , Ed will be at NYU at  $t_2$ .

(14) At  $t_2$ , Ed is at NYU at  $t_2$ .

This is not to say that there is any individual who, at  $t_1$ , was going to be at NYU at  $t_2$  but isn't there when  $t_2$  rolls around. "Ed" is diachronically ambiguous and selects different reference classes at different times of utterance, one of which includes a  $t_2$  stage at NYU and another that doesn't.

*Prima facie*, the suggestion that "Ed" refers to different people (that is, over members of different reference classes) is unintuitive and these maneuvers only paper over the problem. Arguably, however, the current account does better than the worm-theoretical account in dealing with cases of *personal* fission insofar as it respects the first-person perspective. Persons view the world and their own prospects from the time-bound perspective of stages. According to the worm-theoretical alternative, however, persons are transtemporal aggregates of stages and, at every time of utterance, personal names refer to the *same* aggregates of stages. This results in a discrepancy in the view of fission from the perspective of a person who undergoes fission and the view from the "outside".

I am about to undergo fission. What matters in survival is counterpart-relatedness, so if I know that my current stage is counterpart-related to post-fission stages, I have every reason to look forward to life after fission. From a first-person perspective, it does not matter whether my current stage – the stage considering my future prospects – is counterpart-related to two concurrent stages at post-fission times or only one. What matters is just the causal relation on stages in virtue of which they are counterpart-related, which is local. Again, from my first-person perspective, if my current stage is counterpart-related to a post-fission stage at NYU, that is where I will be after fission, regardless of the location of any concurrent post-fission stages that are counterpart-related to my current stage. According to the worm-theoretical reading of the fission case, however, I am a transtemporal aggregate of stages and, before fission, stages with a cohabitant: we are aggregates of counterpart-interrelated stages that overlap before fission but diverge afterwards. One of us has a post-fission stage at NYU; the other does not. So even if I am certain that my current stage is counterpart-related to a stage at NYU, I should not assess my chances of getting there as any better than 50-50 since neither I nor my stage-sharing cohabitant knows whether she is the worm that includes a post-fission stage at NYU or the one that does not. But intuitively, from my pre-fission perspective, knowing that I have what it would take to get me to NYU if fission hadn't occurred is good enough for me: the existence of concurrent stages after fission shouldn't make a



difference. If my current stage is counterpart-related to a stage at NYU, that is where I'm going to be.

The stage view, unlike the worm-theoretical, respects the first-person perspective. If from his pre-fission perspective, Ed (aka Ted aka Fred) can look forward to NYU, that is, if his pre-fission stages are counterpart related to stages at NYU, that is where he is going to be. The stage view also respects his first-person perspective after fission. It is not the case that the immediate referent of "Ed" at any post-fission time is counterpart-related to a stage at NYU, so, at  $t_2$ , Ed is not, was not, and will not be at NYU. "Ed" refers over different reference classes before and after fission, so (13) is true and (14) is false – not because identity is occasional but because reference is.

This raises the question of how, *after* fission, things were in *going to be* for Ed in the future. Should Ed, reminiscing about his pre-fission past, reflect that before fission, he was *going to be* at NYU at  $t_2$  but that when  $t_2$  rolled around he wasn't there? At  $t_1$ , Ed was going to be at NYU at  $t_2$ :  $s$ , his stage at  $t_1$ , was counterpart-related to a  $t_2$  stage at NYU. Since the reference class of "Ed" at  $t_2$  includes  $s$ , a stage that is counterpart related to a post-fission stage at NYU, it seems to follow that Ed, *retrospectively*, was *going to be* at NYU after fission:

(14\*) At  $t_2$ , at  $t_1$ , Ed is going to be at NYU at  $t_2$ .

Given the reasonable assumption that, in general, the way things are now is the way that in the past things were going to be, it follows that (14) is true: at  $t_2$ , Ed is at NYU at  $t_2$  – which is not the case.

What has gone wrong here is the failure to recognize the difference in the roles that temporal qualifiers play in sentences. In (13),  $t_1$  indicates the time of utterance, which selects the reference class of "Ed" at  $t_1$  – not the time at which members of the reference class have the property assigned by the predicate. There is no time, before or after fission, at which Ed, or anyone else involved in the fission case, has the property of *at- $t_1$ -being-at-NYU-at- $t_2$* . There is no such temporal property. (13) says that the reference class "Ed" selects at  $t_1$  includes a  $t_2$  stage at NYU and that is true; (14) is false because the reference class "Ed" selects at  $t_2$  does not.

Without further qualification, "Ed is at NYU at  $t_2$ " has different truth values at different times because the time of utterance, which selects the reference class of "Ed", is not specified. There are just two time-slots, specifying the time of utterance and time of evaluation, to be filled. "Ed is at NYU at  $t_2$ " has different truth values at different times because the time of utterance is not specified. Sider's Transfer Principle fails where

subject terms are temporally flexible because the time of utterance, which fixes reference, is not specified. Once it is specified, the truth value is fixed. At  $t_2$ , Ed was, in the past, *going to be* at Rutgers and not at NYU because the reference class “Ed” selects at  $t_2$ , the time of utterance, includes  $s$  and a post-fission stage at Rutgers but no stage at NYU.

### 3.3. *Identity and counting*

We, who view the world from our time-bound first-person perspectives, do not ordinarily talk about how things are timelessly. Behind the scenes, in the Philosophy Room, we talk timelessly about instantaneous stages and counterpart-relations. Timelessly speaking, there is a stage baptized “Ted” and later stages baptized “Ed” and “Fred”, a stage at Rutgers and a stage at NYU at  $t_2$ , each of which is counterpart-related to earlier stages but not to one another. But what happens in the Philosophy Room stays in the Philosophy Room.

When it comes to ordinary talk about persons and other ordinary objects, there isn't a way things are “timelessly” even though in ordinary cases, there is a way things are at every time. Where no episodes of fission or fusion occur, persons' names refer indeterminately over members of the same reference classes at every time, so temporal predications have the same truth value at every time. They are, so to speak, *faux*-timeless: even though there is no view from nowhen, the view from everywhen is the same. Where fission occurs, however, a person's names refer indeterminately over different reference classes at different times of utterance, so temporal predications in which they figure have different truth values at different times of utterance.

Before fission, “Ed” and “Fred” (and “Ted”) select the same reference class; afterwards, they select different reference classes. So, philosophically uncorrupted subjects will describe the current fission scenario as a case in which a person “becomes two”, where Ed and Fred were identical before fission but not afterwards. And on the current stage-theoretical account, because neither identity statements nor counting is timeless, that is roughly correct.

At any time of utterance,  $t$ , where  $n$  and  $m$  are personal names,  $n = m$  just in case they refer over members of the same reference class at  $t$ , that is if and only if at *every* time of evaluation,  $t'$ , a stage at  $t'$  is an immediate referent of  $n$  if and only if it is an immediate referent of  $m$ . Before fission, Ed = Fred, since at any pre-fission time of utterance, the immediate referents of “Ed” and “Fred” at every time of evaluation, both

before and after fission, are the same. At pre-fission times of utterance, “Ed” and “Fred”, as well as “Ted”, select the reference class represented by the Y-shaped structure. At post-fission times of utterance, “Ed” and “Fred” have the same immediate referents at pre-fission times of evaluation but not at post-fission times of evaluation. The only immediate referent of “Ed” at  $t_2$  is  $e$  and the only immediate referent of “Fred” at  $t_2$  is  $f$ . At  $t_2$  and other post-fission times of utterance, therefore,  $Ed \neq Fred$ . This comports with the intuitions of philosophically uncorrupted subjects.

Because names are diachronically ambiguous in fission cases, there is no view from nowhen for identity statements. Before fission,  $Ed = Fred$  since at every time all and only the same stages are counterpart-related to pre-fission stages, which are, in turn, counterpart-related to stages baptized “Ted”, “Ed”, and “Fred”. At post-fission times, however, stages that are counterpart-related to stages baptized “Ed” and “Fred” are not identical, so after fission  $Ed \neq Fred$ . This is not to say, *per impossibile*, that individuals who were once identical have become distinct but rather is that names which at one time refer over the same reference class refer over different reference classes at another time. In branching cases where reference shifts over time, identity statements that are true at some times of utterance are false at others.

Where fission occurs, there is no view from nowhen for counting either. And this, arguably, comports with commonsensical intuitions and commonsensical bafflement about such cases. In fission scenarios like the one described, philosophically uncorrupted subjects affirm, without hesitation, that there was one person before fission and two afterwards, but are baffled by the question of how many people there were “all along”. The current account does not dismiss their bafflement but rather explains it. Where fission occurs, identity statements that are true at some times of utterance are false at others, and when counting persons in a fission case – counting by identity – there is neither one person nor two persons “all along”.

On the stage view, synchronic counting is unproblematic. Stages are persons, not temporal parts of persons, so at any time, counting person-stages is just counting persons, not temporal parts of persons or surrogates for persons, and counting is by identity. At any time before fission, there is one person involved in the fission case – counting by identity and not merely by “identity-at-a-time”, the relation holds on transtemporal aggregates of stages at times when they overlap. At any time after fission, counting by identity once again, there are two people involved.

Nevertheless, we might ask *before fission*, “how many people will be around after fission?” And *afterwards*, “how many people were around before fission?” Such questions are ambiguous in ordinary cases as well as those in which branching is involved. How many people were at Woodstock, the August 15-18, 1969 music festival? According to one estimate, there were, between August 15 and August 18 of that year, over 400,000 people at the Woodstock music festival. Someone asking that question, however, might not be looking for that information; they might want to know how many people around *now*, in 2021, were at Woodstock in 1969.

(15) There were (in 1969) over 400,000 people at Woodstock in 1969.

(16) There are (in 2021) fewer than 400,000 people who were at Woodstock in 1969.

The perspective from which we count makes a difference. And so it is in the fission case. Before fission, we might ask not only how many people were then around but how many of the people around then would be around after fission – that is to say, how many person-stages around at any given pre-fission time are counterpart-related to post-fission stages. On the other hand, we might ask before fission how many people there are at a later time, after fission, who were around beforehand. And that is a question of how many concurrent person-stages at any given post-fission time are counterpart-related to pre-fission stages. Once the questions are disambiguated, there are clear answers:

(17) At  $t_1$ , there is one person who *will be* around at  $t_2$ .

(18) At  $t_1$ , there *will be* two people around at  $t_2$  (who were around at  $t_1$ ).

(19) At  $t_2$ , there are two people who *were* around at  $t_1$ .

(20) At  $t_2$ , there *was* one person who was around at  $t_1$  (who was going to be around at  $t_2$ ).

All true. First, let us consider how things are before fission. At  $t_1$ , there is one person around, viz. Ted aka “Ed” aka “Fred”, who is counterpart-related to stages at  $t_2$ , so (17) is true. However, at  $t_1$ , looking forward to how things will be at  $t_2$ , we note that there will *then* be two people around whose stages at  $t_2$  are counterpart-related to the one stage involved in the case at  $t_1$  and so that (18) is true. Now consider how things are after fission. At  $t_2$ , there are two people around who were around at  $t_1$ , that

is two person-stages at  $t_2$  which are counterpart-related to a stage at  $t_1$  and looking back to  $t_1$ , there was one person-stage counterpart-related to both of those post fission stages, so both (19) and (20) are true. In each case, the count is a time-slice count of person-stages at a moment.

This leaves over the vexed question of how many people there are during non-momentary counting intervals. During any non-momentary temporal interval, there are infinitely many person-stages. Nevertheless, for some temporal intervals, counting indeterminately over stages that exist at different times during the counting interval, counting just one arbitrarily chosen stage from amongst those stages, yields the intuitively correct result. At every time before fission, there was one person-stage involved in the fission case, so at any arbitrarily selected time during that non-momentary temporal interval, the synchronic count is the same: one. So we say that there is one person before fission – which comports with uncorrupted intuitions. At every time after fission, there are exactly two concurrent person-stages around who are involved in the case, so, once again, it does not matter when we count during any non-momentary post-fission temporal interval. By the same reasoning, therefore, we say there are two people around after fission – again, the intuitively correct result.

As to the question of how many people there are “all along” in the fission case, during a counting interval that includes times both before and after fission, this counting procedure again yields the intuitively correct result: *bafflement*. During the  $t_1 - t_2$  counting interval, there was at some times one person-stage around but at other times two. So, the question of how many people there were “all along” in the fission case has no answer and that, again, comports with uncorrupted intuitions.

For non-momentary counting intervals during which fission has occurred, there is no reason why we should expect an answer to the question of how many people there were “all along” to have an answer any more than we should expect an answer to the question of how many European countries there were from the fall of the Western Roman Empire to the present. Leaving aside the vagaries of what it takes for a geopolitical entity to count as a country (The Holy Roman Empire?) and which countries count as European (Russia? Turkey?) countries regularly undergo fission and fusion. The Kingdom of Poland and Grand Duchy of Lithuania fused to form the Polish-Lithuanian Commonwealth and subsequently fissioned into Poland and Lithuania, which were later absorbed into Germany and Russia before re-emerging, for the time being, as the Republics of Poland and Lithuania. Given the proclivity

of countries to fission and fuse, we recognize that the question of how many European countries there were “all along” during the 476-2021 counting interval is not even a sensible question to ask.

This suggestion is likely to evoke the incredulous stare when it comes to the question of how many *people* were around at a counting interval during which fission occurred. Surely personal identity is more important than citizenship! It’s one thing to cease being Lithuanian when borders shift or countries are absorbed in other geopolitical entities, but it’s quite another thing for a person to cease being the person they are, that is, to cease being. On the stage view, however, what matters in survival is not identity but person-counterpart-relatedness. On the stage view, I am, at any time, an instantaneous person-stage viewing the world, including my own history and prospects, from my time-bound perspective. What matters to me at any time from my time-bound first-person perspective is how things went and will go to for earlier and later person-stages that are counterpart-related to me. What matters in survival, on the stage view, is counterpart-relatedness, not diachronic identity, and that, arguably, comports with our pre-theoretical intuitions. The stage view “leaves everything as it is”.

Personal identity, granted, is more stable than the identities of nation-states. But *if* persons underwent fission and fusion, as geopolitical entities regularly do, we should recognize that there was no answer to the question of how many people there were “all along” during counting intervals where fission or fusion occurred.

#### 4. Conclusion

I have argued that the stage-theoretical semantics sketched in the current discussion provides the best account of proper names available to stage theorists. It provides a plausible account of reference, of temporal predication, and of identity statements in both ordinary cases and extraordinary puzzle cases of personal fission. And it suggests a procedure for counting in fission cases that yields the intuitively correct results: one person before fission counting by identity, two afterwards, and no answer to the question of how many persons are involved “all along”. My contention, therefore, is that if you are a stage theorist, you should adopt this account of reference for names and temporal predications, identity statements and counting.

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### References

- Lewis, D. 1993. "Many, but almost one", in: J. Bacon, K. Campbell and L. Reinhardt (eds.), *Ontology, Causality and Mind: Essays in Honour of D. M. Armstrong* (Cambridge: Cambridge University Press), 23-38.
- Perry, J. 1972. "Can the self divide?" *Journal of Philosophy* 64(7), 463-488.
- Rychter, P. 2012. "Stage theory and proper names". *Philosophical Studies* 161(3), 367-379. doi:10.1007/s11098-011-9743-0.
- Schwarz, W. 2014. "Counterpart theory and the paradox of occasional identity", *Mind* 123(492), 1057-1094. doi:10.1093/mind/fzu143.
- Sider, T. 1996. "All the world's a stage", *Australasian Journal of Philosophy* 74(3), 433-453.
- Sider, T. 2001. *Four-Dimensionalism: An Ontology of Persistence and Time* (Oxford: Oxford University Press).