

## Transworld Identity

Recall the die, which I rolled, and landed on 4:



It is true that the die COULD HAVE landed on 6 (or 1, or 2, or 3, or 5):



But, think about what that means. We mean that THIS DIE could have landed on 6. In possible worlds speak, we say that there is a possible world where THIS DIE—numerically one and the same object—is rolled and lands on 6. In short, there is numerical identity between the actual die (which landed on 4) and the die which lands on 6 in that other possible world. Thus, there seems to be **transworld identity**; i.e., identity across possible worlds.

Similarly, if I say that ‘I could have been a truck driver’, what I mean is that there is a possible world where I AM a truck driver. This is not so strange. It simply means that there is a possible scenario which is such that, had that possible scenario obtained (i.e., been actual), I would still have existed—me, numerically one and the same person as the one who is typing this—only, I would have been a truck driver.

[Some Concerns:

- (1) Indiscernibility of Identicals. Recall the example of Socrates who sits at noon and is numerically identical to the man who stands at midnight. This raised a difficulty because it attributes numerical identity to “two” individuals who do not share all of the same intrinsic properties. We called this **the problem of temporary intrinsics**. A similar problem arises in the modal context. For instance, I might have had only nine fingers instead of ten. According to the theory of transworld identity, I (who have 10 fingers) am numerically identical to some individual in, say, world  $w_2$ , who only has 9 fingers. This seems like a violation of the indiscernibility of identicals. This problem is known as the **problem of accidental intrinsics**.

One solution is to suggest that all of our properties are ‘**world-indexed properties**’. That is, I do not simply have the property of being-ten-fingered. Rather, I have the

property of being-ten-fingered-*in-w*<sup>\*</sup>. Similarly, I have the property of being-nine-fingered-*in-w*<sub>2</sub>. But, then, as David Lewis points out, having ten fingers is not really an intrinsic property of mine after all. Rather, I have that property in relation to the actual world. This is an extrinsic, relational property. That seems wrong.

- (2) Counterpart Theory: Lewis's view avoids the problem of accidental intrinsics for the simple reason that there is NOT numerical identity between individuals in different worlds. How could there be? On his view, the nine-fingered (or the truck-driving) "me" is really OUT THERE somewhere in a different universe, driving a truck, nine fingers on the wheel. Clearly he and I are not numerically one and the same individual. Thus, Lewis rejects transworld identity in favor of **counterpart theory**. On his view, we understand <I could have been a truck driver> to mean that there is another physical universe "out there" somewhere, and in that universe there is someone who is very similar to me, and he drives trucks.

But, this gives rise to issues of its own. For, the existence of that other truck-driving guy doesn't seem to have anything to DO with the possibility that \*I\* could have been a truck driver. What the heck do I care whether someone who looks a lot LIKE me drives trucks in some other universe? When I say that \*I\* could have been a truck driver, I mean that there is a possible state of affairs where \*I\*--numerically one and the same individual as the person typing this—drive trucks. This is known as **the Humphrey objection** to counterpart theory (because the original example in the 1970's was 'Humphrey could have won the election' against Nixon).]

## Origin Essentialism

With the concept of Transworld identity in mind, we can ask, how different could things have been for me? Could I have had a tail? Or claws? Or scales? Or giant snapping jaws? Could I have been a full-on alligator instead of a human being? Intuitively, the answer is 'No'. In short, intuitively, being a human being is an **essential property** of mine; i.e., **in EVERY possible world where I exist, I am a human** (so, there are no possible worlds where I exist as an alligator). Here, we'll focus on the question of origin:

Question: Could you have had different parents? Could you have been, say, the daughter of Donald and Melania Trump? (They didn't marry until 2005, but met in 1998.)

Or: Could this wooden table—which originated from a certain hunk of wood—have originated instead from, say, a hunk of ice?

These are questions about trans-world identity (or "**de re**" **modality**—this translates as modality "of the thing"). That is, is there any possible world where YOU are the child of Donald Trump? And is there any possible world where THIS table was made of ice?

Intuitively, the answer to these questions is also 'No'. In short, your ORIGIN is ALSO an **essential property** of you (and the table's origin is an essential property of it). In possible worlds speak: Plausibly, originating from your actual parents, or from a particular combination of sperm and egg, is **a property that you have in every possible world where you exist**.

**Branching: An Intuitive Appeal:** An intuitive way of thinking about de re modality is as a branching view of possibilities. For instance, as Kripke points out,

Ordinarily when we ask intuitively whether something might have happened to a given object, we ask whether the universe could have gone on as it actually did up to a certain time, but diverge in its history from that point forward so that ... that object would have been different from that time forth. (footnote 57)

For instance, think of all the ways you could have been. You could have been a truck driver. You could have gone to UVA. When we think about these possibilities, we typically think of some actual point in your life, where you were at some FORK in the road, and then imagine how things would have gone, had you taken that path instead of the actual one that you took. That is, we think of all of the possibilities for your life as BRANCHES from some point in your actual life.

But, how far back in your timeline can we go? If you could have become a truck driver when you were 18, it stands to reason, that you could have run away from home when you were 10. Going further back still, it seems true that you could have even been switched at birth, to be raised by another family. So, as we travel back and back along your timeline, it seems true that things could have branched from there. But, could even your ORIGIN have been different? Intuitively, this could NOT have been different.

Intuitively, at every moment in your life, the future is "open", but every possibility for you individual must be "anchored", so to speak, in your actual life. Penelope Mackie calls this the 'overlap requirement', writing,

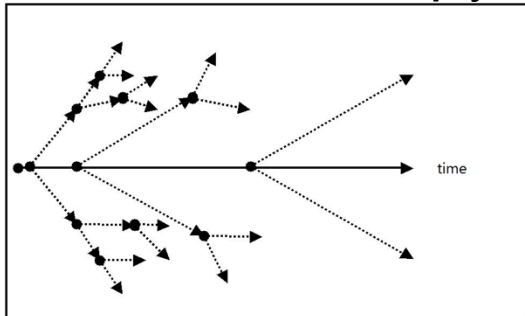
The idea behind the overlap requirement is, roughly, this: when you are considering how Julius Caesar might have been different, you have to take Julius Caesar as he actually was at some time in his existence, and consider what possibilities there are for him that are consistent with his being as he actually was at that time in his existence. (I intend the overlap requirement to represent a principle about *de re* modality that has some intuitive plausibility, corresponding to the idea that we can 'keep hold' of an actual individual in a possible situation only by 'anchoring' it to its actual history. (108)

Imagine that we gave up The Overlap Requirement. The result would allow for the possibility that you could have been born in 4000 BC, to different parents, from a

different sperm-egg combination, looked completely different, and led a completely different life than the one you are actually living. In what sense would this person we are describing be YOU!?

But, notice that, if the future could have unfolded differently, but all divergences into the future are divergences from some point in your ACTUAL history, the resulting picture is one where all of the possibilities for your life form a branching "tree", where the "trunk" (i.e., your origin) is the one thing which could not have differed (it is your ultimate source—the fountain from which all of your de re possibilities spring forth), like this:

### The Structure of De Re Metaphysical Possibility



Here, the solid line represents your actual life—the way things ACTUALLY went for you. The dotted branches represent the ways things could have gone for you. The furthest node to the left represents your origin. Thus, the claim that your origin is an essential property of yours—i.e., you could not have had a different origin—has some intuitive appeal.

**2. Something Like Proof:** It's not merely intuitive. Saul Kripke famously offered "something like proof" of the claim that your origin is an essential property of yours (in note 56). Graeme Forbes (my dissertation advisor) elaborated on this proof as follows:

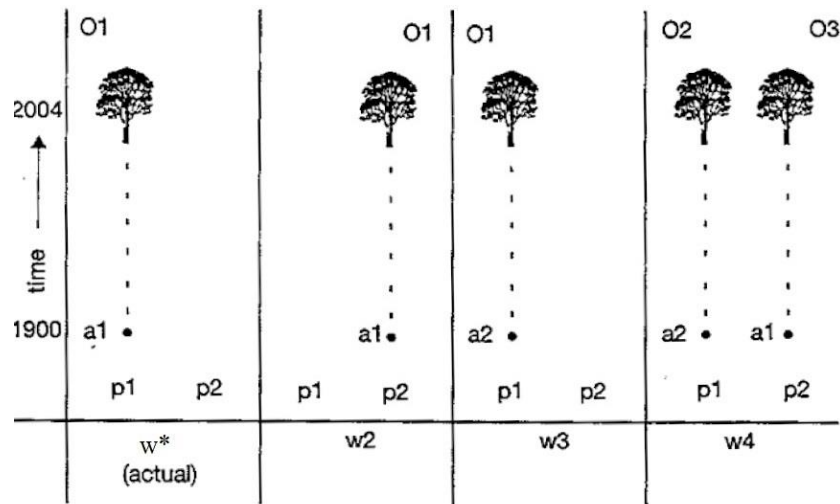
### The Four Worlds Paradox

Consider three possible worlds:

- $w^*$  – Suppose that, in the actual world ( $w^*$ ), there exists a particular oak tree ( $O_1$ ), which originated from a particular acorn ( $A_1$ ) which was planted in a particular place ( $P_1$ ).
- $w_2$  – Intuitively, it is possible that our particular oak tree ( $O_1$ ) originated from the same acorn ( $A_1$ ), but had been planted in a different place ( $P_2$ ). This possibility is represented by possible world  $w_2$ .
- $w_3$  – But, if things can have different origins, then it is ALSO possible that our oak tree ( $O_1$ ) originated from a DIFFERENT acorn ( $A_2$ ), but planted in the same place particular place ( $P_1$ ). This possibility is represented by possible world  $w_3$ .

But, then, there is ALSO a 4<sup>th</sup> possible world, as follows:

- $w_4$  – It is possible that there exist two oak trees: The first ( $O_2$ ) originates from acorn  $A_2$ , planted in place  $P_1$ . The second ( $O_3$ ) originates from acorn  $A_1$ , planted in place  $P_2$ . This possibility is represented by possible world  $w_4$ .



Intuitively, at least one of the oak trees in  $w_4$  is trans-world identical to our actual oak tree,  $O_1$ . But, now as: Which one is it?  $O_2$  or  $O_3$ ? Or neither? Or both?

It can't be both. For, then, by transitivity we would get an impossible result. For, if  $O_1=O_2$  and  $O_1=O_3$ , it would follow that  $O_2=O_3$ . In other words, it would follow that the "two" oak trees in world-4 are really **numerically one and the same oak tree!** That's false.

Intuitively, the answer is also not "neither". For, that seems to entail that worlds 2 and 3 are both impossible. But, surely at least ONE of them is possible! Which one? Forbes says that, of the two trees in world-4, the tree that clearly has the stronger claim to being trans-world identical to  $O_1$  is  $O_3$ . Why? Because, both  $O_1$  and  $O_3$  originate from one and the same acorn ( $A_1$ ).

He concludes that  $w_3$  turns out to be metaphysically impossible. So, while  $O_1=O_3$ , it turns out that  $O_1 \neq O_2$ . So, the tree in world  $w_3$  in our graph above is actually mislabeled. It CANNOT be the same tree ( $O_1$ ) since it does not originate from the same acorn as  $O_1$ . *[Hmm, does this remind you a bit of the split-brain puzzle?]*

**[For humans:** Here is a brief sketch of how this proof would go if we were asking about HUMAN origins instead of TREE origins: Let us call the zygote (sperm-egg fusion) from which *you* actually originated *Alpha*, and call the zygote from which *I* actually originated *Beta*. If it is possible for you to have had a different origin than the one you actually had, then it is possible for you to have originated from Beta instead of Alpha. But, then, if both Alpha *and* Beta could be your origin, then there is a possible scenario where one individual originates from Alpha, and another individual originates from Beta, and *both of these individuals are trans-world identical to you*. But, this is implausible. For, then (by transitivity), these two individuals would ALSO be identical to each other! But, they are two distinct individuals, in two places at once. We may conclude that you could not have originated from any zygote other than the one from which you *did* in fact originate.]

Conclusion: Since this proof is reproducible for all organisms, just as it seems that the tree could not have originated from a different acorn, so too YOU could not have originated from a different zygote (i.e., sperm-egg fusion). In short, necessarily, you originated from (i) Some particular collection of matter, (ii) arranged in a certain way, (iii) at or around a certain time. These are **essential properties** of yours. [*And not only is your origin a NECESSARY condition of your existence (i.e., you could not have existed without it), it also seems to be a SUFFICIENT condition (i.e., ANY tree originating from  $A_1$  is  $O_1$ ; and ANY human originating from the zygote fitting the description above is YOU).*]

**Two Objections to Origin Essentialism:** Yet, this thesis is not without its difficulties.

1. The Recycling Problem: The first problem follows if we add the plausible assumption that the EXACT TIME of your origin is not essential to your identity. Intuitively, you could have been conceived an hour earlier or later. But, then, this problem follows:

**Recycled Zygote (aka the Zygote of Theseus)** Consider the following two possible worlds:

$w^*$  – In the actual world, you originate from a zygote ( $Z^*$ ), composed of a particular collection of matter (M), with a particular initial configuration (C), at a particular space-time location (L).

$w_2$  – In world  $w_2$ , a zygote ( $Z_1$ ) originates from the same matter (M) and configuration (C) as  $Z^*$  in  $w^*$ , but at a time five hours earlier than L. Zygote  $Z_1$  quickly begins cell-division, taking in new matter as nutrients, and shedding some original matter as waste. As it happens, the material that  $Z_1$  sheds as it divides includes all of that same set of matter (M) that  $Z_1$  was originally composed of. Ten hours after  $Z_1$  begins to exist (that is, five hours later than L), by some unlikely turn of events, this collection of matter (M) coalesces to form a *second* (re-constituted, or 'recycled') zygote,  $Z_2$ , with the same configuration (C) that  $Z_1$  had.

Now ask: In world  $w_2$ , from which zygote (if any) do you originate?  $Z_1$  or  $Z_2$ ? That is, which of these two zygotes is numerically trans-world identical to the one that you *actually* originated from ( $Z^*$ )? The answer seems to be BOTH, for *both* of the zygotes in  $w_2$  originate (i) from the same matter, M, (ii) with the same initial configuration, C, (iii) at approximately the same space-time location, L. But, then the individuals originating from  $Z_1$  and  $Z_2$  in  $w_2$  are numerically one and the same—which is surely false. If the answer is 'neither', then this seems to entail that you could not have originated from a materially identical zygote 5 hours earlier or later than you actually did—again, an implausible result. We could of course insist that you are identical to ONE of the two individuals, but not the other. After all,  $Z_1$  has the more impressive claim of being the

FIRST zygote of its kind. In that case, another essential property of yours is that you were the FIRST organism to originate from a zygote of a certain sort. This was in fact Forbes' reply to this puzzle—but it's starting to sound pretty ad hoc. (*It also delivers counter-intuitive results in other variants of this case; see Hawthorne & Gendler, 2000*)

2. The Tolerance Problem: The second problem follows if we add the plausible assumption that the EXACT from which your zygote was formed is not essential to your identity. Intuitively, your zygote could have been made of slightly different material. But, then, this problem follows:

**Tolerant Zygote** Consider the following four possible worlds:

$w^*$  – In the actual world, you originate from a zygote ( $Z^*$ ), composed of a particular collection of matter ( $M^*$ ). For simplicity, imagine that this collection has only three parts: A, B, and C.

$w_2$  – In world  $w_2$ , a zygote ( $Z_2$ ) originates from a collection of matter ( $M_2$ ), which is composed of three parts: B, C, and D.

$w_3$  – In world  $w_3$ , a zygote ( $Z_3$ ) originates from a collection of matter ( $M_3$ ), which is composed of three parts: C, D, and E.

$w_4$  – In world  $w_4$ , a zygote ( $Z_4$ ) originates from a collection of matter ( $M_4$ ), which is composed of three parts: D, E, and F.

Now, if your actual zygote ( $Z^*$ ) could have originated from slightly different matter, then it could have been made of {B, C, D} instead of {A, B, C}. If that's right, it turns out that  $Z^*=Z_2$ .

But,  $Z_2$  could have been made of slight different matter too. So, it could have been made of {C, D, E} instead of {B, C, D}. On this assumption, it turns out that  $Z_2=Z_3$ .

But,  $Z_3$  could have been made of slight different matter too. So, it could have been made of {D, E, F} instead of {C, D, E}. On this assumption, it turns out that  $Z_3=Z_4$ .

But, now, by transitivity, it turns out that  $Z^*=Z_4$ . That is, it turns out that you could have originated from a zygote with ENTIRELY DIFFERENT MATTER! That seems false.

Conclusion: Now, in response to these problems, we MIGHT just insist that the EXACT conditions of your origin (exact time, exact material) are essential properties of yours. But, most find this implausible. Surely you would still have been born if, say, your parents had conceived a few minutes later than they did; or if your zygote had contained one different atom than it in fact did! The alternative, however, is to give up the necessity of origin altogether! We'll look at that option next time. (*Or not. Deleted.*)