Possibilities and the Arguments for Origin Essentialism

TERESA ROBERTSON

In this paper, I examine the case that has been made for origin essentialism and find it wanting. I focus on the arguments of Nathan Salmon and Graeme Forbes. Like most origin essentialists, Salmon and Forbes have been concerned to respect the intuition that slight variation in the origin of an artifact or organism is possible. But, I argue, both of their arguments fail to respect this intuition. Salmon's argument depends on a sufficiency principle for cross-world identity, which should be rejected, if—as Salmon concedes—a given artifact might have been originally made from slightly different material. Similarly, Forbes's argument succeeds only if essentially the same argument can be used to establish a claim that—by his own admission—is too strong, namely that no variation, however slight, in an organism's origin is possible.

> I see no reason, then, for thinking essentialism unintelligible. At the same time, I do not mean to suggest that it is without its perplexities. Chief among these is the obscurity of the grounds on which ratings of attributes as essential or accidental are to be made. Apparently, in any particular case, one is simply to reflect on the question whether the object in question could or could not have lacked the attribute in question ... . But the criteria to which one appeals in such reflection are sufficiently obscure to leave me, at least, with an embarrassingly large number of undecided cases ... . The existence of such cases ... does show that the distinction [between essential and accidental attributes of an object] is a good deal less clear than essentialists are wont to suppose. (Richard Cartwright 1968, p. 626)

1. Introduction

Naming and Necessity (Kripke 1972) changed the way we think about metaphysical modality. Prior to it, broadly conceptualist accounts reigned: all necessities were analytic truths, truths of logic, conceptual truths, or the like, and apparently de re necessities (for example, that Karen is self-identical or that Julianne is such that 7 + 5 = 12) were all unexcitingly trivial. Then Kripke changed this, in part by defending origin essentialism: the wooden table in his Princeton lecture room could not, he claimed, have been made from a completely different block of wood nor

Mind, Vol. 107 . 428 . October 1998

could Queen Elizabeth have originated from a totally different sperm and egg. The plausibility of such essentialism has done much to change our thinking about the basis of metaphysical modality: certainly it has made it difficult to say that possibility and necessity are ultimately just "in the head". But given that not everyone has the *intuition* that origin is essential—I for one do not—it matters greatly whether there are good arguments for the view. Of course Kripke did more than just claim that origin is essential; he offered "something like proof" of it (1972, note 56). Subsequent thinkers have gone further, providing rigorous arguments based on the outline suggested by Kripke. In this paper, I examine two of the best of these arguments and show that they fail. Moreover, I show that they fail for a similar reason. If I am right, we should expect that other Kripke-style arguments—and these are the only kind I have seen on offer—will fail too.[1] Origin essentialism, at least, is indeed a good deal less clear and well-armored than many of its champions suppose.

2. *Possibilities and the claims of origin essentialism*

My table, which I will call "Albert", was originally made from some particular wood, nails, and glue. It could have been originally made from slightly different matter. One way that this could have happened is if, for example, the person who made Albert had picked up and used a few nails numerically different from the ones she actually picked up and used. In general, then, we have

[Pa] Slight variation in the original material constitution of a table is possible.

[Pa]—the "P" is for possibility—declares that certain original possibilities are open to tables. [Pa] is vague. It does not say exactly how much variation in material origin is allowable. It says only that some is. Although we might haggle about the details (clearly a few molecules' difference is possible, but how about a million? a billion? a trillion?) [Pa] cannot plausibly be denied. Any would-be essentialist about origin does well to bear [Pa] in mind, taking care to advocate only claims that are compatible with it.

Consider now the following claim of origin essentialism advocated by Nathan Salmon:

[Ea] A given table, x, that is originally constructed from a hunk of matter y, could not have been the only table originally constructed

[1] McGinn (1976) and Noonan (1983) offer unsuccessful arguments of this type. I discuss Noonan's argument in note 16. Forbes (1985) discusses McGinn.

> from z, any hunk of matter that has no matter in common with y (not even a single molecule, atom, or subatomic particle).[2]

[Ea]—the "E" is for essentialism—it seems, has the desired compatibility with [Pa]. Certainly there is no obvious conflict between the two claims. In fact, Salmon defends the compatibility of claims like [Pa] and [Ea] against the charge that there is a subtle conflict between them.[3] He, it seems, wants no part of an essentialism that denies [Pa].

I originated from a particular zygote, z, which in turn originated from a particular pair of gametes, say, sperm s and egg e. Although z originated from s and e, it could have originated from precursors other than s and e. Consider these science fictions:

> Suppose z is a human zygote that is formed by fusion of a sperm s with an egg e. Then one can conceive that scientists synthesize a zygote by building it nucleotide by nucleotide, and happen to use exactly the actual matter of z in exactly its actual z-configuration. In such a world, s and e do not exist, or so we can consistently postulate, but it is hard to deny that z exits. So z exists but does not originate from s and e, since they do not exist. (Forbes 1986, p. 7)

> Scientists could surely synthesize cells—perhaps half a dozen or so—that [all] fuse to produce the atom-for-atom replica of z as it actually is, which is again a situation in which s and e do not exist. (Forbes 1986, p. 8)

In the first story, a zygote is synthesized directly. In the second, six or so synthesized germ cells fuse to produce a zygote that is made of the very same matter (the very same individual atoms), in the very same configuration, as the zygote z. It is hard to deny that z might exist in situations like these. Generalizing what these science fictions suggest, we have

> [Pb] A given zygote, z, that originates from a collection of precursors, y, could have originated from y', any distinct collection of precursors that could give rise to an atom-for-atom replica of z.

[Pb] declares that certain original possibilities are open to zygotes. Any would-be essentialist about origin does well to bear [Pb] in mind, taking care to advocate only claims that are compatible with it.

Graeme Forbes makes the following claim of origin essentialism.

> [Eb] It is not the case "that an organism could develop at one [possible] world u from one collection of propagules and at another v from an entirely distinct collection of propagules, where the two col-

[2] The phrase "the only table" no doubt sounds odd. The reason for that oddity will be explained in the next section. [Ea] corresponds to the last conclusion given on page 229 (Salmon 1981).

[3] See Salmon (1986, 1989).

> lections both exist simultaneously at *u*, or more weakly, are simultaneously compossible, i.e., all exist together at the same time at some world" (Forbes 1986, p. 8).[4]

[Eb], it seems, has the desired compatibility with [Pb]. Certainly there is no obvious conflict between the two claims. In fact, Forbes (1986) intends the claim of [Eb] to be compatible with the examples that were used to support [Pb]. He, it seems, wants no part of an essentialism that denies [Pb].

Intuition directly supports [Pa] and [Pb].[5] That intuition is fairly widespread, shared by believers in origin essentialism and agnostics alike. But what supports [Ea] and [Eb]? For some, the believers, the answer here is also intuition. But this intuition is hardly widespread. It is fitting then that advocates of [Ea] and [Eb] have given arguments that offer agnostics a route to belief. Perhaps too, these arguments offer reassurance to believers. In §3 and §4, I show that the arguments given for [Ea] and [Eb] cannot be maintained without sacrificing [Pa] and [Pb] respectively. This is to say that the arguments should neither move the skeptic about the essentiality of origin nor reassure the believer.

3. *Salmon's argument*

3.1 Presentation of the argument

Salmon offers an argument for the essentiality of origin for tables that is based on the much-discussed note 56 of *Naming and Necessity* (Kripke 1972). He offers three versions of the argument, endorsing the last. Since

[4] As Forbes somewhat idiosyncratically uses the term, one organism is said to be a "propagule" of another "if it fuses or divides to produce the other" (1986, p. 8). Thus "the oak tree's propagule is its acorn, while a human's propagule is his zygote, whose propagules are in turn the sperm and egg whose fusion that zygote is" (1985, p. 133). I will adopt Forbes's usage here. My [Pb] however contains the word "precursor" instead of "propagule", since I want [Pb] to cover the first science fiction example, which seems to be a case in which the zygote lacks *propagules* altogether: synthesizing is not fusing or dividing, as Forbes understands those terms (1986, pp. 7–8). Forbes also assumes (or, perhaps, makes it part of his definition) that propagules could not have very different matter or very different structure (across times or worlds). Thus the simultaneous compossibility of two collections of propagules amounts to the two collections involving very little, if any, of the same matter.

[5] I know of no one writing on this topic who wants to deny [Pa] or [Pb]. All seem to agree with Lewis who says that it would be "extravagant" to deny such claims (1986, p. 244). Even Kripke's original formulations of origin essentialism are cautious: he says that the wooden table in the Princeton lecture room could not have been made from a "*completely* different block of wood"; similarly, he says that Queen Elizabeth could not have originated from a "*totally* different sperm and egg" (1972, p. 113, my changes of emphasis). In conversation, Kripke has said that he is inclined to accept the science fiction examples as genuine possibilities.

that version seems quite odd in the absence of a discussion of the other versions, I follow Salmon in presenting all three. Here then is the first:

> Let "x" and "x'" range over (possible) tables.[6]
>
> Let "y" and "z" range over hunks of matter. When they appear together in a claim, it is to be understood that the hunks of matter in question do not "overlap" (that is, do not have any matter in common).

Let, for example, "x is originally constructed from y" mean that x is originally made entirely from all of hunk y.

(P1) If a table x is originally constructed from y and it is possible for a table to be originally constructed from z, then it is also possible for table x to be originally constructed from y and in addition some table or other x' to be originally constructed from z.

(P2) It is impossible that a single table x is originally constructed from y and in addition is originally constructed from z.

(P3) If it is possible that a table x' is originally constructed from z, then necessarily, any table originally constructed from z is the very table x' and no other.[7]

(C) Therefore if a given table originates from a certain hunk of matter, then it is necessary that the given table does not originate from any nonoverlapping hunk of matter (that could be made into a table).[8]

To get a feel for how this argument works, it is helpful to think about a particular case. Consider again my table Albert. Albert, you recall, was originally made of a combination of wood, nails, and glue. Call this heterogeneous hunk of matter, "Hunk1". Consider a different hunk of matter, Hunk2, that has no matter in common with Hunk1, but which could itself be made into a table. This case satisfies the antecedent of (P1). What (P1) then says is that given that Albert is originally made from Hunk1 and given that Hunk2 could have been made into a table, Albert could have been orig-

[6] One who thinks that there is an actual hunk of wood that will never be made into a table, but that could have been, believes in a merely possible table, in the sense intended here.

[7] This is a sufficiency condition for cross-world identity. It says that if possible table x' has the property of being originally constructed from z and possible table x'' has the property of being originally constructed from z, then $x' = x''$.

[8] A stronger conclusion—that if it is *merely possible* that a given table originates from a certain hunk of matter, then it is necessary that the given table does not originate from any nonoverlapping hunk of matter (that could be made into a table)—is obtained, if we modify the first premise so that it says, "If it is merely possible that a table x is originally constructed from y and ..." (where the rest of the premise remains the same). I use the more specific version of the argument to avoid cumbersome wording, but it should be clear that since there is nothing special about the actual world in this argument, the stronger conclusion is warranted. The more general versions of (P1), (P2), and (P3) appear in Salmon's as (IV), (I), and (V) (1981, pp. 203, 200, and 206 respectively).

inally made from Hunk1 while *in addition* Hunk2 was made into a table. And this seems right: surely there is some possible world in which this happens. (P2) tells us that in any such world, the two tables are distinct from one another: in possible worlds talk, (P2) just says that no table has distinct nonoverlapping origins in a *single* possible world. Now consider some particular world in which this happens. We can give the table that is originally made from Hunk2 in that world a name, say, "Brian". (P3) tells us that any (possible) table—that is, any table on any possible world—that is originally made from Hunk2 is Brian and not some other table. Since, by (P2), Albert is distinct from Brian, this means that Albert could not have been originally made from Hunk2.[9] We can think of (P1) as the "compossibility premise", (P2) as the "impossibility premise", and (P3) as the "sufficiency premise". Now that we have a feel for this first version of the argument, we can turn first to Salmon's evaluation of it and next to his modification.

(P1) and (P2) have the approval of naive opinion. What (P1) claims is a genuine possibility does indeed seem to be one. (P2) is on even firmer ground: what could be more obvious than that each thing has no more than one *origin* at each possible world? (P3), the sufficiency premise, though is another matter: it does not square with our naive opinions about what is possible.

A problem with (P3) is diagnosed by Salmon himself: it is too strong (1981, p. 210). To see why, consider an actual table, Caleb, that is originally made of *m*. It would seem that *m* could have been made into a table, Dirk, that differs radically in design and structure from Caleb. (P3) would identify Caleb and Dirk: it tells us that since it is possible that Caleb is originally constructed from *m*, any table that could be originally constructed from *m* (for example, Dirk) is Caleb. Since this is unpalatable, Salmon offers the following weaker sufficiency premise in place of (P3).

(P3′) If it is possible that a table x' is originally constructed from z *according to a certain plan* P, then necessarily, any table originally constructed from z *according to* P is the very table x' and no other.[10]

Since all tables must be made in accordance with some plan or other, the conclusion of the argument is unchanged.

Still, trouble for the sufficiency premise is not over. The mere possibility of a ship-of-Theseus type case, Salmon argues, provides a counterexample. Suppose there is a table, Ed, that is originally made of matter *m*

[9] Here the argument uses the necessity of diversity, the claim that for all x and for all y, if x is not identical to y, then necessarily x is not identical to y. This claim goes hand in hand with the necessity of identity, the claim that for all x and for all y, if x is identical to y, then necessarily x is identical to y. The two claims together are often referred to under the single term "the necessity of identity". I take both claims to be uncontroversial.

[10] (P3′) corresponds to Salmon's (V′) (1981, p. 211).

according to plan *P*. As time goes by, Ed undergoes various repairs until finally Ed is constituted by matter that is wholly distinct from the matter from which it was originally constituted. At this point, matter *m* is gathered together and fashioned into a table, Fred, according to the same plan *P* by which Ed was made. (P3′) identifies Ed and Fred: it tells us that since it is possible that Ed is originally constructed from *m* according to plan *P*, any table that could be originally constructed from *m* according to plan *P* (for example, Fred) is Ed. Clearly this identification is wrong: Ed and Fred exist simultaneously.[11] In response, Salmon further weakens the sufficiency premise, replacing (P3′) with (P3″).

(P3″) If it is possible that a table *x*′ is *the only table* originally constructed from *z* according to plan *P*, then necessarily, any table that is

[11] One might dispute this by arguing that the table that results from the gradual replacement over time of all of Ed's original matter is not Ed, but some other table, call it "Zed". The fact that Zed and Fred exist simultaneously obviously does not rule out that Ed and Fred are identical. This stance is particularly appealing in cases like the one offered by Kaplan (noted in Salmon 1981, p. 221): An unscrupulous philosopher has been commissioned to disassemble Columbus's *Nina* in his garage and then to transport the disassembled parts to a museum where he is to reassemble the ship; even if this philosopher had, as he disassembled the ship, replaced each plank before removing the next, we would think the *Nina* is the ship that gets reassembled at the museum and not the ship that remains in the philosopher's garage. None the less, there are other ship-of-Theseus cases in which we have clear intuitions the other way. Since Salmon is trying to establish a general thesis about tables (and by analogy any other sort of artifact), he is right to modify his argument in response to such cases.

Moreover, a modification seems in order given that Salmon intends his remarks about artifacts to have analogs in the case of organisms. The analog of this counterexample in the case of organisms is a pair of ordinary identical twins, Ed and Fred. This is to say that the analog to (P3′) in the case of organisms (namely, that sameness of propagule(s) and kind is sufficient for identity) is patently false: identical twins are not of course numerically identical; they do originate from the same zygote, and in turn from the same sperm and egg. There is a tendency in the literature on origin essentialism to overlook identical twins. Noonan writes that "the common-sense view is that ... in the case of organisms, sameness of propagule(s) and thing-kind is sufficient but not necessary [for transworld identity]" (1983, p. 8). Noonan gives an elaborate criticism of this so-called commonsense view, but never mentions that the case of twins straightforwardly falsifies it. And Forbes endorses a "principle of propagule-and-sort indiscernibility" (PSI), which reads as follows: "If *x* is an organism at [possible world] *u* with exactly the propagules $z_1 \ldots z_k$ and *y* is an organism at *v* with exactly the propagules $z_{k+1} \ldots z_{2k}$ then *x* and *y* are the same organism iff (i) $z_i = z_{k+j}$, $1 \leq i \leq k$ for some $j \leq k$, and (ii) the sort of *x* at *u* is the same as the sort of *y* at *v*" (Forbes 1985, pp. 147–8). Since there is nothing barring *u* and *v* being the same world, Forbes's principle commits him to the view that each of a pair of identical twins is of a different sort than the other.

Even if we lean very heavily on the idea that (P3′) is supposed to be a sufficiency condition for *cross*world identity (exclusive of *intra*world identity), (P3′) is no better off. Let "World1" name the "table-of-Theseus" world just described in the main text. Let World2 be a world in which only Ed is made. (P3′) then identifies Ed with *both* Ed and Fred. Similar remarks apply of course to the claim of Noonan's commonsense man and to Forbes's (PSI).

> *the only table* originally constructed from z according to plan P is the very table x' and no other.[12]

This modification will change slightly the conclusion of the argument. We now have (C″).

> (C″) If a given table originates from a certain hunk of matter, then it is necessary that the given table is not *the only table* to originate from a nonoverlapping hunk of matter.[13]

(C″) is the conclusion of the final version of Salmon's argument and amounts to [Ea].

3.2 Preliminary remarks on the argument

Salmon seems quite happy with (C″), using it again in at least one later article (1986). Yet it is obviously defective as a claim of origin essentialism, since it leaves open the possibility that Albert could have been originally made of wholly different matter. How so? For all (C″) says, Albert could have been one of *two* (or three or four ...) tables originally made from, say, Hunk2. (C″) alone seems hardly worth any philosophical attention. But materials that do result in an argument for origin essentialism can none the less be found scattered in Salmon's work.

Consider

> (C‴) If it is [merely] *possible* for a table x to be originally constructed from a hunk of matter y, then table x could not have been the only table originally constructed from any nonoverlapping hunk [z]. (Salmon 1981, p. 229, my changes of emphasis)

This claim, which is slightly stronger than (C″), is warranted on the basis of the argument we have been considering, provided that there is nothing special about the actual world in that argument.[14] Contraposing (and changing the variables: y for z and vice versa) gives

> (C⁗) If it is possible for a table x to be the only table originally constructed from a hunk of matter y, then table x could not have been originally constructed from any nonoverlapping hunk [z]. (Salmon 1981, p. 229, my deletions of emphasis)

Given the plausible assumption

> (P5) If it is possible for a table x to be originally constructed from a hunk of matter y, then it is possible for x to be the only table originally constructed from a hunk of matter y,

we obtain the desired claim of origin essentialism:

[12] (P3″) corresponds to Salmon's (V″) (1986, p. 229).

[13] (C″) corresponds to the second conclusion Salmon (1981) gives on page 229.

[14] See note 8.

(C*) If it is possible for a table x to be originally constructed from a hunk of matter y, then table x could not have been originally constructed from any nonoverlapping hunk z.

Unlike (C″), (C*) does seem to be of genuine philosophical interest. This then gives us some reason to think that (C″) is worth our attention.

3.3 Criticism of the argument

I now offer two objections to (C″), both of which focus on the sufficiency premise, (P3″).

First, consider again the "table-of-Theseus" world that was described. Surely Ed could have been the only table to have been made from m according to plan P. Moreover, Fred could have been the only table to have been made from m according to plan P. (P3″) would again identify Ed and Fred: it tells us that since it is possible that Ed is the only table originally constructed from m according to plan P, any table that could be the only table originally constructed from m, according to P (for example, Fred) is Ed. And that of course is absurd.

It might seem open to Salmon to respond by saying that though Ed could have existed without Fred, Fred (the table assembled from Ed's slowly discarded and replaced original matter) could not have existed without Ed. This would entail that Fred could *not* have been the *only* table originally constructed from m according to P. But such a move would mean denying (P5), and without (P5) the route that I suggested to (C*) is blocked.[15]

Let's suppose, for sake of argument, however, that there is some other route from (C″) to (C*). Still, I think that we cannot get to (C″), since there is another problem with (P3″). Consider an "almost-table-of-Theseus" world. Suppose there is a table, Gary, that is originally constructed from matter m', which has all but a few molecules in common with m. Moreover, Gary is originally constructed in accordance with plan P. At some point in its long life, Gary comes to be constituted of matter that has nothing at all in common with m. (That's not a typo or a "thinko": I do mean m and not m'.) Matter m is gathered together and fashioned into a table, Harry. Moreover Harry is originally constructed in accordance with

[15] Here's a move that is tempting, but to my mind, misguided. Consider

(P5′) If it is possible for a table x to be *the first table* originally constructed from a hunk of matter y, then it is possible for x to be the only table originally constructed from a hunk of matter y.

From this and (C‴) we can derive

(C*′) If it is possible for a table x to be *the first table* originally constructed from a hunk of matter y, then table x could not have been originally constructed from any nonoverlapping hunk z.

(C*′) is to my mind unacceptably odd: it is rather like deriving origin essentialism for a first-born twin but not for a second-born twin.

plan *P*. This is an "almost-table-of-Theseus" world. Surely it is possible for Harry to be the only table originally made from *m* according to *P*: indeed, that's just what Harry is in the world I just described. But, it seems equally possible for *Gary* to be the only table originally made from *m* according to *P*. After all, *m* differs from *m'* by only a few molecules. Salmon's sufficiency premise (P3″) identifies Harry and Gary: it tells us that since it is *possible* that Gary is *the only table* originally constructed from *m* according to *P*, any table that could be the only table originally constructed from *m* according to *P* (for example, Harry) is Gary. But Harry is not Gary.[16]

The heart of my second objection to Salmon is that we can generate counterexamples to his sufficiency premise on the assumption that a given table could have been made of slightly different matter. In other words, Salmon's argument cannot succeed unless [Pa] is denied.

4. *Forbes's argument*

4.1 Presentation of the argument

Forbes supports [Eb], the claim that it is not the case "that an organism could develop at one [possible] world *u* from one collection of propagules and at another *v* from an entirely distinct collection of propagules, where the two collections both exist simultaneously at *u*, or more weakly, are simultaneously compossible, i.e., all exist together at the same time at

[16] It will not help to add artisan and location of construction to the sufficiency premise, since we may suppose that Gary and Harry are made by the same artisan at the same location.

One might be tempted to add time of construction to the sufficiency premise. But, as I will explain, this will not help either. (Noonan (1983, p. 4) adds time of construction to (P′). But if I am right that adding time to (P″) does not do the trick, then a fortiori adding time to (P′) does not either.) Suppose that Gary is made in 1990 and Harry is made in 1992. It seems that Gary could have been made a couple of years later: maybe the artisan's table saw broke down and she didn't get around to having it repaired for a couple of years. And that delay might have caused Gary to have been originally made from *m* instead of *m'*: it is after all likely that the boards that were sitting in the garage for those two years—from the time the table saw broke down to the time it was repaired—lost and gained a few molecules. Maybe *m* never came to originally constitute any other table. All this is to say that Gary could have been the only table originally constructed from matter *m*, according to plan *P* in 1992. Now, it should be clear that the revised sufficiency premise would identify Gary and Harry: (P3″) tells us that since it is possible that Gary is the only table originally constructed from constructed from *m* according to plan *P* in 1992, any table that could be the only table originally constructed from *m* according to *P* in 1992 (for example, Harry) is Gary. But Harry is not Gary.

some world", by arguing that a particular tree, *t*, could not have come from an acorn different from the one it actually came from. The idea is that *t* in the argument is acting as proxy for any organism; the acorn from which *t* came, *a*, is acting as proxy for the collection of propagules from which the relevant organism arose; and the distinct acorn, *b*, is acting as proxy for a collection of propagules that does not materially overlap *a*.[17]

Forbes asks us to consider four (allegedly) possible worlds; the argument is a reductio on the second world. (This argument is, perhaps, easier to follow, if you refer to the diagrams at the end of this paper.) The first world, *W1*, is the actual world: it contains a yard, which contains a tree, call it "*t*", which grows from a certain acorn, *a*. *W2*, the second world, one that should be acknowledged as possible by anyone who denies the essentiality of origin, is just like *W1* except that *t* grows from acorn *b*, which is distinct from *a*. To put this a little more carefully, *W2* is as much like the actual world *as is compatible* with the difference specified. The tree in *W2* is supposed to resemble the tree in *W1* as far as is possible given that it grows from acorn *b* rather than *a*. In particular, Forbes says that the tree in *W2* very quickly comes to be constituted of the same matter as the tree in *W1*. In *W3*, both acorns *a* and *b* are planted. *W3* is supposed to be highly similar (again, as similar as is compatible with the difference to be specified) to *W2*, except that in addition to there being a tree grown from acorn *b*, there is, planted across the yard, a tree grown from acorn *a*. For convenience, I call the *a*-tree of *W3* "*r*" and the *b*-tree of *W3* "*s*". It is left open, for now, whether either of these trees is identical to *t*. Tree *s* is supposed to be just like the tree in *W2*. The only differences between them are those having to do with the fact that *s* shares the yard with *r* whereas the tree of *W2* does not. In particular, *s*, like the tree in *W2*, resembles the tree in *W1* to a very high degree. Finally, *W4* is a world in which *t* grows from acorn *a* and is otherwise just like *r* (except that *r* shares the yard with *s* whereas *t* in *W4* does not).

[17] When I say that one collection of propagules materially overlaps another I mean that the propagules of the one collection comprise some or all of the matter that the propagules of the other collection comprise.

Another way to specify the last of the proxy relations—a way that makes more explicit the connection with [Eb]—is this: *b* is acting as proxy for a collection of propagules that is simultaneously compossible with *a*. The two ways of specifying the proxy relation amount to the same thing, given Forbes's assumption (or stipulation) that a propagule could not be made of very different matter. (See note 4.)

This argument is given in "In Defense of Absolute Essentialism" (Forbes 1986, pp. 8–9). A very similar argument is given in the *Metaphysics of Modality* (Forbes 1985, Ch. 6). The only significant difference between the two arguments is in the proxy relations. I discuss this further at the end of this section.

Now Forbes presents his opponent with a dilemma. Either the tree that comes from *a* in *W3* (that is, *r*) is identical to the tree that comes from *a* in *W1* (that is, tree *t*) or it isn't. The strategy is to show that either way the skeptic about the essentiality of origin is forced to an uncomfortable position.

The first horn of Forbes's dilemma: Suppose that the tree that comes from *a* in *W3* (that is, *r*) is identical to the tree that comes from *a* in *W1* (that is, *t*). Then the skeptic about the essentiality of origin must deny that the tree that comes from *b* in *W2* is the same as the tree that comes from *b* in *W3*. Why? The idea is this: The *a*-tree in *W3* is, on the hypothesis being considered, identical to the *a*-tree in *W1*. According to the skeptic, the *b*-tree in *W2* is also identical to the *a*-tree in W1. Hence it is identical to the *a*-tree in *W3*. But the *a*-tree in *W3* obviously isn't identical to the *b*-tree in the same world (since it is impossible that a single tree originates from an acorn, *a*, and in addition originates from a distinct acorn, *b*). It follows—here Forbes appeals to the necessity of identity—that the *b*-tree in *W2* is not identical to the *b*-tree in *W3*. But how can one deny that the *b*-tree in *W2* is identical to the *b*-tree in *W3*, since to do so is to violate a "very plausible sufficient condition, for transworld identity, being indistinguishable in every 'intrinsic' respect" (Forbes 1985, p. 139)?

The second horn of the dilemma: Suppose instead that the *a*-tree in *W3* (that is, *r*) is not the *a*-tree in *W1* (that is, *t*). Then the skeptic must deny that the tree in *W4* is the same as the *a*-tree in *W3*. Why? Here's the idea: The *a*-tree in *W3* is not identical to the *a*-tree in *W1*. But, since the *a*-tree in *W4* is identical to the *a*-tree in *W1*, it follows that—again by appeal to the necessity of identity—the *a*-tree in *W3* is not identical to the *a*-tree in *W4*. But how can one deny that the *a*-tree in *W4* is identical to the *a*-tree in *W3*, since to do so is to deny that being indistinguishable in every intrinsic respect is a sufficient condition for transworld identity?

This completes Forbes's argument. On pain of denying the sufficiency condition for transworld identity, the skeptic about the essentiality of origin must give up her skepticism and embrace the view.

4.2 Preliminary remarks on the argument

Before I turn to evaluating the argument, I want to call attention to a few of its features. First, it is not crucial that a full characterization of "intrinsicness" be given. The tree on *W2* and the *b*-tree on *W3*, though they do not share their "coexistence properties" (properties having to do with coexisting or not coexisting with some other tree and all the properties that come along with these) and though they cannot, without begging the question, be assumed to share their "identity properties" (properties like being identical to *t*), do share all their other properties. Similarly the tree on *W4* and the *a*-tree on *W3* share all but their "coexistence properties"

(and maybe—again this is precisely what is in question—their identity properties). So all the argument requires is that coexistence properties (and identity properties) are not "intrinsic".[18] Since this can surely be granted, the sufficiency condition Forbes relies on amounts to the following: if possible tree x and possible tree x' share every property which is neither a coexistence property nor an identity property, then x and x' are identical.[19]

Second, Forbes recognizes that his argument faces challenges from what I call "deviant essentialist theses". For example, if a tree's location is essential to it, then Forbes's argument will not work: the argument requires that t occupies a different place in *W4* from the one it actually occupies. The challenge from location essentialism is not a very serious one, since location essentialism is hardly an attractive thesis.

Location essentialism is just one of many essentialist theses whose falsity Forbes's argument requires.[20] The argument says that the tree on *W2* is as much like t as it actually is as is compatible with its coming from b instead of a. Some of the properties that the tree on *W2* has in common with t as it actually is are "exclusive properties", ones that are impossible for two distinct trees to have (that is, ones that no two trees have on a single possible world). An example of an exclusive property is existing at a specific spatiotemporal point: if at some world, a tree exists at a particular spatiotemporal point, then no *other* tree also exists at that same point (although of course some other tree in some other possible world may exist there). The b-tree on *W3* "inherits" all these properties from the tree on *W2*. Since they are exclusive properties, this means that the a-tree on *W3* does *not* have them. Thus the argument assumes that none of these properties is essential to t (yes, to t!) Why? Because the argument ultimately rejects the claim that the b-tree on *W3* is t (since it accepts the sufficiency condition and rejects the possibility of *W2*) and *ultimately accepts the claim that the* a-*tree on* W3 *is* t *itself* (since it accepts the sufficiency condition and the possibility of *W4*).

[18] I say that this is all the *argument* requires. Forbes has a *project* to derive substantive essentialist theses from little more than "conceptual truths about the identity relation", namely that identity (and diversity) facts must be intrinsically grounded (1986, pp. 6–7). (See also Forbes 1980, 1981, 1985, and 1992.) The success of the project may well depend on giving an account of intrinsicness.

[19] The argument does not presuppose that metaphysical possibility is transitive. *W2*, *W3*, and *W4* are all possible relative to *W1*, the actual world, and hence are all genuinely possible worlds (and not merely possibly possible worlds and such). The trees that are on *W2*, *W3*, and *W4* are therefore possible trees (and not merely possibly possible trees and such) and so the sufficiency condition applies to them nonvacuously.

[20] Yablo (1988) also highlights this fact.

I give two examples of this schema. The *b*-tree on *W2* (and so also the *b*-tree on *W3*) very quickly comes to be constituted of the same matter that actually constitutes *t*. Call the time at which this happens *t1*. At *t1* and every moment after *t1*, the *b*-trees on *W2* and *W3* are composed of exactly the same matter as *t* actually is. Call the matter that *t* is actually made of at *t1*, "*m*". The argument thus requires that being made up of *m* at *t1* is not an essential property of *t*, since the argument requires that the *other* tree—the one that is not identical to *t*, that is the *b*-tree—on *W3* has that property, which is clearly not a property that two distinct trees could have. If it were essential to *t* to be made of *m* at *t1*, then Forbes's argument would be a reductio on *W4* instead of on *W2*.

Similarly the *b*-tree on *W3* comes into existence at exactly the same spatiotemporal point (or over the same spatiotemporal region) as *t* actually does. If it were essential to *t* to come into existence at the precise spatiotemporal point (or region) that it actually does, then, by reasoning parallel to the previous case, Forbes's argument would be a reductio on *W4* instead of on *W2*.

Just as location essentialism poses no serious threat to the argument, neither do material-composition-at-a-given-time essentialism and spatiotemporal-point-of-origin essentialism. None of these theses is very attractive: better to be an origin essentialist than a deviant essentialist.

Third, in spite of many differences between this argument and Salmon's, it is a variation on the same theme: compossibility, impossibility, and sufficiency all play fairly familiar roles. This emerges more clearly if we couch Forbes's claims about the existence of various worlds in more Salmonesque terms as follows. *W1*: It is given that *t* originates in *a* and has property set *F*. *W2*: Assume for reductio that it is possible that *t* originates in *b* and has property set *F'*. (*F* and *F'* are as alike as is possible, given the difference in origins. Neither set contains coexistence or identity properties.) *W4*: It is possible that *t* originates in *a* and has property set *G*. (*G* includes none of the "exclusive properties" of *F'*.) *W3*: If it is possible for some tree or other to originate in *b* and have property set *F'* and it is possible for some tree or other to originate in *a* and have property set *G*, then it is possible for some tree or other to originate in *b* and have property set *F'* while in addition some tree or other originates in *a* and has property set *G*. *W3* (more precisely, the claim that *W3* is a *possible* world) is in effect a compossibility premise. Forbes's sufficiency premise (if possible tree *x* and possible tree *x'* share every property which is neither a coexistence property nor an identity property, then *x* and *x'* are identical) tells us that the *b*-tree on *W3* is *t* (because it shares nearly all of its properties with the tree on *W2*, which is *t*) and it also tells us that the *a*-tree on *W3* is *t* (because it shares nearly all of its properties with the tree in *W4*, which is

t). But coupling this with an implicit impossibility premise (that it is impossible for one tree to have distinct origins; in other words that one tree does not have two origins on a single possible world) gives the contradiction that is supposed to force the rejection of the assumption that it is possible that *t* originates in *b*. In Forbesian terms, the contradiction is supposed to force the rejection of the claim that *W2* is a possible world.

4.3 Criticism of the argument

My criticism of Forbes will ultimately capitalize on the similarity between his argument and Salmon's: ship-of-Theseus type cases undermine them both. I begin though by observing that hardly anyone would want to say that the property of having green leaves (at some particular time or at some particular stage in development) is essential to a given tree. But by imitating Forbes's reasoning, one can give an argument for that unattractive view.

Consider four (allegedly) possible worlds; the argument is a reductio on the second world. (It may help to refer to the diagrams. "*a*" is now to be read as the property of being green-leafed and "*b*" is to be read as the property of being brown-leafed.) The first world, *W1*, is the actual world: it contains a yard, which contains a tree, call it "*t*", which has green leaves. *W2*, the second world, one that should be acknowledged as possible by anyone who denies the essentiality of leaf colour, is just like *W1*, except that *t* has brown leaves. To put this a little more carefully, *W2* is as much like the actual world *as is compatible with* the difference specified. The tree in *W2* is supposed to resemble the tree in *W1* as far as is possible given that it has brown leaves instead of green leaves. In *W3*, there are two trees: one with brown leaves and one with green leaves. *W3* is supposed to be highly similar (again with the proviso) to *W2*, except that in addition to there being a tree with brown leaves, there is, across the yard, a tree with green leaves. For convenience, let's call the green-leafed tree of *W3*, "*r*" and the brown-leafed tree of *W3*, "*s*". It is left open, for now, whether either of these trees is identical to *t*. Tree *s* is supposed to be just like the tree in *W2*. The only differences between them are those having to do with the fact that *s* shares the yard with *r* whereas the tree of *W2* does not. In particular, *s*, like the tree in *W2*, resembles the tree in *W1* to a very high degree. *W4* is a world in which *t* has green leaves and is otherwise just like *r* (except that *r* shares the yard with *s* whereas *t* in *W4* does not).

One who does not think that leaf colour is essential to *t* faces a dilemma. Either the green tree in *W3* (that is, *r*) is identical to the green tree in *W1* (that is, *t*) or it isn't.

The first horn of the dilemma: Suppose that the green-leafed tree in *W3* (that is, *r*) is identical to the green-leafed tree in *W1* (that is, *t*). Then the skeptic about the essentiality of origin must deny that the brown-leafed

tree in *W2* is the same as the brown-leafed tree in *W3*. Why? The idea is this: The green-leafed tree in *W3* is, on the hypothesis being considered, identical to the green-leafed tree in *W1*. According to the skeptic about the essentiality of leaf colour, the brown-leafed tree in *W2* is also identical to the green-leafed tree in *W1*. Hence it is identical to the green-leafed tree in *W3*. But the green-leafed tree in *W3* obviously isn't identical to the brown-leafed tree in the same world. It follows that the brown-leafed tree in *W2* is not identical to the brown-leafed tree in *W3*. But how can one deny that the brown-leafed tree in *W2* is identical to the brown-leafed tree in *W3*, since to do so would violate Forbes's "very plausible sufficient condition for transworld identity, being indistinguishable in every 'intrinsic' respect"?

The second horn of the dilemma: Suppose instead that the green-leafed tree in *W3* (that is, *r*) is not the green-leafed tree in *W1* (that is, *t*). Then the skeptic about the essentiality of leaf colour must deny that the tree in *W4* is the same as the green-leafed tree in *W3*. Why? Here's the idea: The green-leafed tree in *W3* is not identical to the green-leafed tree in *W1*. But, since the green-leafed tree in *W4 is* identical to the green-leafed tree in *W1*, it follows that the green-leafed tree in *W3* is not identical to the green-leafed tree in *W4*. But how can one deny that the green-leafed tree in *W4* is identical to the green-leafed tree in *W3*, since to do so is to deny Forbes's sufficiency condition?

This completes the argument. On pain of denying the sufficiency condition, the skeptic about the essentiality of leaf colour must give up her skepticism and embrace the view.

This argument is obviously to be rejected, since it has an utterly untenable conclusion. Yet it seems to be analogous to Forbes's argument. If the analogy is genuine, Forbes's argument should also be rejected.

But is the analogy genuine? There is, I think, only one remotely plausible objection to the analogy. Just as Forbes's argument requires the falsity of certain essentialist theses, so of course does this argument. In particular, it requires the falsity of a form of *origin essentialism*. If the tree on *W2* is to be like the tree on *W1* as is compatible with its having brown leaves instead of green, then one way in which the two trees are alike is that they both originate in the very same acorn, say, *c*. Given that, together with the identification of the tree on *W2* with the brown-leafed tree on *W3*, it follows that the green-leafed tree on *W3* does not originate from *c*.[21] But, since the green-leafed tree on *W3* is identical to the tree on *W4*, it follows that the tree on *W4* does not originate from *c*. So, if origin essentialism is

[21] I allow the objector the assumption that the trees on *W3* are not twins, since they can be assumed to live their *entire* (pre-)lives in different locations.

true, then *W4* of the leaf colour argument does not in fact represent a real possibility whereas *W4* of Forbes's original argument does.

I agree that my leaf colour argument requires the rejection of *a form of* origin essentialism. But it is important to be precise here: the argument requires the rejection of *strong origin essentialism*, the view that it is essential to an organism to come from the *very propagules* from which it actually arose; it does not require the rejection of [Eb]. It is indeed true, as the objector says, that if the tree on *W2* is to be as much like the tree on *W1* as is compatible with its having brown leaves instead of green, then one way in which the two trees are alike is that they both originate in the very same acorn, say *c*. The objector is also right to say that this means that the green-leafed tree on *W3* does not originate from *c*. But this does not prevent the green-leafed tree on *W3* from originating from, say, *c'*, some synthesized genetic carrier that is constituted by all the same matter that constitutes *c*. This "acorn-of-Theseus" situation is not only metaphysically possible, it is not too far-fetched, since it is a commonplace that matter that once contributed constitutionally to one entity will at another time contribute constitutionally to another. Is *W4* a genuinely possible world? It *is* just in case it is possible that *t* originated in *c'* at a different spatiotemporal point than it actually originated. One who holds strong origin essentialism will think this situation impossible. But the origin essentialist who holds [Eb] is free to allow this possibility: indeed [Eb] was formulated by Forbes precisely in order to allow for such possibilities. So we see that the argument for leaf colour essentialism does not require the falsity of [Eb], although it does require the falsity of strong origin essentialism.

The important issue now is this: Does the fact that my leaf colour argument excludes strong origin essentialism break the analogy with Forbes's original argument? To say it does is to say that strong origin essentialism is true but that the essentialist claims excluded by Forbes's argument are not. But strong origin essentialism is incompatible with [Pb]: if it is essential to an organism to come from the very propagules from which it actually arose, then it could not, for example, have arisen from six synthesized germ cells. Hence, Forbes can resist my analogy only by rejecting [Pb]. But that means his argument cannot succeed unless [Pb] is rejected.

I imagine that some will feel vaguely uneasy about this conclusion, depending as it does on my claim that there is only one "remotely plausible" way to resist the analogy between the leaf colour argument and Forbes's. One rightly worries that I might have missed some alternative way. To allay such uneasiness I offer another argument, which is, without a doubt, analogous to the original, but which is also clearly incompatible

with [Pb]. One can use Forbes's original tree and acorn argument nearly as is to argue for strong origin essentialism. Indeed, to get the strong essentialist conclusion, one need hardly change the argument at all. Simply change the proxy relations (and of course make any changes that those entail): let *t* go proxy for any organism; let *a* go proxy for the actual collection of propagules that gave rise to *t*; and—here's the only change—let *b* go proxy for any distinct collection of precursors, including both those that materially overlap *a* and those that don't.

In fact, in 1985, Forbes does argue for the strong essentialist view using the tree and acorn argument (1985, Ch. 6). A year later though (Forbes 1986, pp. 8–9), after acknowledging that the science fictions provide counterexamples to the strong form of origin essentialism, Forbes redeploys the old acorn and tree argument, but with the change in the proxy relations. He does this without saying anything about how the change in the proxy relations is supposed to turn an argument that, by his own admission, leads to a false conclusion, into one that leads to a true conclusion.

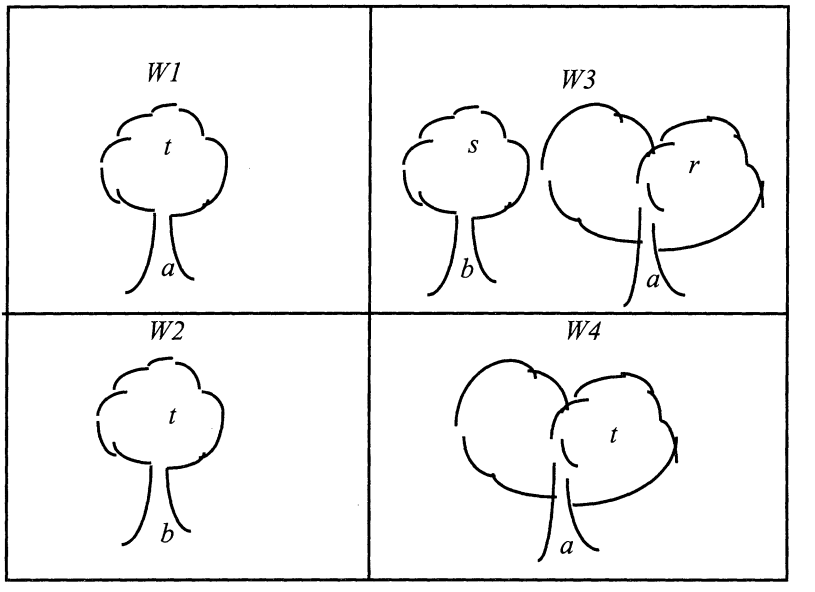
How then, we must ask ourselves, might the change in the proxy relations affect the soundness of the argument? Presumably it would have to change the truth value of (at least) one of the argument's premises. But the change does *not* affect the truth value of any of the premises: all the general principles (such as the sufficiency principle, the implicit impossibility premise, and the necessity of identity) are of course unaffected by the change and all the specific worlds that the argument says are possible (namely, *W1*, *W3* and *W4*) are all indeed still possible. Let's examine the crucial case, the one in which *b* stands for a set of propagules that completely materially overlaps *a*. *W1* is unproblematic: it is simply stipulated by the argument that *t* comes from *a*. *W3* is still possible: it is possible that a tree comes from *b*, a synthesized acorn, while in addition acorn *a* exists and gives rise to some other tree (in such a case either *a* is recycled—ship-of-Theseus style—from the matter of *b* or *b* is recycled from the matter of *a*). This of course affects *W4*. If *t* on *W4* is to be "just like" the *a*-tree on *W3*, then in particular, it originates at some different time from the time *t* actually originates. (This is because the *b*-tree on *W3* originates at the same time as *t* actually does. So since acorn *a* is constituted by the same material as acorn *b*, *a* and *b* do not exist simultaneously and so the *a*-tree does not originate at the same time as the *b*-tree.) But this change in *W4* does not matter since what is important to the argument is that *W4* is a possible world, which it still is: surely it is possible that *t* originates from *a* at a time different from its actual time of origination and occupies a different location from its actual location.

The argument for strong origin essentialism and the argument for [Eb] have then only a single point of disanalogy: where the former claims that it is possible that *both* location and time of origin are different from the actual ones (that is, that variations in location and time of origin are compossible), the latter claims merely that it is possible that location is different. The only ways to drive a wedge between the arguments seem to be these: (i) claim that time of origin is essential to an organism or (ii) claim that although time of origin is not essential, on any possible world in which an organism's location is different from what it actually is, its time of origin is not different. The first option is utterly untenable. The second option is perfectly perverse and there is no reason to think it is true. So the analogy holds. The arguments for strong essentialism and for [Eb] stand or fall together. We must therefore conclude one of the following: (i) that something is wrong with the argument for [Eb] or (ii) that the argument for strong origin essentialism—a claim that requires the falsity of [Pb]—is acceptable as well. In either case, it is clear that one cannot both accept Forbes's argument for [Eb] and embrace [Pb].

5. Conclusion

Origin essentialists are concerned to respect the intuition that limited variation in the origin of a given thing is possible. My point has been that their arguments do not, after all, respect that intuition. Given the strength of the intuition, which is shared by believers in origin essentialism and agnostics alike, the believer is left with only his faith to stand on.[22]

[22] I thank Michael Della Rocca, David Reeve, Gideon Rosen, Jennifer Saul, and Scott Soames for their comments on earlier versions of this paper and for their encouragement. I thank also an anonymous referee for comments.



Tree Diagrams For Forbes's Argument

Department of Philosophy
Reed College
Portland, OR 97202
USA
teresa.robertson@reed.edu

TERESA ROBERTSON

REFERENCES

Cartwright, R. 1968: "Some Remarks on Essentialism". *Journal of Philosophy*, 65, pp. 615–26.

Forbes, G. 1980: "Origin and Identity". *Philosophical Studies*, 37, pp. 353–62.

——1981: "On the Philosophical Basis of Essentialist Theories". *Journal of Philosophical Logic*, 10, pp. 73–99.

——1985: *The Metaphysics of Modality*. Oxford: Clarendon Press.

——1986: "In Defense of Absolute Essentialism". *Midwest Studies in Philosophy*, 11, pp. 3–31.

——1992: "Worlds and States of Affairs: How Similar Can They Be?", in Mulligan 1992, pp. 118–32.

Kripke, S. 1972: *Naming and Necessity*. Cambridge, MA: Harvard University Press, 1980. Originally published in 1972 in D. Davidson and G. Harman (eds.) *Semantics of Natural Language*, Dordrecht: Reidel.

Lewis, D. 1986: *On the Plurality of Worlds*. Oxford: Blackwell.

McGinn, C. 1976: "On the Necessity of Origin". *Journal of Philosophy*, 73, pp. 127–35.

Mulligan, Kevin (ed.) 1992: *Language, Truth, and Ontology*. Dordrecht: Kluwer.

Noonan, H. 1983: "The Necessity of Origin". *Mind*, 92, pp. 1–20.

Salmon, N. 1981: *Reference and Essence*. Princeton: Princeton University Press.

——1986: "Modal Paradox: Parts and Counterparts, Points and Counterpoints". *Midwest Studies in Philosophy*, 11, pp. 75–120

——1989: "On the Logic of What Might Have Been". *Philosophical Review*, 98, pp. 3–34.

Yablo, S. 1988: Review of *The Metaphysics of Modality*. *Journal of Philosophy*, 85, pp. 329–37.

LINKED CITATIONS

[Footnotes]

[1] **The Necessity of Origin**
Harold Noonan
Mind, New Series, Vol. 92, No. 365. (Jan., 1983), pp. 1-20.
Stable URL:
http://links.jstor.org/sici?sici=0026-4423%28198301%292%3A92%3A365%3C1%3ATNOO%3E2.0.CO%3B2-E

[3] **The Logic of What Might Have Been**
Nathan Salmon
The Philosophical Review, Vol. 98, No. 1. (Jan., 1989), pp. 3-34.
Stable URL:
http://links.jstor.org/sici?sici=0031-8108%28198901%2998%3A1%3C3%3ATLOWMH%3E2.0.CO%3B2-7

[11] **The Necessity of Origin**
Harold Noonan
Mind, New Series, Vol. 92, No. 365. (Jan., 1983), pp. 1-20.
Stable URL:
http://links.jstor.org/sici?sici=0026-4423%28198301%292%3A92%3A365%3C1%3ATNOO%3E2.0.CO%3B2-E

[16] **The Necessity of Origin**
Harold Noonan
Mind, New Series, Vol. 92, No. 365. (Jan., 1983), pp. 1-20.
Stable URL:
http://links.jstor.org/sici?sici=0026-4423%28198301%292%3A92%3A365%3C1%3ATNOO%3E2.0.CO%3B2-E

LINKED CITATIONS

References

The Necessity of Origin
Harold Noonan
Mind, New Series, Vol. 92, No. 365. (Jan., 1983), pp. 1-20.
Stable URL:
http://links.jstor.org/sici?sici=0026-4423%28198301%292%3A92%3A365%3C1%3ATNOO%3E2.0.CO%3B2-E

The Logic of What Might Have Been
Nathan Salmon
The Philosophical Review, Vol. 98, No. 1. (Jan., 1989), pp. 3-34.
Stable URL:
http://links.jstor.org/sici?sici=0031-8108%28198901%2998%3A1%3C3%3ATLOWMH%3E2.0.CO%3B2-7