Production and Necessity

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It is difficult to overstate the influence of Humean skepticism about necessity on latter-day philosophers. One symptom of this influence is the centrality in contemporary philosophical debates of the *Humean claim*:

(Humean claim) There are no necessary connections between distinct existences.[1]

Philosophers deploy this sweeping claim in the service of a wide variety of philosophical projects.[2] It is advertised as an appropriate starting point for theorizing about what is necessary or possible. David Lewis has even suggested that it is *the* starting point: it provides us with our best handle on what is possible.[3]

The Humean claim is often deployed; it is less often motivated. It is sometimes suggested in passing that necessary connections between distinct existences would be mysterious and inexplicable. Surely some such claims would be puzzling: a necessary connection between the Queen and the particular throne on which she happens to have sat today, for instance. But why think that any such necessary connections would be mysterious and inexplicable? Consider a class of claims that opponents of the Humean claim, famously including Kripke,[4] believe present intuitively powerful counter-examples. Kripke claims that there are necessary connections between material things and their material origins. Call such claims *origin theses*. One origin thesis Kripke endorses is that the

Queen had to have been produced from the sperm and egg from which she was actually produced. Why think the truth of such a claim would be mysterious or inexplicable? Some intuitive support for the Humean claim is found in the fact that, in general, it's very difficult to see why the existence of any one thing should depend as a matter of the strictest necessity on a connection to a completely different thing, even if the former was produced from the latter. The Queen is one thing, and her material origin is another. (More accurately, the queen's material origins are two things: a sperm and an egg.) Though she is actually connected to those particular gametes, it's hard to see why this connection should be written into the nature of things. What about her prevents her from coming from other gametes, or even from a turnip?

Here's how Hume expressed the point:

> [W]e must now return upon our footsteps to examine that question, which first occurr'd to us, and which we dropt in our way, *viz. What is our idea of necessity when we say that two objects are necessarily connected together.* [...] In order to this I consider, in what objects necessity is commonly suppos'd to lie; and finding that it is always ascrib'd to causes and effects, I turn my eye to two objects suppos'd to be plac'd in that relation; and examine them in all the situations, of which they are susceptible. I immediately perceive, that they are *contiguous* in time and place, and that the object we call cause *precedes* the other we call effect. In no instance can I go any farther, nor is it possible for me to discover any third relation betwixt these objects.[5]

Hume's reflection provides a way of specifying what prompts the vague sense than any necessary connection between distinct things would be mysterious and inexplicable. Suppose we examine the Queen, cataloguing all of the features our examination reveals. Hume claims here that our catalogue will not reveal any

feature in virtue of which she is connected with certain gametes as a matter of necessity. Our examination of the Queen will reveal her height, mass, and age. We can expand the ambit of our examination to include her history, revealing, for instance, how much was spent on her coronation, and even that she was, in fact, the result of the union of certain gametes. Let's call this exhaustive examination of a particular individual a *Humean Examination* of her. Hume notes:

(Hume's datum) The Humean Examination of any individual does not reveal any feature in virtue of which it is necessarily connected to something entirely distinct.[6]

There is a rough and ready argument from Hume's datum to the Humean claim. Consider again the case of the Queen and her gametes. Hume's datum indicates that there seem to be no features of the Queen in virtue of which she is *necessarily* connected to particular gametes. Humean Examination reveals that she is in fact so-connected, but it also reveals that she is in fact connected to a particular throne in virtue of sitting on it. No features come to light in virtue of which any of her actual connections are necessary. Add to these claims a premise requiring that the necessity of the Queen's having any feature obtain in virtue of some among her further features. These considerations provide an argument that the Queen is not necessarily connected to those gametes. Nothing in this argument turns on the peculiar features of the Queen, or the nature of the relation she bears to the gametes in question, so this argument seems to generalize to the case of any alleged necessary connections between wholly distinct things. Thus, Hume's datum appears to motivate the Humean claim. I will call the view that Hume's datum motivates the Humean claim *Humeanism*, and its proponents *Humeans*.

The purpose of this paper is to argue that Humeanism is incorrect. Hume's datum should not ultimately be taken to motivate the Humean claim, for it pro-

vides equally good motivation for its rejection. The rough and ready argument for the Humean claim has a flaw. In particular, I will argue that Hume's datum supports the crucial premise in an argument for certain origin theses. So, if the Humean claim is to stand, it requires alternative motivation. The need to avoid mysterious and inexplicable necessities does not ultimately merit the rejection of necessary connections across the board.

1 The philosophical significance of Hume's datum

What, exactly, does the Humean take Hume's datum to establish? It does not establish the general claim that we should always presume that something is possible until shown that it is not. The argument from Hume's datum applies only when we are considering alleged *de re* modal features of individual things. Since a Humean Examination is only available when there is a particular individual at hand, the argument does not apply to claims of necessity that don't involve any particular individual. So, for instance, there's no grounds here for scepticism about the impossibility of there being a married bachelor. Even when a necessity for an individual is in question, the claim's proponents would presumably admit that the argument does not support the possibility of, *e.g.*, some manifest contradiction. But denying central cases of necessary connections, *e.g.* origin theses, does not require the possibility of contradiction. Further, Hume's datum is applicable only in cases where the individuals in question are susceptible of Humean Examination.[7] For these reasons, the argument does not motivate a principle supporting the presumption of the possibility of any claim whatsoever; Hume's datum has no obvious upshot for claims that do not require the possession of *de re* modal features by individuals available for Humean Examination.

The application of Hume's datum is nevertheless broad enough. it applies whenever we are told that some connection between distinct things necessarily obtains. It has the effect of enlarging the space of possibilities. According to the argument, we should presume that both sides of any question regarding the connection of some ordinary individual like the Queen with another thing represent genuine possibilities until some further feature comes to light in virtue of which one side or the other (not both!) is impossible. Consider again the relation between the Queen and the gametes from which she actually came. Applying Hume's datum, the Humean concludes both that it is possible that she come from those gametes, and that it is possible that she not come from those gametes. Similar comments apply to gametes from which she does not actually come. Thus, Hume's datum appears not only to motivate the Humean claim, but also the further claim that no lack of connection between the Queen and another individual is necessary. Suppose that some connection which may hold between distinct things does not hold between certain individuals. We'll call this a situation in which a *connection-lack* obtains among those individuals. For instance, a connection-lack holds between Elizabeth Windsor and the gametes from which Margaret Truman arose. The Humean position is one according to which there are neither necessary connections nor necessary connection-lacks between distinct existences.[8] According to the Humean, the Queen could have come or failed to come from any particular pair of gametes.

Let us turn from the applicability of the argument for the Humean claim to the import of its conclusion. Some connections among distinct existences are very clearly not necessary. Consider Bill and Ted, who are shaking hands. Bill is contiguous with Ted, but evidently this circumstance is not metaphysically inevitable. They might never have touched at all. Likewise, some connections among identical existences clearly are necessary. The relation of identity holds of necessity between each thing and itself, but this is only one case.[9] The relation of *being indiscernible from*, also holds of necessity between each thing

and itself.[10] All of these claims are consilient with the Humean claim.

One version of the Humean claim also allows necessary connections between things that are numerically distinct, but which are not "distinct existences" in the intended sense. For instance, it is consistent with this version of the Humean claim that there be necessary connections between sets and their members, or between mereological sums and their parts. To take the latter example, the sum need not be construed as a "distinct existence" from its parts. Apart from such mathematical examples, this version of the Humean claim does not on its face rule out necessary connections between ordinary physical things and their physical parts.[11] Another, stronger version of the Humean claim rules out necessary connections between any distinct things, even if they are related by parthood or membership.[12] I will say that two things are *wholly distinct* if they are not merely numerically distinct, but also "distinct existences" in the intended sense. For instance, sets and their members, sums and their parts, and ordinary physical things and their physical parts provide examples of numerically but not wholly distinct individuals. Our discussion will focus on the weaker version of the Humean claim, which allows necessary connections among things which are numerically distinct but not wholly distinct.

The Humean claim's defenders may also allow that there are necessary relations between distinct things. Indeed, they must. The Queen is actually numerically distinct from the Eiffel Tower. These two things are related by numerical distinctness. And it seems as if this is no mere contingency; it is impossible that the Queen and the Eiffel Tower should have failed to be distinct. So it looks as if there are two wholly distinct things that are necessarily connected by numerical distinctness, contrary to the Humean claim. Perhaps a defender of the Humean claim would reject the necessity of distinctness. Some Humeans have.[13] But we have to hand even more compelling cases. The Queen is self-identical; so is the Eiffel Tower. So they stand in the relation *being both self-identical*. Indeed, they necessarily stand in this relation. On pain of incoherence, then, defenders of

the Humean claim must distinguish such relations as distinctness and *being both self-identical* from the kinds of necessary connections targeted by the Humean claim. The position must then be that there are necessary *relations* but no necessary *connections* among distinct things. So the Humean claim relies on the vague but compelling distinction between mere relations and connections.[14] Difficult as this distinction is to explain clearly, it is as indispensable as it is intuitively compelling.

Drawing the distinction between relations and connections provides a useful warning against a crude formalism that one might naturally bring to a consideration of the Humean claim. A crude formalism of this sort would hold that, just because we have a metaphysical truth of the form, 'it is necessary that ϕ', where ϕ contains terms for wholly distinct things, that we have a counter-example to the Humean claim. The distinction between mere relations and connections provides an argument against this view. The assessment of the Humean claim requires more delicate handling: we must bring to bear our intuitive insight into the import of a putative counter-example rather than simply checking it against a formal template.

If we focus our attention on such mathematical things as, for instance, numbers, then the Humean claim seems implausible. Surely it is no mere contingency that 9 succeeds 8. Perhaps a defender of the Humean claim might argue that, like a singleton and its member, 9 and 8 are not "distinct existences" in the required sense. Perhaps it might be argued that the *successor* relation is not a connection, but rather a mere relation. However such a defense might work out, questions regarding the Humean claim's application to mathematical things are moot for present purposes. I will focus instead on its more plausible application to less abstract things. In particular, our focus will be on things which obviously participate in the causal order of the universe: human beings, artifacts, *etc.*

The Humean claim is clearly intended, despite all of our qualifications, to rule out necessary connections between causes and their effects. Thus, one of

Hume's conclusions in the *Treatise* (1.3.15.1) is that "[a]ny thing may produce any thing".[15] This claim is literally echoed by Hume's latter-day follower, David Lewis.[16] As the quote indicates, productive relations, such as those which obtain between the Queen and her gametes, are explicitly intended to be connections, rather than mere relations. Hume thinks they are a species of causal relations.[17]

If anything can produce anything, then a turnip can produce Nixon. Everybody knows that, with enough ingenuity, we can construct a long story in which, through some complex turn of events, a turnip is eventually responsible for Nixon's conception and birth. If we are careful, we can be confident that the story describes a real possibility. The poem "For Want of a Horseshoe Nail", about how a careless farrier indirectly caused the collapse of a nation, shows the way. But clearly the import of the claim in Hume and Lewis's hands is more interesting: the turnip can somehow be directly responsible for Nixon's creation. Perhaps the idea is that it is possible for Nixon to have sprung full-formed from his turnip, like Athena from Zeus's head. According to the Humean claim, productive relations among distinct existences are as contingent as height relations among people. Just as there is no metaphysical law against the re-arrangement of height-relations among people, there is no metaphysical law against the re-arrangement of productive relations among things. All such relations among distinct things are contingent.[18]

A natural picture of the metaphysical structure of the universe emerges from these reflections. The universe is populated with lots of distinct things. Each thing is actually connected to the others in a host of ways. But each thing is sovereign, capable of existence independently of whether and how it it is connected to the other things. So each of its connections is metaphysically on a par: each is contingent. In particular, the causal connections among things in virtue of which some things are produced from other things are completely contingent. In short, the universe is a loose agglomeration of completely independent

things.

2 Kripke's response

This metaphysical picture met determined resistance near the end of the last century in the work of Saul Kripke. Nixon was not, as a matter of fact, produced from any turnip. Kripke argues that, given how Nixon was actually produced, this is no mere contingency: Nixon could not have been produced by a turnip. In general, Kripke claims that, given that a material object had its origin in a particular hunk of matter, it could not have had its origin in any other hunk of matter. Taken together with the facts about how the multitude of material objects had their respective origins, this implies that necessary connections and connection-lacks among distinct existences are thick on the ground. Consider the last turnip you ate. If Kripke is right, Nixon is not the only one who could not have been produced from that turnip. Neither could you, nor I, nor Descartes, nor your desk, nor the Space Shuttle *Endeavor*, nor the Antarctic ice sheet. And that's just one turnip. If Kripke is right, there is a vast, complicated nexus of metaphysical necessities outlawing various re-arrangements of productive relations among things.

This suggests a picture of the metaphysical structure of the universe that stands in stark contrast to the Humean picture. In both pictures, various things are actually connected to a host of other things. But in the Kripkean picture, unlike the Humean one, these connections are not fungible. Most of the ordinary things in the universe could not exist without being connected in various ways to other material things. The Queen, for instance, had to originate from the gametes from which she actually developed. Her existence is not independent of her connections to any other things. Instead, she is bound by the strictest necessity to particular gametes. In the Kripkean picture, ordinary things are not loosely agglomerated, but tightly integrated into an extensive network of

the strictest dependencies.

If Kripke is right, then the Humean claim is wrong. That much is obvious. How does Kripke justify rejection of the Humean picture? He focuses his discussion on the alleged necessity of the connections we have been discussing so far: the connection between an ordinary produced thing and its material origin. Kripke's rejection is bolstered by an argument in favor of the necessary connections at issue.[19]

Kripke's argument appears in footnote 56 of *Naming and Necessity*.

> A principle suggested by these examples is: *If a material object has its origin from a certain hunk of matter, it could not have had its origin in any other matter.* Some qualifications might have to be stated (for example, the vagueness of the notion of hunk of matter leads to some problems), but in a large class of cases the principle is perhaps susceptible of something like proof, using the principle of the necessity of identity for particulars. Let 'B' be a name (a rigid designator) of a table, let 'A' name the piece of wood from which it actually came. Let 'C' name another piece of wood. Then suppose B were made from A, as in the actual world, but also another table D were simultaneously made from C. (We assume that there is no relation between A and C which makes the possibility of making a table from one dependent on the possibility of making a table from the other.) Now in this situation $B \neq D$; hence, even if D were made by itself, and no table were made from A, D would not be B.

Kripke switches the origin thesis under discussion from the connection between the Queen and her gametes to the connection between a table and the hunk of wood from which it is made.[20] Let us do the same. Consider the table, call it *Abel*, on which this paper is being written.[21] This table, let us suppose, was actually produced from a certain hunk of wood, call it *Elvis*, grown in a for-

est in Tennessee. There is another hunk of wood, call it *Crowe*, which, we may suppose, was grown in a pine forest in Australia. According to the origin thesis that will be our focus, it is impossible that Abel should have been produced from the Australian hunk Crowe. This is only an instance of the more general claim Kripke aims to establish, that Abel could not have been produced from *any* hunk other than Elvis. But the instance is no less opposed to the Humean picture than is its generalization, and so suffices for illustration.[22] Kripke notes that it might have been that Abel is produced from Elvis just as it actually is, while Crowe is used to produce some table T_2. T_2 and Abel are distinct in such a case, and hence, by the necessity of identity, actually distinct as well. Kripke concludes that any table that might be made from the Australian hunk Crowe would be distinct from Abel.

But this argument fails to establish the origin thesis. It only shows that T_2, one among the tables that might have been made from Crowe, is distinct from Abel. It needs to show more. It has to establish that *any* table that might have been made from Crowe is distinct from Abel. The argument as stated thus does not rule out the possibility that Abel be made from Crowe, so long as nothing is made from Elvis.[23]

Kripke's argument, as I've reconstructed it, does not adequately support the origin thesis. But that thesis seems in need of support. The table is one thing, and its source hunk is a different thing. Thus, the Humean Examination of the table reveals nothing in virtue of which it is bound to its source hunk with the force of necessity. Kripke's argument does not help us isolate an "active ingredient" in virtue of which the source and its product are necessarily connected. The intuitive attractiveness of the Humean claim seems to be here, in Hume's datum: the Humean looks for the "active ingredient" in virtue of which one thing is necessarily connected to another, and finds nothing. A more satisfactory confrontation with the Humean claim would tell us why Hume's datum does not support the denial of necessary connections.

In short, The Kripkean position seems vulnerable. Hume's datum motivates the Humean picture of the metaphysical structure of the universe. Kripke thinks that picture is wrong, and supplies a contrasting picture. But the argument for that conclusion does not provide an adequate defense of his view. A better argument for origin theses is available, however. Understanding why Hume's datum should not be taken to motivate the Humean claim requires tracing that argument.

3 Grounds for the origin thesis

Abel was originally produced (we assume) from a particular hunk of wood Elvis grown in Tennessee. We are attempting to ground an origin thesis to the effect that Abel could not have been produced from our Australian hunk Crowe. Why couldn't Abel have come from Crowe? The answer to this question requires consideration of another question in the metaphysics of production: in general, what does it take to prevent the production of a particular material object from a particular hunk? What, for instance, does it take to prevent Abel's production from Elvis?[24]

It is a contingent fact that Elvis gives rise to Abel. There are many ways it might not have come to pass. We might have made Elvis into a chair; we might have burned Elvis for warmth; we might have seized the means of table production; we might just have decided to leave Elvis alone. In all of these cases, some factor prevents the production of Abel from Elvis. By assumption, Abel emerged from Elvis in the actual circumstances. The factors that prevent Abel's production in each case are those divergences from the actual circumstances responsible for Abel's not coming from Elvis in that case.[25]

We should notice an important feature of these examples; each preventing factor is responsible for some effect on Elvis, or the people, tools, or facilities involved in the productive effort. A factor cannot prevent Abel's production

from Elvis without being responsible for some effect on the individuals "on the scene" of that production. In this sense, the preventions are *local*. What is unconnected to the existence of Elvis or the making of Abel from Elvis is irrelevant to Abel's production and cannot interfere. These reflections suggest that processes of table-creation are governed by a principle of *locality of prevention*:

(LOP) For any possible factor F, necessarily, if F prevents Abel's coming from Elvis, then F makes a difference to Elvis, the people, tools, or other components of the actual production of Abel from Elvis.[26]

According to (LOP), any possible case in which some factor prevents the production of Abel from Elvis differs from actual circumstances with respect to the features of what we might call the *locale* of the productive effort: Elvis and other elements of the process by which Abel actually emerged. This idea bears a strong affinity to the Humean's motivation for the Humean claim. According to the Humean, a necessary connection between Abel and Elvis would be mysterious and inexplicable because it cannot be traced to features of Abel revealed by a Humean Examination. Our discussion brings to light a similar idea: the prevention of Abel's production from Elvis by a factor responsible for no local effects would be mysterious and inexplicable, because by hypothesis it cannot be traced to any features of Elvis or other elements of the productive effort. Thus, the locality of prevention, while independently plausible, should be particularly tempting for the Humean.

The locality of prevention provides grounds for the origin thesis. But before tracing how it manages this feat, it is worthwhile to dwell on its import. The locality of prevention expresses what looks like a general truth about processes of table-production: they are essentially local phenomena. The causal-historical path leading to this table runs through quite specific materials and processes of assembly which are distinct from those leading to your table, or, indeed, to anything constructed from completely different materials, at other times, or in

other places. Because the actual production of this table from its source hunk is solely a matter of what happens along a particular causal-historical path, any factor that interferes with that production must make a difference along this path. Factors that make no difference along that path do not prevent the table from coming into existence just as it actually does. Running the productive process which actually leads from Elvis to Abel in the presence of factors which make no local difference *can* still lead to Abel.

Despite their generality, the restrictions imposed by the locality of prevention are not trivial. There are kinds for which these restrictions do not hold. Call something a *prototypical table* if it is the first table ever made in the universe. We may prevent the production of a prototypical table from a source hunk simply by constructing another prototypical table at some earlier point in time. Such prevention need not be local.[27] It is also easy to find examples of kinds for which prevention might occur 'after the fact.' Call something a *lonely table*[28] if it is the only table ever to exist in the universe. What produces a lonely table in one circumstance may fail to do so in another. The construction of a second table, even after the first is completed, will spoil it. Productions of prototypical and lonely tables are vulnerable to forms of competitive interference. What prevents their production is our running the very same sort of process on another hunk somewhere else.

The contrast with ordinary tables is instructive, for ordinary tables do not seem vulnerable to the same sort of non-local, competitive interference. As far as making Abel from Elvis goes, it just doesn't matter what you do with some other hunk of wood somewhere else in the universe. Make it into a table or don't. As long as the second process doesn't infringe on the process which actually makes Elvis into Abel, this process may well run as it actually did, resulting in Abel. The reasoning is symmetric. Suppose we do make that second hunk into a table. Whether we make Elvis into Abel or not is irrelevant to the success of our new endeavor, unless the two processes locally interfere with one another.

The locality of prevention has the following consequence: if one table production need not have effects in the locale of another and *vice versa*, then it is possible for both productions to succeed. Table productions from the Tennesseean and Australian hunks can be isolated from one another. The upshot is that productions of tables from our two hunks seem to enjoy a form of *independence* from one another. A process that turns one of the hunks into a table *need not* interfere with a process operating on the other, though there are cases in which they do, in fact, interfere. Suppose we burn Crowe in order to power the machine which makes Elvis into a table. In this situation, we can no longer make any of the tables we might otherwise have made from the burned hunk Crowe. But this connection between the processes is contingent. Had we found another source of power, the Australian hunk Crowe would have remained available for table-manufacture. The form of independence is one which rules out only necessary interference between table productions.

If this reasoning is correct, we seem to have the following situation. Any possible production of a particular table from the Australian hunk Crowe is compossible with the production of Abel from the Tennesseean hunk Elvis; the production of Abel from Elvis is compatible, in principle, with the production of any table that might otherwise have been made from Crowe. This is what we may call an *independence principle*.[29] It expresses the compossibility of table-productions from our two hunks.

The link between the locality principle and independence is a key element of our discussion, so it is worthwhile to set out the reasoning in a little more detail. (LOP) states a modally necessary condition on factors which prevent Abel's emergence from Elvis. Any such condition on preventing factors implies, in turn, a necessary condition on *necessarily* preventing factors. The inference turns on the fact that necessity operators distribute over conditionals. This gives us the necessary locality of necessary prevention:

(NLONP) For any possible factor F, if F necessarily prevents Abel's coming from Elvis, then F necessarily makes a difference in the locale of the original production of Abel from Elvis.

I take for granted a conceptual connection between necessary prevention and compossibility: a factor F that does not necessarily prevent some possibility from being realized is compossible with its realization. So (NLONP) implies an explicit compossibility principle:

(COMP) For any possible factor F, if it is not necessary that F make a difference in the locale of the original production of Abel from Elvis, then F is compossible with the production of Abel from Elvis.

I noted above an affinity between Humeanism and the motivation for (LOP). The relation is even tighter in the case of (LOP)'s consequence (COMP). Hume's datum can be used to motivate the compossibility claim directly. Someone who denies (COMP) claims that there is a possible factor F which might have had no effects in the locale of Abel's production, but necessitates its failure nonetheless. So there are possible situations in which F is responsible for no effects in the locale of that production, but in no such situation does the productive effort succeed. Notice however that Hume's datum applies in this case: a Humean Examination of Elvis, the tools, workers, and facilities in question would not bring to light any feature in virtue of which they could not produce Abel just as they actually did. For, by hypothesis, in the situations we are contemplating they are all as they actually are; none of the actual features of the locale of Abel's production prevent Abel from being produced; so none of the features of that locale in the situations at hand do, either. Thus, if Hume's datum supports the possibilities required by the Humean claim, it also supports the possibility of Abel's production from Elvis in the presence of any factor responsible for no local effects. (COMP), then, enjoys two kinds of support: it is a consequence of the intuitively well-motivated locality of prevention, and it can be directly

motivated by Hume's datum.

From (COMP), we may derive our independence principle. Consider any table T_2 possibly made from Crowe. Take T_2's production from Crowe as our factor F. (COMP) yields the compossibility of both table-productions required by the independence principle, so long as we are given the extra premise that the two table-productions are isolable: it is not necessary that, if T_2 is made from Crowe, then there is some effect in the locale of the original production of Abel from Elvis. But this extra premise is very plausible. Further, the isolability of causal processes involving distinct hunks is a central feature of the Humean metaphysical picture.[30]

Independence is thus the ineluctable result of the locality of prevention. Because the production of a table (or prevention thereof) is just a matter of what happens locally along the causal-historical path, the paths are compossible when nothing requires one to affect the other as a matter of necessity. Whenever processes of production are invulnerable to non-local interference, there will be an analogous principle of independence. So, independence principles seem to hold no less generally than does the locality of prevention.

The origin thesis is a byproduct of independence principles. Let us start with an explicit characterization of the independence principle for our Abel–Elvis–Crowe test case. For simplicity's sake, let the relation 'made from' hold only between tables and hunks which contain all and only the matter used as raw material for the original production of the table.

(T-IND) For any table, T_2, which might be made from Crowe it is possible that both Abel is a table made from Elvis and T_2 is a table made from Crowe.[31]

The argument requires two other premises. The first is a familiar logical principle, the (necessary) necessity of distinctness.

(ND) Necessarily, if $x \neq y$, then necessarily $x \neq y$.

The second is another metaphysical principle. Call it *origin uniqueness.*

(OU) Necessarily, if T_1 is a table made from H_1 and T_2 is a table made from H_2 and $H_1 \neq H_2$, then $T_1 \neq T_2$.

This principle says that a single table cannot entirely originate from distinct hunks in a single possible world. Barring the existence of distinct, coincident hunks, and given our understanding of the 'made from' relation, this seems a trivial truth. The conclusion is the origin thesis that is our concern.

(T-NO) It is necessary that any table, T_2, made from Crowe be distinct from Abel.

Now the argument. Start with our table, Abel, made from the Tennesseean hunk Elvis. Suppose the origin thesis is false: it is possible that Abel be produced from the Australian hunk Crowe. Since Abel actually comes from Elvis and it is possible that Abel come from Crowe, the independence principle says that both productions are jointly possible, and so both occur in some possible world w. Since Elvis and Crowe are distinct, they are distinct in w as well by the necessity of distinctness. By origin uniqueness, the distinctness of the hunks in w shows that Abel is distinct from itself in w, which is absurd. Q.E.D.

4 Resisting the argument

One natural reaction to this argument is to think that, while valid, it simply begs the question because the origin thesis is covertly snuck into our formulation (LOP) of the locality of prevention. This is easiest to see when we focus our attention on the consequence I drew from (LOP), the independence principle. What difference is there, one might ask, between being told that Abel could have come from no other hunk and being told that the production of any table from another hunk is compossible with Abel's production from Elvis? Strictly speaking, the charge is false. The locality of prevention and the necessity of

origin do not imply one another. First, the locality principle, by itself, does not imply the origin thesis in the absence of the isolability of productive efforts from Elvis and Abel, necessity of distinctness, and origin uniqueness. While none of these claims is open to much doubt,[32] the reasons for accepting them come from quarters far removed from those which support the locality of prevention. Second, the necessity of origin does not imply the locality principle. Even if no table could ever be produced from other matter, it might still be the case that the locality principle fails for some unrelated reason.[33] The necessity of origin only denies the existence of certain possibilities, while the locality principle implies a positive claim that a certain situation, that containing both productions, is possible.

Such logical niceties aside, one might still think there is something to the spirit of the charge. After all, if the locality of prevention is true, it rules out any form of necessary interference between the making of Abel from Elvis and the making of any table at all from Crowe, *including Abel*. Haven't we just stipulated away the apparent counter-example to the origin thesis, that in which the interference comes from our making Crowe into Abel? To see why the answer is 'no,' we need to go back to the justification of the locality principle. Since Elvis and Crowe are distinct hunks and we have a way of making Elvis into a particular table, if we also have a way of making Crowe into a particular table, then it seems that we could, in principle, run both of these processes together. The distinctness of the hunks seems to guarantee that there is no necessary interference between the processes; in at least one world, we can run them both and get the very tables we produced separately. Someone who wants to claim that we can make Crowe into Abel needs to explain either why we could not also run the process which in fact turned Elvis into Abel or why that process could not result in Abel. Either sort of explanation would appear to involve prevention that makes no local difference. It won't do simply to say, 'We've already made Abel, so Abel can no longer be made,' without also telling us what

factor necessarily affects Elvis or some other element used to produce Abel from it. Without some explanation of why the two processes *must* interfere with each other, the objector is left baldly claiming some unspecified form of prevention; to anticipate a bit, such prevention seems mysterious and inexplicable. One may object to the locality of prevention, but the assertion of (LOP) is not just the bald assertion of the origin thesis. The locality of prevention has its own grounds of support, and one who objects to the origin thesis must find some flaw in these independent grounds.[34]

Even if the argument does not beg the question, however, it still seems as if it leaves the Humean an obvious stratagem: simply reject independence and with it the locality of prevention. Once the Humean sees how the argument goes, she will realize that the conjunction of independence, the necessity of distinctness, and origin uniqueness are inconsistent with her contention that Abel might have been made from the Australian hunk Crowe.[35] She can stand firm, then, by denying independence. Moreover, the only instance of (T-IND) salient to the argument is the one that says that the production of Abel from Crowe, if possible, is also compossible with the production of the same table from Elvis. So the Humean need only deny this instance to evade the argument. Ultimately, this stratagem amounts to the claim that there is an important exception to the locality principle: nothing prevents the production of Abel from Elvis without *either* having an effect in the locale of that production, *or* involving the production of Abel from something else.[36] This qualified locality claim yields a principle very close to (T-IND), but without the anti-Humean consequences: the production of Abel from Elvis is compossible with the production of any *other* table that might otherwise have been made from Crowe.

Thus, the Humean may decline the locality of prevention in favor of a principle friendlier to her rejection of our origin thesis:

(LOP)$^-$ For any possible factor F, necessarily, if F prevents Abel's coming from Elvis, then F either makes a difference to Elvis, the people, tools or other components of the actual production of Abel from Elvis, or F involves the production of Abel from some other hunk.

This weaker principle will accommodate some of the more familiar cases of prevention. For instance, the principle predicts that efforts to sabotage the tools used to make Abel from Elvis will prevent that table production only if they are responsible for some local effect. (LOP)$^-$ thus accommodates the evident fact that if the attempt at sabotage is nipped in the bud, and the tools, *etc.*, are unaffected, then that production can still yield Abel.

Rejecting (LOP) in favor of (LOP)$^-$ does have two drawbacks, however. First, it doesn't accommodate the more general intuitive idea to which, I've claimed, ordinary cases of prevention all point: the actual production of Abel from its source hunk is solely a matter of what happens along a particular causal-historical path, so that factors that make no difference along that path do not prevent the table from coming into existence just as it actually does. A symptom of this difficulty is that (LOP)$^-$ won't capture the intuitive contrast between table production and prototypical table production, for (LOP)$^-$ allows preemptive (or even post-emptive) interference with the production of Abel from Elvis. For these reasons, the locality of prevention has enough support, I would think, that an intuitive cost would accrue to such a move, at least in the absence of a compelling counter-example. The second drawback of rejecting (LOP) in favor of (LOP)$^-$ is that it seems *ad hoc* to claim without further motivation that there is an exception to the general requirement that preventing factors make a local difference. Absent an independently compelling argument or independently plausible counter-example to (LOP), it seems odd that there should be such an exception to an otherwise uniform phenomenon.

Perhaps, however, these apparent drawbacks are illusory. Perhaps what I've

called "the more general intuitive idea" backing the locality of prevention ought ultimately to be rejected. Perhaps the relevant exception to the locality of prevention can be motivated more compellingly. Even so, the stratagem I have just sketched is not ultimately available to the Humean. In the next section I will argue that the Humean should not reject the locality of prevention, even in favor of embracing its suggested surrogate $(\text{LOP})^{-}$. The very considerations she uses to motivate the Humean claim also motivate the compossibility principle, (COMP). This compossibility claim still suffices for the purposes of our argument for the origin thesis. Thus, even if the stratagem pointed the way to a plausible rejection of the origin thesis, this position would be unavailable to the Humean, who takes Hume's datum to warrant the rejection of necessary connections.

5 Implications of the argument for Humeanism

A defender of the Humean claim must reject the origin thesis. The argument shows that she must therefore either reject one of the argument's premises or the reasoning used to derive the conclusion. Let us suppose that our Humean admits the validity of the reasoning, and the truth of both the necessity of distinctness and the principle of origin uniqueness.[37] Then the Humean must reject the independence principle, and with it (LOP).

It might seem as if the Humean cannot reject the independence principle, even if she is willing to bear the intuitive costs of rejecting (LOP). She holds that there are no necessary connections between distinct things. Our independence principle says that any table production from Crowe is compossible with the production of Abel from Elvis. To deny this appears to require a necessary connection among the Australian hunk Crowe, the Tennesseean hunk Elvis and the table Abel, of exactly the sort ruled out by the Humean claim. We appear, then, to have a straightforward *reductio* of the Humean position: either the

origin thesis is correct, and there is a necessary connection between Abel and Elvis, or the independence principle is false and there is a necessary connection among Abel, Elvis, and Crowe.

Suppose with the Humean that Abel might have been made from the Australian hunk Crowe, and so our independence principle (along with (LOP)) fails. She might try to resist the apparent *reductio* by noting that the relevant failure of our independence principle involves two events which share a constituent. Notice that the conjunction of (OU), (ND), and the fact that Elvis and Crowe are actually distinct implies that there is a necessary relation between two events that are separately possible on our suppositions: the production of Abel from Elvis is not compossible with the production of Abel from Crowe. This plausible result is consilient with the Humean claim: since the two events share Abel as a constituent, it is plausible to deny that they are "distinct existences" in the relevant sense. Thus, even if it is granted that denying independence commits the Humean to a necessary connection between numerically distinct possible events, it does not require a necessary relation between wholly distinct events.

How might the Humean leverage the necessary relation between overlapping events to justify the necessary connection apparently required among the distinct individuals Abel, Elvis, and Crowe? How can we get from the *events* to the *individuals* in this case? She might hope to qualify the Humean claim so that it does not ban a necessary connection among distinct individuals so long as it is required by a necessary relation among overlapping events or states of affairs. With this qualification in place, the denial of our independence principle is allowed.[38]

However tempting this response might be, it threatens the Humean claim with trivialization. Virtually any claim of a necessary connection between distinct individuals can be upgraded to a claim of a necessary connection between overlapping events or states of affairs. For instance, let E_1 be Abel's production from Elvis, and let E_2 be Abel's production from either Elvis or Crowe. Obvi-

ously E_1 and E_2 overlap by virtue of their shared constituent Abel. The origin thesis can be cast as the claim that, as a matter of necessity, E_1 occurs if E_2 does. But this necessary relation requires a necessary connection-lack between individuals: Abel could not have been produced from Crowe. More generally, any claim that one individual x is necessarily connected to another y can be recast as the claim that *x's being connected to y* is a modally necessary condition for *x's existence*. Any claim of necessary connection turns out to be consistent with the qualified version of the Humean claim. Thus, the proposed qualification yields a claim that fails to rule out any case of necessary connections between distinct individuals. The qualified claim is simply not strong enough for the Humean's purposes.

We still appear, then, to have a *reductio* of the Humean position. The argument appears to force a choice between the truth of the origin thesis and the falsity of the independence principle, and so a necessary connection among Abel, Elvis, and Crowe. Things are not quite this neat, and for two reasons. First, the denial of the independence principle does not really require that there actually be a necessary connection among Abel, Elvis, and Crowe. All *actual* table-productions are of course compossible. It requires at most that there *would* be such a necessary connection among Abel, Elvis, and Crowe in some situation in which a table is made from Crowe. Since the Humean claim (on at least one reading) only says that there are no actual necessary connections between actual distinct things, it is not, *strictly speaking*, inconsistent with the denial of our independence principle. But the position left open by this consideration, that though there are actually no necessary connections between distinct things, there might have been, is implausible and difficult to motivate.

A second reason why the argument fails to be a straightforward *reductio* is more interesting. Recall that defenders of the Humean claim need an obscure but intuitively compelling distinction between mere relations and connections. Relations between distinct things that are not connections, *e.g.* distinctness,

may obtain of necessity on the Humean view. A defender of the Humean claim, then, could deny the independence principle, and claim that the necessity required is of a mere relation between distinct things. This position also seems a little strange. The Humean resists the necessity of origin by accepting necessary interference between table-productions.

This position is not incoherent. Indeed, as we saw at the end of §4, it initially appears to be the Humean's best response. I have emphasized, however, that the position initially seems both *ad hoc* and implausible in light of the motivation provided for (LOP) in §3.

Perhaps there is a way for the Humean to make such a denial more palatable.[39] But consider instead the compossibility principle (COMP). (COMP) follows from (LOP), and still suffices for independence principles like (T-IND). Indeed, the argument in §3 to independence from (LOP) goes via (COMP). But, as I noted in that section, the compossibility principle can also be motivated from the Humean's own most powerful tool, Hume's datum.[40] In any situation in which some factor F has no effects on Elvis or other elements of the actual productive process, the Humean Examination of those individuals will not bring to light any feature in virtue of which Abel is guaranteed not to emerge from them. The argument from Hume's datum to the Humean claim relies on the idea that a connection (or its lack) should be deemed possible for an individual if Humean Examination reveals no feature of that individual which rules it out. (COMP) is the upshot of the application of very same idea to the individuals in the locale of the actual production of Abel. Any factor F which fails to have local effects will leave Elvis, *etc.*, without features that rule out their conspiring to produce Abel; this connection to Abel should therefore still be deemed possible. Thus necessary prevention that cannot be traced to local effects would be mysterious and inexplicable for the same reasons that the Humean adduces to support the Humean claim.

Thus, attempting to hold the line against origin theses not only incurs the

intuitive costs of denying (LOP), but also requires denying the application of Hume's datum to yield claims which, like (COMP), imply independence principles. Perhaps the right view for a defender of the Humean claim to take is that Hume's datum casts its net too narrowly in this case. Our Humean Examination focuses narrowly on a catalogue of features of certain individuals: Elvis and other elements of the productive process by which Abel actually emerged. If we widen the examination to include factors elsewhere, including past, present, and future table productions isolated from Elvis, *etc.*, then, the defender contends, there will be nothing very mysterious about the necessary prevention by these factors of Abel's production from Elvis.[41]

The important point for present purposes is that, though this response may hold the line on our origin thesis, it does not hold the line on Humeanism, the view that Hume's datum motivates the rejection across the board of necessary connections. Suggesting that Hume's datum casts its net too narrowly admits in effect that it does not provide an adequate motivation for the Humean claim. In giving this response, the defender of the Humean claim concedes that sometimes grounding necessary connections or connection-lacks for an individual requires that we look beyond the features brought to light by a Humean Examination of that individual. Hume's datum, the fact that such an examination brings to light no features in virtue of which one thing is necessarily connected to another, does not suffice to reject such necessary connections. At least sometimes, we need to cast our net wider. When we do, philosophers may differ on what we will find. The denier of origin theses argues that we may find non-local conditions that necessarily prevent Elvis from producing Abel. I have claimed instead that we find a plausible principle governing the causal-historical path leading to the production of Abel, the locality of prevention. In neither case should Hume's datum ultimately be taken to lend intuitive support to the Humean claim.

I have argued that, if Hume's datum commits us to the Humean claim, then it also commits us to (COMP). Evidently this compossibility principle will still

yield our independence principle (T-IND). So resisting the independence principle, however motivated, cuts against the grain for the Humean, who holds Hume's datum to motivate her denial of necessary connections between distinct existences. The independence principle, then, should be irresistible for such a Humean. Once accepted, this principle together with the two ancillary premises leads inevitably to the origin thesis, contradicting the Humean claim. Humeanism seems to be in trouble, but there are still those other two premises to consider.

6 Denying the Ancillary Premises

We have assumed that the necessity of distinctness and origin uniqueness were not disputed. But perhaps the Humean could deny one or the other of those ancillary premises. In the absence of those premises, independence principles cause no trouble for the Humean claim. If this response succeeds, the fact that Hume's datum motivates (COMP) does not undermine the claim that it also motivates the Humean claim, since the Humean could accept both principles without contradiction. Let's take each ancillary premise in turn.

First, a defender of the Humean claim might want to deny the necessity of distinctness. This strategy even has the weight of tradition behind it.[42] But nothing so strong as the necessity of distinctness in its full generality is needed. Recall how the necessity of distinctness is actually used in the argument. We supposed *first* the possibility that Abel be made from our Australian hunk Crowe. We then applied our independence principle to infer *second* the possibility that both Abel be made from Crowe and Abel be made from the Tennesseean hunk Elvis. The way the necessity of distinctness is used in the argument is to infer, from the distinctness of Elvis and Crowe in the first possibility, their distinctness in the second possibility.

Can the Humean claim be defended by denying this application of the ne-

cessity of distinctness? Such a position would hold that it is possible for Abel to originate from Crowe, which is distinct from Elvis. That, again, is the denial of the origin thesis. This position accepts our independence principle, so it is stuck with the possibility that both Abel originate from Crowe and Abel also originate from Elvis. What this position denies is that, in the second possibility, Elvis and Crowe are distinct. But how does this second possibility, then, differ from the first? Evidently, the only difference our description of the possibilities requires is that, in the first, unlike the second, Elvis is distinct from Crowe. Otherwise the situations are alike: Abel originates from Elvis. Perhaps the denial of the necessity of distinctness is somewhat plausible in cases where there is some further difference between possibilities which warrants the identification of things in one situation, and their distinctness in another: futuristic mind-melding is involved in one but not the other, say.[43] But the position at hand is more radical and not so easily motivated.

Now consider the principle of origin uniqueness. Might a defender of the Humean claim plausibly deny this premise? She would hold *first* that it is possible for Abel to originate from Crowe. That is the denial of the origin thesis. She accepts our independence principle, which yields the *second* possibility that Abel be made from Elvis, while Abel is also made from Crowe. Now suppose the Humean accepts the necessity of distinctness, so the two hunks are distinct in the second situation. In §3 I made a simplifying stipulation that the relation indicated by "made from" would hold between a table and a hunk only if no extra material from any other hunk was used to make the table. Under this assumption, then, Abel could come from both hunks only if they contained exactly the same material. Perhaps this Humean might thereby resist the origin thesis. The cost seems to be, however, that she embraces the claim that Abel could not have come from any hunk which did not completely overlap with Elvis.[44] This thesis seems no less opposed to the Humean claim than the original origin thesis.

Our independence principle seems required by any position which takes Hume's datum to motivate the Humean claim. Denying the other two premises in the argument for the origin thesis does not seem to help. Together the premises yield the origin thesis, anathema to the Humean claim. The evident conclusion is that Hume's datum should not be taken to motivate the Humean claim. The argument shows that defenses of the Humean claim on the basis of Hume's datum are inadequate. This result is surprising. The Humean claim, and the corresponding picture of the metaphysical structure of the universe, seemed, in the abstract, to be well-motivated by Hume's datum. On the other hand, the Humean claim does not seem well-motivated on its own. Our argument shows that, the Humean claim requires alternative support if it is to be maintained.

Where does this leave the debate between the Kripkean and Humean pictures? Though this question is not the main focus of this paper, I think the discussion leads to a tentative conclusion. We have a valid argument from intuitively plausible principles in favor of the Kripkean picture. The Humean picture can be maintained, at some cost in plausibility, by denying the crucial premise of that argument, the locality of prevention. On the other hand, Hume's datum, the only intuitive support we have considered for the Humean picture, turns out to support locality, and so the Kripkean picture, as well. Importantly, however, locality is also independently motivated by a generalization from cases in which something prevents the production of a material thing. Indeed, one major upshot of our discussion is that the locality-based arguments for origin theses have strong appeal for anyone who shares the Humean's suspicion of mysterious or inexplicable necessities. If no other motivation for the Humean claim is available and no deep flaw in the argument for origin theses comes to light, then it seems to me that the Kripkean picture should be adopted.[45]

Notes

[1]It is not obvious that this claim expressed any view of the historical Hume. I will remain agnostic on such exegetical questions.

[2]The Humean claim is not only deployed in debates in metaphysics, see, *e.g.*, (Lewis, 2001), (MacBride, 2005); but also in philosophy of mind (Chalmers, 2003, §4.1, 241–6); and even meta-ethics (Smith, 1994).

[3](Lewis, 2001, 611).

[4](Kripke, 1980)

[5](*Treatise*, 1.3.14.1). All citations from the *Treatise* are taken from (Hume, 2001).

[6]There is an epistemological interpretation of this line of thought, according to which the Humean Examination brings to light no evidence or justification for necessary connections. Our discussion will focus on the metaphysical interpretation in the main text; the epistemological point is beyond the scope of this paper.

[7]For instance, Hume's datum does not support a presumption in favor of the possibility of a maximally great Being. For one reason or another, no such Being seems to be available for Humean Examination. For doubts about a general presumption of possibility in the absence of countervailing considerations see, for instance (van Inwagen, 1977).

[8]Hume himself accepts that necessary connections and necessary connection-lacks are on a par, see *Treatise*, 1.3.15.1. For clarity, mention of connection-lacks will usually be suppressed in our discussion.

[9]Some qualification may be necessary to take account of contingent existence. Thus, it may be contingent that x is identical to itself, on the grounds that it is contingent whether x exists, and if it does not exist, then it is not identical to itself. No position on this matter is here assumed, and nothing in our assessment of the Humean claim will turn on the metaphysics of nonexistence. For the purposes of the paper, the claim that x necessarily has a certain connection to y should be understood weakly, as equivalent to the claim that it is necessary that, if x exists, then x is so-connected to y. A similarly qualified reading of the claim that x necessarily bears some connection-lack to y is assumed.

[10]The consistency of such facts with the Humean claim may also be overdetermined, since the Humean might argue that identity and indiscernibility are not connections in the relevant sense. The distinction between connections and other relations is briefly discussed below.

[11]Are an individual thing and one of its qualitative features always "distinct existences" in the relevant sense? If so (and if instantiation is a connection), then the Humean claim somewhat surprisingly implies that there are no necessary qualitative features of any particular thing.

[12]This stronger version is the interpretation favored, *e.g.* by (MacBride, 2005, 126) and (Cameron, 2008). Thanks to an anonymous referee for alerting me to the fact that some authors favor the stronger interpretation.

[13]See, for instance, (Lewis, 1968).

[14] As a measure of how compelling the distinction is, it is used without comment by Kit Fine in (Fine, 1994, 5), when he asks us to "[c]onsider two objects whose natures are unconnected, say Socrates and the Eiffel Tower." Presumably Fine would admit that the natures are related (by distinctness).

[15] As an historical matter, Hume may have been more concerned with defending the epistemological claim that it is neither intuitively certain nor demonstrable from intuitively certain principles that a certain causal relation obtains. In a word, Hume is concerned to show that *de re* causal relations are not knowable *a priori*. This epistemological thesis is not here under discussion.

[16](Lewis, 1997). It should be noted that Lewis is not a whole-hearted partisan of the Humean claim. For a brief discussion of complications in application to origin theses see (Lewis, 1986, 88).

[17]See, for instance, the discussion of the Principle of Sufficient Reason at *Treatise* 1.3.3.

[18]Hume writes in the *Enquiry Concerning Human Understanding*, that "[a]ll events seem entirely loose and separate. One event follows another; but we never can observe any tie between them. They seem conjoined, but never connected." (Hume, 1977, 49). Notice that Hume assumes in this passage a distinction between connections and other relations.

[19]In addition to providing an argument in favor of his position, Kripke also criticizes arguments in favor of the other side. See especially (Kripke, 1980, 112-3).

[20]Importantly, when I say "made from", I have in mind the relation between a thing and the portion of raw materials used to produce it. This is a different relation than that between a thing and the hunk of matter which constitutes it. A thing may change constitution over time; but it can never change which raw materials were used to produce it. Further, there are cases in which raw materials are used to produce something but never constitute it. Perhaps the Queen and her gametes are an example. Another example is the production of a plastic ashtray from a certain quantity of ethylene. The ashtray is not constituted by the ethylene at any point in its history, despite the fact that it is produced from it. See (Barnett, 2005) for discussion of similar cases.

[21]I borrowed this use of the name *Abel* from Ben Caplan and David Sanson, though it is also used in this way by (Hawthorne and Gendler, 2000).

[22]There is one interesting wrinkle introduced by switching the example under discussion. It is plausible to deny in cases of table production that the source hunk and the final product

are wholly distinct, on the grounds that the hunk initially constitutes the table. Thus, a necessary connection between Elvis and Abel is consilient with the version of the Humean claim under discussion. This problem is a peculiarity of the particular case of production under consideration. The Queen is plausibly never constituted by her gametes, and a plastic ashtray is never constituted by the quantity of ethylene used to produce it. Since the arguments of this paper could be mounted using such cases, I will ignore this wrinkle in what follows. Thanks to an anonymous referee for noting both the wrinkle and the accompanying problem.

[23] This very brief criticism of the argument as reconstructed here is derivative of Salmon's, (Salmon, 1979). As I acknowledge in n. 29, one might interpret Kripke's footnote as a statement of the argument for the origin thesis mounted in §3 below; see, *e.g.*, the discussion in (Cameron, 2005). If this is correct, then the reconstruction of the argument in the main text is off target and the criticism beside the point. I take no stand here on this exegetical matter, though Kripke's discussion did inspire the work that led to the articulation of that argument here and in (Rohrbaugh and deRosset, 2004).

[24] I am indebted to Guy Rohrbaugh for his collaboration on many points made in this section and the next. The argument of this section is drawn from (Rohrbaugh and deRosset, 2004) and (Rohrbaugh and deRosset, 2006), where it is discussed in much more detail.

[25] Although it is a sufficient condition on a factor's responsibility for an effect that it causes the effect, this need not be a necessary condition. Many cases of prevention need not be thought of as strictly causal. It is plausible to hold that absences cannot be causes, but often the absence of a certain event is responsible for the absence of another. Consider the following contrasting pair of cases. First, Abel fails to eventuate because Elvis has suffered dry rot and has been rendered unsuitable for table-making. Here, the connection between the dry rot and Abel's failing to eventuate involves an identifiable causal process involving Elvis. Second, Abel fails to eventuate because life failed to evolve and there are no trees and, thus, no Elvis. Here, there may be no identifiable causal process involving Elvis or the production process, but in both cases, 'because' expresses a relation of responsibility. (It should be noted that many philosophers, see *e.g.* (Sartorio, 2005), think absences can be causes, in which case causing an effect may be both necessary and sufficient for being responsible for it.)

[26] (LOP) requires qualifications in light of difficulties brought to light by (Robertson and Forbes, 2006) and (Cameron and Roca, 2006). See (Rohrbaugh and deRosset, 2006) for discussion of the qualifications. The unqualified version of (LOP) is used here for simplicity of exposition. Note that (LOP) states a necessary condition for preventing the production of Abel from Elvis. (LOP) does not imply the implausible converse claim, that any factor which makes some local difference prevents the production of Abel. A productive effort using Elvis as raw material may result in Abel even though there are significant differences from

the actual circumstances in the locale of the production. Suppose local authorities arrest the table-makers. In this case, one might expect the arrests to prevent the production. But other factors may allow this interference to be overcome. If the table-makers are quickly released, it stands to reason that they might continue their productive efforts with Abel as the eventual result.

[27] The prevention is not just of the existence of a particular prototypical table, say, PT, nor of its creation from some hunk or other, but of the production of PT from, say, Elvis. I am thinking of productions as individuated in part by the kind of thing the product is. So, supposing PT to be a prototypical table constructed from Elvis, the production of that prototypical table from Elvis may fail in some other world, even though the right table is produced from Elvis in that world. The prototypical table production fails because the product is not a *prototypical* table.

[28]Thanks to an anonymous referee for suggesting this terminology.

[29] Independence principles, and the availability of a valid argument from them to the origin thesis, appear to have been first noticed by Kit Fine and Robert Stalnaker. In footnote 11 of (Salmon, 1979), Salmon attributes the idea to both Fine and Stalnaker. He also broaches a similar idea in (Salmon, 1981, 201, 212-3). Depending on how the argument of footnote 56 of *Naming and Necessity* should interpreted, the idea may originally have been Kripke's.

[30](NLONP) reflects one informal formulation of the the locality of prevention offered in (Rohrbaugh and deRosset, 2004). It was first explicitly formulated in (Rohrbaugh and deRosset, 2006).

[31]Generalizations of (T-IND) may fail in certain special cases, including when source hunks share too much material. This sort of problem is discussed at (Rohrbaugh and deRosset, 2004, §8, 720-3). The point of assuming that Elvis was grown in Tennessee and Crowe in Australia is, in part, to rule out such special cases.

[32]At least, their application in the present argument should not be doubted. As I have already noted, the Humean would clearly endorse the causal isolability of productive processes from distinct hunks. I discuss the relevant applications of the necessity of distinctness and origin uniqueness in §6 below.

[33](Rohrbaugh, 2005) for instance, argues that an analogous locality principle governing the production of artworks fails on the view that, *e.g.*, Modigliani's portrait of Jean Cocteau could not have been produced if Cocteau had never existed, though an otherwise indiscernible twin was painted in his place. This concession is made in the course of a long argument for an analogue for artworks of (T-NO).

[34]This discussion of the charge that the argument begs the question is drawn from (Rohrbaugh and deRosset, 2004).

[35]Likewise, the conjunction of these three claims is inconsistent with anything that implies the possibility that Abel be made from Crowe. For instance, they are jointly inconsistent with the claim that there might have been a table T_2 both identical to Abel and made from Crowe. Likewise, assuming the necessity of identity, they are inconsistent with the claim that T_2 is a table both identical to Abel and possibly made from Crowe. Thanks to an anonymous referee for helping me see this point.

[36]See also (Rohrbaugh and deRosset, 2006) for some further, independently motivated qualifications to (LOP).

[37] This admission is not trivial. David Lewis, (Lewis, 1968) for instance, rejects the necessity of distinctness. I discuss a defense of the Humean claim on the basis of a rejection of the necessity of distinctness in §6 below.

[38]A response to the argument along these lines has been suggested by the comments of several people, including Ben Caplan, D. A. Martin, David Sanson, and an anonymous referee.

[39]For instance, the following criticism of (LOP) was suggested independently by Derk Pereboom and Carolina Sartorio. Consider the case of the Ship of Theseus; see (Salmon, 1979) and (Noonan, 1985) for discussion. A ship S_1 was originally constructed from some planks $p_1, p_2, \ldots, p_n$, which have all been replaced one-by-one with completely different planks $p_{n+1}, p_{n+2}, \ldots, p_{2n}$. After replacement, the second group of planks make up a ship S_2. Assume the plausible view that S_1 is identical to S_2, and suppose that the original planks $p_1, p_2, \ldots, p_n$ were hoarded. It seems that, after replacement, the original ship S_1 cannot be produced from the hoarded planks, even if they have retained all of their original features and so, intuitively, there are no local differences in them. Despite appearances, there is no counter-example to (LOP) in the offing here. Let's distinguish between constitution and production (see n. 20). The original planks are not prevented from *producing* S_1; in fact they already have produced S_1. They do seem to be prevented by non-local factors from coming to *constitute* S_1. Thus, the example shows at most that factors that do not locally interfere with $p_1, p_2, \ldots, p_n$ and the workers, tools, and facilities in question may prevent those planks from *constituting* S_1.

[40] The position that accepts (COMP), but rejects the locality of prevention strikes me as difficult to motivate. I concentrate on the compossibility principle only to make the point that our independence principle should be irresistible to a Humean, even if she were willing to bite the bullet on the locality of prevention.

[41]I will insert one note of caution. I doubt that we should accept that there is no mystery concerning how, *e.g.*, the future production of Abel from Crowe necessitates the failure of the present production of Abel from Elvis. To be sure, if it turns out to be possible for Abel to be produced from Crowe, then there is no doubt *that* such a production necessitates the

failure of Abel to emerge from Elvis. This much is guaranteed by the distinctness of the hunks and origin uniqueness: there can be only one source hunk for Abel in a given possible world, and Crowe is the one in the worlds in question. But, to my mind, the *how* remains mysterious in the absence of effects in the locale of the actual production. Consider, by way of analogy, the question of how the New England Patriots lost the 2008 Super Bowl. The requisite explanation is not supplied by the observation that a distinct team, the New York Giants, won, and there can be only one winner.

[42]David Lewis (Lewis, 1968) forthrightly declares the necessity of distinctness false.

[43] Note that David Lewis's position, (Lewis, 1968) according to which identity and distinctness across worlds is determined by degrees of qualitative similarity, does not countenance the idea that two possibilities could differ only in that in one but not the other Crowe is distinct from Elvis.

[44] I assume that Crowe and Elvis contain exactly the same material in both of the possibilities countenanced by the defender of the Humean claim. This assumption is warranted, since otherwise which material a hunk contained would, as a matter of necessity, depend on (i) which tables were produced from it, and (ii) which tables were produced from other hunks. Suppose, *e.g.*, that Crowe had to contain different material if Abel were produced from Elvis. This seems to be a necessary connection of the sort ruled out by the Humean picture.

[45]I have benefited from intensive collaboration with Guy Rohrbaugh on the argument for the origin thesis. Previous versions of this paper also benefited from extensive discussions with Joseph Almog, Roberta Ballarin, Ben Caplan, Kit Fine, David Kaplan, D. A. Martin, Derk Pereboom, David Sanson, and Luca Struble.

References

David Barnett. The Problem of Material Origins. *Noûs*, 39(3):529–40, September 2005.

Ross Cameron. A Note on Kripke's Footnote 56 Argument for the Essentiality of Origin. *Ratio*, XVIII(3):262–75, 2005.

Ross Cameron. Truthmakers and Necessary Connections. *Synthese*, 161(1): 27–45, 2008.

Ross Cameron and Sonia Roca. Rohrbaugh and deRosset on the Necessity of Origin. *Mind*, 115(458):361–6, April 2006.

David Chalmers. The Content and Epistemology of Phenomenal Belief. In Q. Smith and A. Jovik, editors, *Consciousness: New Philosophical Perspectives*, pages 220–72. Oxford University Press, 2003.

Kit Fine. Essence and Modality. In James Tomberlin, editor, *Philosophical Perspectives: Logic and Language*, number 8, pages 229–294. Ridgeview, Atascadero, 1994.

John Hawthorne and Tamar Szabó Gendler. Origin Essentialism: The Arguments Reconsidered. *Mind*, 109:285–98, April 2000.

David Hume. *An Enquiry Concerning the Human Understanding*. Hackett Publishing Company, Indianapolis, 1977.

David Hume. *A Treatise of Human Nature*. Oxford Philosophical Texts. Oxford University Press, Oxford, 2001.

Saul Kripke. *Naming and Necessity*. Harvard University Press, Cambridge, 1980.

David Lewis. Counterpart Theory and Quantified Modal Logic. *Journal of Philosophy*, 65:113–126, 1968.

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

David Lewis. Finkish Dispositions. *Philosophical Quarterly*, 47:143–158, 1997.

David Lewis. Truthmaking and Difference-Making. *Noûs*, 35(4):602–15, December 2001.

Fraser MacBride. Lewis's Animadversions on the Truthmaker Principle. In Helen Beebee and Julian Dodd, editors, *Truthmakers: The Contemporary Debate*, pages 117–40. Oxford, 2005.

H. W. Noonan. Wiggins, Artefact Identity and 'Best Candidate' Theories. *Analysis*, 45(1):4–8, January 1985.

Teresa Robertson and Graeme Forbes. Does the New Route Reach its Destination? *Mind*, 115(458):367–74, April 2006.

Guy Rohrbaugh. 'I Could Have Done That'. *British Journal of Aesthetics*, 45 (3):209–28, 2005.

Guy Rohrbaugh and Louis deRosset. A New Route to the Necessity of Origin. *Mind*, 113(452):705–25, October 2004.

Guy Rohrbaugh and Louis deRosset. Prevention, Independence, and Origin. *Mind*, 115(458):375–86, April 2006.

Nathan Salmon. How Not to Derive Essentialism from the Theory of Reference. *Journal of Philosophy*, LXXVI:703–25, 1979.

Nathan Salmon. *Reference and Essence*. Princeton University Press, Princeton, NJ, 1981.

Carolina Sartorio. Causes as Difference-Makers. *Philosophical Studies*, 123(1/2): 71–96, March 2005.

Michael Smith. *The Moral Problem*. Blackwell Publishing, Ltd., 1994.

Peter van Inwagen. Ontological Arguments. *Noûs*, 11(4):375–95, November 1977.