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# Hume on the Temporal Priority of Cause Over Effect

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## Abstract

In *A Treatise of Human Nature*, David Hume claims that causes must temporally precede their effects. However, his main argument for this claim has long puzzled commentators. Indeed, most commentators have dismissed this argument as confused, but beyond this dismissal, the argument has provoked relatively little critical attention. My aim in this paper is to rectify this situation. In what follows, I (i) clarify the argument's interpretive challenges, (ii) critique two existing interpretations of it, and (iii) offer my own improved interpretation. More generally, I hope to throw new light on this puzzling aspect of Hume's philosophy.

**Keywords:** Hume; causation; temporal priority; succession

In *A Treatise of Human Nature*, David Hume claims that causes must temporally precede their effects. His main argument for this claim, however, has long puzzled commentators. Indeed, most commentators have dismissed this argument as confused, but beyond this dismissal, the argument has provoked relatively little critical attention. With a few notable exceptions (to be discussed shortly), commentators have not examined in detail what is puzzling about the argument and whether a plausible interpretation of it can be given. My aim in this paper is to rectify this situation. I begin by clarifying the two main interpretive issues that have puzzled commentators about Hume's argument. I then consider the two most promising existing interpretations of his argument and show that while the first does not adequately resolve these two interpretive issues, the second one does. But despite this, I then explain how this second interpretation nevertheless leaves unresolved a further, third interpretive issue. So, we still do not have a fully adequate interpretation of Hume's argument. To remedy this situation, I develop a new and improved account of his argument, one that, unlike the existing interpretations, adequately addresses all three of the argument's interpretive challenges.

## 1. The passage

In book 1, part 3, section 2 of the *Treatise*, a section entitled “Of probability; and of the idea of cause and effect,” Hume aims to “consider the idea of *causation*, and see from what origin it is deriv'd” (T 1.3.2.4; 74).<sup>1</sup> He argues that there are three relations from which our idea of causation is derived: contiguity, temporal priority, and necessary connection. Hume focuses most of his

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<sup>1</sup>In what follows throughout, concerning citation of Hume's texts, “T” refers to *A Treatise of Human Nature* (Selby-Bigge, revised by Nidditch edition [Hume (1978)]) followed by book, part, section, paragraph, and page numbers; and “DNR” refers to the *Dialogues Concerning Natural Religion* (Kemp Smith edition [Hume (1947)]) followed by dialogue, paragraph, and page numbers.

attention on the third of these relations, examining the nature and grounds of the relation of necessary connection.<sup>2</sup> But in this paper I focus on his discussion of the second relation: temporal priority.

After arguing that the first relation that is essential to causation is that causes and effects are contiguous, Hume writes:

The second relation I shall observe as essential to causes and effects, is not so universally acknowledg'd, but is liable to some controversy. 'Tis that of priority of time in the cause before the effect. Some pretend that 'tis not absolutely necessary a cause shou'd precede its effect; but that any object or action, in the very first moment of its existence, may exert its productive quality, and give rise to another object or action, perfectly co-temporary with itself. But beside that experience in most instances seems to contradict this opinion, we may establish the relation of priority by a kind of inference or reasoning. 'Tis an establish'd maxim both in natural and moral philosophy, that an object, which exists for any time in its full perfection without producing another, is not its sole cause; but is assisted by some other principle, which pushes it from its state of inactivity, and makes it exert that energy, of which it was secretly possess. Now if any cause may be perfectly co-temporary with its effect, 'tis certain, according to this maxim, that they must all of them be so; since any one of them, which retards its operation for a single moment, exerts not itself at that very individual time, in which it might have operated and therefore is no proper cause. The consequence of this wou'd be no less than the destruction of that succession of causes, which we observe in the world; and indeed, the utter annihilation of time. For if one cause were co-temporary with its effect, and this effect with *its* effect, and so on, 'tis plain there wou'd be no such thing as succession, and all objects must be co-existent. (T 1.3.2.7; 75–76)

Here Hume wants to argue that causes must precede their effects—that there is a temporal “priority” of cause over effect. One line of support he offers is that “experience in most instances” contradicts the view that causes can be simultaneous with their effects. But then he offers a “kind of inference or reasoning” for the claim of temporal priority. This inference or reasoning has long puzzled commentators. For instance, Stroud calls it “extremely puzzling” (1977, 254, note 2), Hausman says that he does “not understand this argument” (1998, 37), and Beauchamp says that this argument is “atypical of Hume, for it is both obscure and ill-arranged” (1974, 278). But while there is widespread agreement that Hume’s argument is puzzling and obscure, few commentators have tried to determine exactly what is puzzling about the argument and whether a plausible interpretation of it can be given. In the next section, I begin to address this gap by examining, in more detail, the argument’s initial interpretive issues.

## 2. The initial puzzles

Commentators agree that Hume’s argument is supposed to be a *reductio ad absurdum* (Beauchamp 1974, 278; Beauchamp and Rosenberg 1981, 192; Costa 1986, 90; Lennon 1985, 278; Ryan 2003, 29). But there is not agreement on the precise structure of the *reductio*. As I interpret the argument, Hume wants to reject the claim that it is possible for at least one cause to be simultaneous with its

<sup>2</sup>Indeed, of the three relations, it is necessary connection that Hume thinks “chiefly ... constitutes this relation [of cause and effect]” (T 1.3.15.2; 173). As he famously remarks, “Shall we then rest contented with these two relations of contiguity and succession, as affording a compleat idea of causation? By no means. An object may be contiguous and prior to another, without being consider'd as its cause. There is a NECESSARY CONNEXION to be taken into consideration; and that relation is of much greater importance, than any of the other two above-mention'd” (T 1.3.2.11; 77). But despite the importance he gives to necessary connection, he still thinks that succession is important to our idea of causation and, so, it is still worth clarifying why he thinks this.

effect by showing that if this *were* possible, then we would ultimately be committed to the (absurd) view that causal succession and time would be destroyed or annihilated. And having rejected the claim that it is possible for at least one cause to be *simultaneous* with its effect, and by assuming that it is not possible for at least one cause to occur *after* its effect, then it follows that all causes must be temporally *prior* to their effects.

So understood, here is a “working statement” of the basic structure of Hume’s argument (a statement I will clarify in later sections):

*Part one:* Show that if it is possible for at least one cause to be simultaneous with its effect, then all causes are in fact simultaneous with their effects.

*Part two:* Show that if all causes are in fact simultaneous with their effects, then causal succession and time would be destroyed or annihilated.

*Part three:* Since causal succession and time do exist, reject the claim that it is possible for at least one cause to be simultaneous with its effect.

*Part four:* Since it is not possible for at least one cause to occur after its effect, conclude that all causes must occur prior to their effects.<sup>3</sup>

With this basic structure in mind, most of the criticism of Hume’s argument has focused on part one, but little has been done to clarify exactly what is problematic about this part of the argument. To help rectify this, we can, I suggest, distinguish between two different interpretive puzzles concerning part one.

(1) *The conditional puzzle.* How does it follow that “if any cause [i.e., at least one cause] may be perfectly co-temporary with its effect,” then “they must all of them be so”?<sup>4</sup> After all, just because it is *possible* for *at least one* cause to be contemporaneous with its effect, it hardly follows straightforwardly that *all* causes are *in fact* contemporaneous with their effects. There are two separate issues here. The first is a numerical issue. How does Hume move from a claim about *at least one* cause (“if it is possible for *at least one* cause to be simultaneous with its effect”) to a claim about *all* causes (“then *all* causes are in fact simultaneous with their effects”)?<sup>5</sup> Second is a modal issue: How does Hume move from a claim about what is *possible* (“if it is *possible* for at least one cause to be simultaneous with its effect”) to a claim about what is *in fact the case* (“then all causes are *in fact* simultaneous with their effects”)?

Presumably, part of the answer to these two issues (which I will explore shortly) has something to do with the “established maxim” that appears to underwrite Hume’s argument. This leads us to the second puzzle.

(2) *The maxim puzzle.* Doesn’t the “established maxim” that underwrites this part of Hume’s argument—the maxim that “an object, which exists for any time in its full perfection without

<sup>3</sup>Hausman says that “it seems plausible ... that causes may continue to exist after some of their effects have begun. For example, one may still be in the act of striking a match after it has begun to light” (1998, 37). To allow for the possibility that some causes might continue to exist after the effect they cause has begun to happen, we can rephrase part four more specifically as follows: since it is not possible for at least one cause to *begin* to occur after its effect, conclude that all causes must *begin* to occur prior to their effects. (I set this point aside in the rest of the paper.)

<sup>4</sup>I hold, as Ryan (2003, 35) does, that by speaking of “if any cause ...” Hume means to speak of “if at least one cause ...” rather than “if all causes ...” The “if at least one cause ...” claim must be what Hume has in mind because if he can show that it is not possible for *at least one* cause to be simultaneous with its effect and that it is not possible for *at least one* cause to occur after its effect, then he can draw the conclusion that he wants—namely, that *all* causes must occur prior to their effects. By contrast, if Hume were only to show that it is not possible for *all* causes to be simultaneous with their effects (i.e., if we were to read him as speaking of “if all causes ...”), he would not be able to draw the conclusion that he wants. He would leave open the possibility that *some* causes could be simultaneous with their effects and, so, he would not be able to conclude that *all* causes must occur prior to their effects. (I revisit this issue in section 3 when I discuss Costa’s interpretation of the argument.)

<sup>5</sup>Lennon seems to have this numerical issue in mind when he says that “Hume should have concluded that if of a series of causally connected events, two are simultaneous, then all are. But this says nothing about *all* causes and effects, for not all need be members of the same series” (1985, 280).

producing another, is not its sole cause”—*rule out* the possibility of causes occurring before their effects? After all, it seems like what this maxim is saying is that if there is any time gap between the cause and its effect (such that the cause exists for any time before bringing about the effect), then (what we take to be) the cause is *not* in fact the cause of that effect. Hence, it seems to follow from this maxim that the cause and its effect *must* occur at the same time, contrary to what Hume wants to argue.<sup>6</sup>

### 3. Two existing interpretations

Of the few commentators who have engaged with this argument, Costa (1986) and Ryan (2003) offer the most sympathetic interpretations.<sup>7</sup> In this section, I consider how well they solve the two puzzles I have identified.

Costa initially interprets the argument as follows (1986, 90–91):

- (1) Some (proper) cause is perfectly contemporary with its effect. [Assumption for *reductio*]
- (2) Any cause which retards its operation for any time is not a sole (or proper) cause (the “established maxim”).

Therefore:

- (3) All (proper) causes are perfectly contemporary with their effects.
- (4) If all (proper) causes are perfectly contemporary with their effects, there is no causal succession or time.

Therefore:

- (5) There is no causal succession and time.

But we observe that:

- (6) There is causal succession and time.

Therefore (by *reductio*):

- (7) A (proper) cause must temporally precede its effect.

However, Costa (91) considers the concern that on this interpretation of the argument, “it is not at all obvious what work [premise 1] ... does in producing the intermediate conclusion [premise 3, since] ... it seems that [3] ... follows from the second premise, MAXIM, alone. If this is the case, then the conclusion, by *reductio*, should be the denial of MAXIM ... [But] Hume characterizes MAXIM as ‘an establish’d maxim;’ and he gives no indication that he takes the argument to shed any doubt whatsoever on it.”

<sup>6</sup>Stroud hints at this puzzle when he writes: “The difficulty [with Hume’s argument] is that the ‘maxim’ used to derive this strong conclusion [that no cause can be simultaneous with its effect, but must occur prior to it] ... implies directly that no cause can exist ‘in its full perfection’ at any time before its effect exists, which contradicts the desired conclusion” (1977, 254n2). However, Stroud does not examine whether Hume’s argument can be reinterpreted so as not to contradict Hume’s desired conclusion and, so, avoid this puzzle.

<sup>7</sup>A less sympathetic interpretation is offered by Beauchamp (see also Beauchamp and Rosenberg 1981, 192–95), who, after outlining his interpretation, argues that Hume’s argument is still “overbearingly paradoxical” (1974, 281). Ryan criticizes Beauchamp’s interpretation (2003, 30–33). A further interpretation is offered by Lennon (1985).

In response, Costa makes two points. First, he argues that (3) does *not* follow from (2) alone because if we examine (2) carefully, we see that it does not require that any cause must be simultaneous with its effect; rather, it requires only that there be no interval between a cause and its effect (something that, as I explore shortly, Costa thinks is different). But even if (3) does not follow from (2) alone, it does not seem to follow from (1) and (2) either. So, in his second point, Costa suggests replacing (1) with (1\*)—the claim that “it is possible that causes are perfectly contemporary with their effects” (92). Costa argues that with (1\*) in hand, Hume can draw the *reductio* that he wants. To explain, if it *were* possible, as (1\*) says, for causes to be simultaneous with their effects, then by (2), all causes would *in fact* be simultaneous with their effects. But if all causes were in fact simultaneous with their effects, then this would entail (5)—that there is no causal succession and time. So, on the basis that this would be absurd, Hume can argue by *reductio* that contrary to (1\*), it is *not* possible for causes to be simultaneous with their effects.

With this revision to his interpretation in place, does Costa successfully answer both puzzles? The answer, I submit, is no, or at least not fully. Beginning with the conditional puzzle, Costa *does* successfully solve the modal issue by arguing that what allows Hume to move from a claim about what is *possible*, (1\*), to a claim about what is *in fact the case*, (3), is premise (2), the “established maxim.” However, he does not address the numerical issue at all. In fact, in his revised interpretation of Hume’s argument, Costa presents the first premise, (1\*), as applying to *all* causes, rather than to *at least one* cause.<sup>8</sup> But the problem with presenting (1\*) as applying to *all* causes is that the denial of this premise—the claim that it is *not* possible for all causes to be perfectly contemporary with their effects—leaves it open that it is possible for *some* causes to be contemporary with their effects. But if it is possible for *some* causes to be contemporary with their effects, then Hume would not be able to conclude in (7) that *all* causes must be prior to their effects.

Regarding the maxim puzzle, Costa says that the maxim as expressed in (2) does not rule out the possibility of causes occurring prior to their effects because the maxim “requires only that there be no interval between the proper cause and its effect” (91–92). He continues:

Suppose you held the view that time consisted in discrete, durationless intervals. And suppose you believed that events [as the relata of causation] could occupy such instances. Then MAXIM could be true without (per impossible, per Hume) causes being perfectly contemporary with their effects. Each effect has its proper cause occurring in the immediately preceding instant. That cause does not exist for any *time* without producing its effect (there is no time or duration until you have a succession of events). (92)

I find this suggestion hard to untangle. I think that Costa is attributing the following view to Hume: for any cause *C* and its effect *E*, *C* occurs at a certain instant *t1*, and *E* occurs at the next successive instant *t2*, but since *t1* and *t2* do not themselves exist for any length of time (they are “durationless”), *C* will not occur for any length of time prior to *E*, as the Maxim requires, even though *C* will temporally precede *E*. In other words, temporal intervals are discrete as well as durationless. That is, there is not always a further interval between any two given intervals. Each interval has an immediate predecessor and an immediate successor. On this account of time, Maxim is then satisfied provided that the cause occurs at the time immediately prior to the effect, there being no other interval of time that could intervene between them.

Presumably, the merits of this view rest on the claims that events can occupy durationless instants, that even though the “discrete intervals” of time *t1* and *t2* do not themselves exist for any length of time, *t1* can still be said to temporally precede *t2*, and that time is not infinitely divisible and so there is not always a further instant between any two given instants. Costa thinks that Hume

<sup>8</sup>By saying in (1\*) that “it is possible that *causes* are perfectly contemporary with their effects,” he must mean that “it is possible that *all* causes are perfectly contemporary with their effects,” for only then would he be able to conclude—on the basis of (2)—that (3), “*all* (proper) causes are perfectly contemporary with their effects.”

will be open to these claims on the basis that he holds related view about the nature of space (92). But even if he is right about this, more needs to be said about these claims on Hume's behalf for this to be a satisfactory answer to the maxim puzzle.<sup>9</sup>

Ryan's reconstruction of Hume's argument is more sophisticated. He presents the argument as follows (2003, 35–36):

- (1) At least one sufficient cause is possibly simultaneous with its effect. [Assumption for *reductio*]
- (2) All sufficient causes act as soon as possible (the “established maxim”).

Therefore:

- (3) If a sufficient cause is possibly simultaneous with its effect, then it is in fact simultaneous with its effect.

Therefore:

- (4) At least one sufficient cause is in fact simultaneous with its effect.
- (5) If at least one sufficient cause is possibly simultaneous with its effect, then all sufficient causes are possibly simultaneous with their effects.

Therefore:

- (6) All sufficient causes are possibly simultaneous with their effects.

Therefore:

- (7) All sufficient causes are in fact simultaneous with their effects.

Therefore:

- (C1) If at least one sufficient cause is possibly simultaneous with its effect, then all sufficient causes are in fact simultaneous with their effects.
- (C2) If all sufficient causes are in fact simultaneous with their effects, then causal and temporal succession are impossible.

However:

- (8) Causal and temporal succession are clearly possible.

Therefore:

- (C3) It is false that at least one sufficient cause is possibly simultaneous with its effect.

Therefore:

- (C4) All causes must be temporally prior to their effects.

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<sup>9</sup>But see Baxter (2008) for a detailed account of Hume's view of time along just these lines.

Concerning the conditional puzzle, Ryan addresses the modal issue in the same way as Costa, arguing that it is the “established maxim” that allows Hume to move from a claim about what is possible to a claim about what is in fact the case. However, unlike Costa, Ryan also addresses the numerical issue. He argues that Hume must be “relying” (36) on the following premise:

- (5) If at least one sufficient cause is possibly simultaneous with its effect, then all sufficient causes are possibly simultaneous with their effects.

With (5) in place, Hume can infer that what is possible for *at least one* sufficient cause will be possible for *all* sufficient causes and, hence, Hume can conclude—with the maxim in mind—that if it is possible for *at least one* sufficient cause to be simultaneous with its effect, then *all* sufficient causes will in fact be simultaneous with their effects. Ryan gives two justifications for (5) on Hume’s behalf (37). First, he argues that Hume’s opponents—whom he identifies principally as Hobbes—would accept (5) and, so, assuming (5) in this context (i.e., to argue against Hobbes) is dialectically appropriate. Second, he argues that (5) reflects the plausible claim that “all causes are on the same metaphysical footing” (37) and, so, (5) enjoys independent support aside from its appropriate use in the relevant dialectical context.

With respect to the maxim puzzle, Ryan suggests that the maxim should be read as:

- (2) All sufficient causes act as soon as possible.<sup>10</sup>

By saying that all sufficient causes act “as soon as possible,” Ryan’s idea is that the maxim does *not* entail that causes must be simultaneous with their effects (as the maxim puzzle suggests) and, hence, does *not* rule out the possibility of causes occurring before their effects. In fact, as the rest of the argument (allegedly) goes on to demonstrate—on pain of absurdity—the closest time it is *possible* for causes to bring about their effects is just *after* the cause occurs. Were causes to bring about their effects at any *closer* time, that is, at the *same* time, we would be forced to accept the absurd conclusion that, in some crucial sense, causal succession and time would be destroyed or annihilated.

#### 4. The destruction issue

Ryan’s interpretation does, I believe, satisfactorily solve the two puzzles I identified. This is an important advance. But despite this, we still do not *yet* have a fully satisfactory account of Hume’s argument. For as I now explain, there is a third interpretive issue—beyond the conditional and maxim puzzles—that Ryan’s interpretation brings to light. But it is an issue that his interpretation does *not* adequately resolve.

After explaining, on behalf of Hume, why we should think that it is true that if at least one sufficient cause is possibly simultaneous with its effect, then all causes are in fact simultaneous with their effects, Ryan writes:

It remains only to be shown that if we interpret a “sole cause” as a complete or sufficient cause, then assuming that all effects must be produced simultaneously with their complete causes, it follows that there can be no causal succession, indeed no time at all. (38)

In other words, having shown why it follows—in a way that, I grant, solves the conditional and maxim puzzles—that

<sup>10</sup>It might be objected that, strictly speaking, causes do not “act.” To avoid this problem, we might read “all sufficient causes act as soon as possible” as “all sufficient causes *are followed by their effects* as soon as possible.”

- (C1) If at least one sufficient cause is possibly simultaneous with its effect, then all sufficient causes are in fact simultaneous with their effects,

all that is left to show, Ryan says, on Hume's behalf, is why it follows that

- (C2) If all sufficient causes are in fact simultaneous with their effects, then causal and temporal succession are impossible.

That is, all that is left to show is why it follows that *if* all sufficient causes are in fact simultaneous with their effects, *then* causal and temporal succession are impossible.

But as I explain shortly, Ryan does not adequately show why this follows. That is, he does not adequately explain how the consequent of (C2) follows from (C2)'s antecedent. We are, therefore, left with a third interpretive issue concerning Hume's argument. Moreover, it is an issue that Ryan's interpretation—as the most promising existing interpretation of Hume's argument—does not satisfactorily answer:

- (iii) *The destruction issue*: How does it follow that if all causes are in fact simultaneous with their effects, then causal succession and time would be destroyed or annihilated?<sup>11</sup>

Now, it might be asked why we even *need* an answer to this question. After all, is it not obvious that if all causes are in fact simultaneous with their effects, then causal succession and time would be destroyed or annihilated? Why do we need to “show” how this follows? The situation, however, is more complicated than it might appear. For examining Ryan's argument reveals crucial ambiguities in exactly how to understand (C2), ambiguities that have not so far been adequately clarified. First, what exactly *is it*, concerning causal succession and time, that would be destroyed and, second, in what *sense* would these things be destroyed? A fully adequate interpretation of (C2) must do two things: clarify precisely how we should understand its crucial terms and, then, with these terms clarified, explain exactly why we should think that it is true.

Why, then, should we think that if all causes are in fact simultaneous with their effects, then causal succession and time would be destroyed? After suggesting that what's at issue, throughout Hume's argument, is the nature of “sufficient” causes—those that are, by themselves, enough to bring about their effects—Ryan writes:

Consider then some time *t1*. For any potential effect, *e1*, either the complete [i.e., sufficient] cause of *e1* exists at *t1* or it does not. If it does exist at *t1*, then the effect will occur at that moment (as will all of the effects for which *e1* is itself a complete cause) and no causal succession will result. If the complete cause of *e1* does not exist at *t1*, then there is some missing causal component (call it *c1*) that must occur in order for *e1* to be produced. Obviously, this missing component could not have occurred at *t1* because then *e1* would have been produced at *t1* contrary to the assumption. Could it occur at some subsequent moment, say *t2*? Notice that *c1* itself requires a complete cause, *c2*. Now if all effects are produced simultaneously with their complete causes, *c2* could not have occurred at a previous time; it must occur at *t2*. But to do so would require that its complete cause, *c3*, be in place. And it cannot have occurred previously, but must occur at *t2*, which would require another simultaneous cause, and so on into infinity. Therefore, we can conclude that any effect whose component cause does not occur at *t1* will never be produced. (38)

<sup>11</sup>Costa (1986) does not directly address this issue at all.

This argument, however, fails for two reasons. First, rather than showing that causal *succession* would not exist if all causes were simultaneous with their effects, this argument instead shows causation *per se* would not exist under these circumstances. To explain, Ryan's argument has the form of a dilemma: for some time  $t1$  and any potential effect, either the sufficient cause of that effect does occur at  $t1$  or it does not. On the argument's second horn, in which the effect's sufficient cause does *not* exist at  $t1$ , then there must be something missing, Ryan says, at  $t1$  that would be needed for the effect to occur. Could this missing component (and thereby the effect's production) occur at a later time,  $t2$ ? Ryan says no. For in order for the missing component to occur at a later time,  $t2$ , then—given the claim that all sufficient causes are simultaneous with their effects—the sufficient cause of this *component* must also exist at  $t2$ . Moreover, the sufficient cause of that *second* sufficient cause must also occur at  $t2$ , and so on into infinity.<sup>12</sup> Thus, the production of the effect at any time after  $t1$  would require the presence of an infinite number of sufficient causes at that later time, something Ryan says Hume would consider “absurd” (41n22). Therefore, he concludes, on this second horn of the argument, that any effect whose missing component cause does not occur at  $t1$  will never be produced.

But this same line of reasoning would also apply as a *reductio* to the argument's first horn (on which the effect's sufficient cause *does* occur at  $t1$ ), establishing that the effect's sufficient cause could not occur at that time either. For if the effect's (alleged) sufficient cause *were* to exist at  $t1$ , then so too would the sufficient cause of *that* cause (assuming, as we are doing, that all sufficient causes are simultaneous with their effects), as well as the sufficient cause of this second sufficient cause, and so on into infinity. Thus, the causation of any potential effect, at *any* time, will, by Ryan's logic, require the presence of an infinite number of sufficient causes occurring at that time—something that will, according to him, mean that no effect will ever be produced at all.

Of course, if causation *per se* would not exist under these circumstances, then this would entail that causal *succession* would not exist either. So, perhaps Ryan might reply by saying that what Hume really thinks is that causal succession would be destroyed *because* the very possibility of causation *at all* would be destroyed should all causes in fact be simultaneous with their effects. But this would not fit with what Hume says. For what Hume says is that if all causes are in fact simultaneous with their effects, then what would be destroyed is “that succession of causes, which we observe in the world” since what would, instead, occur is that “one cause... [would be] co-temporary with its effect, and this effect with *its* effect, and so on” (T 1.3.2.7; 76). Thus, what would be destroyed, according to Hume, is not the very possibility of causes and effects *per se*, since he concedes that in this scenario, events would still be *related* by causation; it is just that causes and effects would all occur at the same time. What, instead, would be destroyed is the temporal succession of causes and effects which we *observe* in the world (i.e., the thing we observe in the world, namely, that causes are temporally followed by their effects). In my own interpretation, which I develop in the next section, I take very seriously Hume's claim that what would be destroyed in these circumstances is that temporal succession of causes *which we observe* in the world. Indeed, this is key, I suggest, to developing a promising interpretation of his argument.

Ryan might instead reply that he *is* arguing that if all sufficient causes are in fact simultaneous with their effects, then it is causal succession—and not causation *per se*—that would not exist. For on the argument's second horn, on which the effect's sufficient cause does not occur at  $t1$ , he concludes that any effect whose missing component does not occur at  $t1$  will never be produced. But what follows from this, Ryan might say, is *not* that the effect could never be produced at all. Rather, all that follows is that the effect must be produced at  $t1$ . But—and this is my crucial point—the line of reasoning that Ryan uses to show that any effect whose sufficient cause does not occur at  $t1$  will never be produced (namely, that the sufficient cause's existence at a later time  $t2$ , and hence the

<sup>12</sup>Ryan must assume here that every event has a cause, a claim he suggests that Hume would accept even though he would deny that it is a necessary truth (41n23). I grant this in what follows.

effect's production at  $t_2$ , would require, per impossible for Ryan, an infinite series of causes at  $t_2$ ) will *also* show that no effect could have a sufficient cause that occurs at  $t_1$  (for its existence at  $t_1$ , and hence the effect's production at  $t_1$ , would also require, again per impossible for Ryan, an infinite series of causes at that moment).

This, however, brings to light a second problem with Ryan's argument. According to his argument, what explains why an effect whose missing causal component does not occur at  $t_1$  would never be produced is that the component's occurring at  $t_2$  would require an infinite chain of causes at  $t_2$ , the existence of which, he says, Hume would find absurd. Clarifying this point, Ryan writes:

It might be objected that this argument fails to establish the absolute impossibility of causal succession, since it does not rule out the possibility of an infinite chain of instantaneous causes at each moment. I grant that Hume's argument fails to eliminate this possibility, but I take it that Hume would simply consider it too absurd to be taken seriously. (41n22)

But remarks that Hume makes elsewhere suggest that Hume would not find the possibility of an infinite chain of instantaneous causes at each moment absurd at all.

In part nine of the *Dialogues Concerning Natural Religion*, Hume considers an a priori argument for God's existence. He has Demea present the following argument:

Whatever exists must have a cause or reason for its existence; it being absolutely impossible for any thing to produce itself, or be the cause of its own existence. In mounting up, therefore, from effects to causes, we must either go on in tracing an infinite succession, without any ultimate cause at all, or must at last have recourse to some ultimate cause, that is *necessarily* existent. (DNR 9.3; 188)

It is Demea who then declares the first of these alternatives—an infinite chain of causes and effects—to be “absurd” (DNR 9.3; 188). By contrast, Hume has Cleanthes, with Philo's support, retort that:

In such a chain too, or succession of objects, each part is caused by that which preceded it, and causes that which succeeds it. Where then is the difficulty? (DNR 9.9; 190)<sup>13</sup>

Thus, given Hume's suggestion here that there is nothing inherently problematic about an infinite chain of causes and effects, Ryan needs to explain exactly what Hume would have found absurd about an infinite chain of causes occurring at a single moment.<sup>14</sup>

To press the point, Ryan's argument, as he explains in the quoted passage, entails that there *could* be causal succession but *only if* there were an infinite chain of causes and effects at each moment, something he takes Hume to suppose would be absurd. But as we have seen, Hume does not regard an infinite chain of causes and effects as inherently problematic at all. Thus, unless Ryan can explain exactly why Hume would have found such an infinite chain of causes and effects at each moment absurd, then he will have failed *by his own lights* to have established the impossibility of causal succession on Hume's behalf.

## 5. An improved interpretation

In the previous sections, I explained that while Ryan's interpretation successfully answers the conditional and maxim puzzles, it does not adequately address the destruction issue. Therefore, I

<sup>13</sup>The “too” in Cleanthes comment is there because this is a *further* observation, unrelated to what he said in the previous paragraph (DNR 9.8; 180).

<sup>14</sup>The criticisms of Demea's argument by Cleanthes and Philo are, of course, standardly taken to represent Hume's own views.

now outline my own improved interpretation of Hume's argument, one that *does* successfully answer all three of the argument's interpretive challenges. (When I speak of a "cause" in what follows, I mean a "sufficient" cause, one that is enough, on its own, to bring about the effect.)

- (1) There is at least one cause *C* and an effect *E* such that it is *possible* for *C* to be simultaneous with *E*. [Assumption for *reductio*]
- (2) All causes act as soon as it is possible for them to do so. [Maxim]
- (3) Therefore, if there is at least one cause *C* and its effect *E* such that it is possible for *C* to be simultaneous with *E*, then *C* is *in fact* simultaneous with *E*. [1, 2]
- (4) Concerning the temporal relationship between cause and effect, whatever is possible for *at least one* cause and its effect is possible for *all* causes and their effects.
- (5) Therefore, if there is at least one cause *C* and its effect *E* such that it is possible for *C* to be simultaneous with *E*, then it is possible for *all* causes to be simultaneous with their effects. [1, 4]
- (6) If it is *possible* for all causes to be simultaneous with their effects, then all causes are *in fact* simultaneous with their effects. [2, 5]
- (7) Therefore, if there is at least one cause *C* and an effect *E* such that it is possible for *C* to be simultaneous with *E*, then all causes are in fact simultaneous with their effects. [1, 6]
- (8) If all causes are in fact simultaneous with their effects, then *no* cause in fact occurs prior to its effect.
- (9) But since we experience causes as occurring prior to their effects, then at least one cause *does* in fact occur prior to its effect.
- (10) Therefore, it is *not* the case that all causes are in fact simultaneous with their effects. [8, 9]
- (11) If it is not the case that all causes are in fact simultaneous with their effects, then it is *not* the case that there is at least one cause *C* and an effect *E* such that it is possible for *C* to be simultaneous with *E*. [7]
- (12) Therefore, it is *not* the case that there is at least one cause *C* and an effect *E* such that it is possible for *C* to be simultaneous with *E*. [10, 11]
- (13) It is not the case that there is at least one cause *C* and an effect *E* such that it is possible for *C* to occur *after* *E*.
- (14) Concerning the temporal relationship between cause and effect, the only possibilities are that a cause occurs *prior* to its effect, a cause occurs *simultaneous* with its effect, or that a cause occurs *after* its effect.
- (15) Therefore, all causes must occur *prior* to their effects. [12, 13, 14]

Unlike the previous two interpretations of Hume's argument by Costa and Ryan, this interpretation is valid and comes to grips with all three of the argument's interpretive issues. (Note that the interpretations by Costa and Ryan are strictly speaking invalid since neither addresses the possibility that a cause might occur *after* its effect. Both move straight from the claim that a cause cannot occur at the *same* time as the effect to the conclusion that all causes must therefore occur *prior* to their effects. I fix this invalidity by adding premises [13] and [14].)

Beginning with the conditional puzzle, I address the modal issue by holding, as Costa and Ryan do, that it is the "established maxim," premise (2), that allows Hume to move from a claim about what is *possible* to a claim about what is *in fact* the case. Moreover, I address the numerical issue by holding, in a similar way to Ryan, that Hume must be employing a premise—premise (4)—saying that concerning the temporal relationship between cause and effect, whatever is possible for *at least one* cause and effect is possible for *all* causes and effects. So, by using (4), Hume can infer from the claim in (1) that there is *at least one* cause and effect such that it is possible for that cause to be simultaneous with its effect to the claim in (5) that it is possible for *all* causes to be simultaneous with their effects. Moreover, with the maxim in hand, he can infer from the claim that it is *possible* for all causes to be simultaneous with their effects to the claim in (6) that all causes are *in fact*

simultaneous with their effects. Thus, he can conclude in (7) that if there is at least one cause and effect such that it is possible for that cause to be simultaneous with its effect, then all causes are in fact simultaneous with their effects.

Concerning the maxim puzzle, I also follow Ryan in holding that if we interpret the established maxim in the way that (2) states, as the maxim that all causes act *as soon as it is possible for them to do so*, we see that the maxim does *not* entail that causes must be simultaneous with their effects and, so, does *not* rule out the possibility of causes occurring prior to their effects. All the maxim entails is that *whatever is the earliest time it is possible for a cause to bring about its effect, that is the time at which the cause brings about its effect*. With this in mind, Hume's argument seeks to demonstrate that the earliest time that it is *possible* for causes to bring about their effects is just *after* the cause occurs. For were causes to bring about their effects at any earlier time—i.e., at the *same* time as their effects—then, so the argument goes, we would be forced to accept the absurd conclusion that causal succession and time, in some crucial sense, do not exist.

This, however, leads us to the destruction issue. It is here that I depart from Ryan. Ryan, recall, presents this part of Hume's argument as follows:

(C2) If all sufficient causes are in fact simultaneous with their effects, then causal and temporal succession are impossible.

However:

(8) Causal and temporal succession are clearly possible.

(C2) here is the crucial claim, and Ryan argues for this by posing a dilemma concerning the time at which a potential effect's sufficient cause could occur (i.e., whether it occurs at *t1* or not). But as we saw in the last section, Ryan's dilemma argument fails for two reasons. First, it seems to prove too much, namely, that causation *per se* rather than causal succession *in particular* would be impossible if all sufficient causes were in fact simultaneous with their effects. (Moreover, it is clear from Hume's remarks that he thinks that it is causal succession rather than causation *per se* that would be eliminated in these circumstances.) And second, Ryan attributes to Hume, as part of his argument, a claim—that an infinite chain of causes occurring at each instant would be absurd—that Hume would *not* likely accept. (Indeed, remarks Hume makes elsewhere suggest that he would not find such a chain of causes absurd *at all*.)

How, then, does my interpretation of Hume's argument do better? Specifically, how does it follow—according to my interpretation—that if all causes are in fact simultaneous with their effects, then “the consequence of this would be no less than the destruction of that succession of causes, which we observe in the world; and indeed, the utter annihilation of time” (T 1.3.2.7; 76)? Moreover, how does this follow in a way that does *not* rest, as Ryan argues, on the claims that an infinite chain of causes at each moment would be absurd or that it is causation *per se*, rather than causal succession *in particular*, that would be destroyed?

The key to answering these questions, I contend, is to pay close attention to Hume's claim that what the simultaneity of causes and effects would destroy is “that succession of causes, *which we observe in the world*” (my italics). What Hume seems to be saying here is that we *experience* (or observe) causes as occurring prior to their effects. On the basis of this, I present the relevant part of the argument as follows:

(8) If all causes are in fact simultaneous with their effects, then *no* cause in fact occurs prior to its effect.

(9) But since we experience causes as occurring prior to their effects, then at least one cause *does* in fact occur prior to its effect.

Thus, on my interpretation, the reason that it follows that if all causes are in fact simultaneous with their effects, then causal succession and time would be destroyed is because if all causes were in fact simultaneous with their effects, then *no* cause would in fact occur prior to its effect. (And, if no cause in fact occurs prior to its effect, then temporal passage would not exist.) But to draw the *reductio*, and therefore argue that premise (1) is false, Hume can insist that since we *experience* causes as occurring prior to their effects, then at least one cause *does* in fact occur prior to its effect. That is, since we *experience* causes as occurring prior to their effects—and, therefore, since at least one cause *does* in fact occur prior to its effect—we can conclude that it is *not* the case, as (1) says, that there is at least one cause and an effect such that it is *possible* for that cause to be simultaneous with its effect. Moreover, if, as (13) says, it is not the case that there is at least one cause and effect such that it is possible for the cause to occur *after* its effect, then it follows, as Hume wants to argue, that all causes must occur *prior* to their effects.<sup>15</sup>

As I explained when presenting the destruction issue, there are crucial ambiguities concerning Hume's claim that any successful interpretation of his argument must clarify. First, what exactly *is it*, concerning causal succession and time, that Hume thinks would be destroyed and, second, in what *sense* does he think that these things would be destroyed? We are now in a position to answer these questions. First, what would be destroyed concerning causal succession, should all causes in fact be simultaneous with their effects, is the possibility of *any* cause *in fact* occurring prior to its effect. Second, the possibility of any cause in fact occurring prior to its effect would be destroyed in the sense that *no* cause *would* in fact occur prior to its effect, if all causes were in fact simultaneous with their effects. (Regarding temporal passage, if it were not possible for any cause to *in fact* occur prior to its effect, then the possibility of temporal passage would also be destroyed. It would be destroyed in the sense that no instance of temporal passage would in fact occur.)

I finish, however, by considering a potentially important difference between my response to the destruction issue and Ryan's. It centers on what Hume means when he says that if all (sufficient) causes are in fact simultaneous with their effects, then the "succession of causes" would be destroyed. On a weaker reading, what he means is that no effect could or would occur after its *complete* or *sufficient* cause. On a stronger reading, however, he means that even a *partial* or *component* cause of the effect would not or could not occur prior to it.<sup>16</sup> With this in mind, it might be suggested that while Ryan's argument is intended to show that causal succession in the strong sense would be ruled out, my response to the destruction issue—that "if all (sufficient) causes are in fact simultaneous with their effects, then no (sufficient) cause in fact occurs prior to its effect"—only secures the destruction of causal succession in the weaker sense. That is, my interpretation would

<sup>15</sup>The basis of my claim in (9) that since we *experience* causes as occurring prior to their effects, then at least one cause *does* occur prior to its effect is Hume's statement that the consequence of all causes in fact being simultaneous with their effects would be "the destruction of that succession of causes, *which we observe in the world*" (T 1.3.2.7; 76; my italics). But Hume seems to have wanted to *contrast* an appeal to what is experienced with a "kind of inference or reasoning," for he writes: "*Beside that* experience in most instances seems to contradict this opinion [that causes can be simultaneous with their effects], we may establish the relation of priority by a kind of inference or reasoning" (T 1.3.2.7; 76; my italics). Thus, appealing to what is experienced as part of a premise in this further reasoning might not fit well with Hume's manner of speaking. My sense, however, is that when Hume wrote that "*beside that*" experience (in most instances) contradicts the view that causes can be simultaneous with their effects, we can "establish" temporal priority by a "line of reasoning," he did not mean to *exclude* appealing to experience in his line of reasoning. After all, he appeals to that succession of causes *that we observe in the world* as what would be destroyed should all causes in fact be simultaneous with their effects. Rather, by writing "*beside that*," Hume meant that the fact that experience in most instances contradicts the view that causes can be simultaneous with their effects is not enough *on its own* to establish that all causes must occur prior to their effects. To establish this, we need a further line of reasoning.

<sup>16</sup>To illustrate this difference, suppose that *e1* requires the joint occurrence of *c1* and *c2* (i.e., that *c1* and *c2* together are a sufficient cause of *e1*). Now, suppose *c1* occurs at *t1* while *c2* and hence *e1* occur at *t2*. On the weaker reading, this would not count as a succession of causes, since what is meant by a succession of causes is that the effect occurs after its *complete* cause, and the complete cause does not exist until *t2*. On the stronger reading, however, this would count as a succession of causes, since a component of the cause of *e1* (i.e., *c1*) would preexist the effect—hence the effect would occur after a *part* of its cause.

not rule out a partial or component cause from occurring prior to its effect; all it would rule out is a sufficient cause's occurring prior to its effect.

Is only ruling out causal succession in the weaker sense sufficient for Hume's needs? Moreover, is it a faithful representation of what he wants to argue? I believe so. In this part of the argument recall, Hume wants to argue that (1)—the claim that there is at least one cause and effect such that it is possible for that cause to be simultaneous with its effect—is false. On my interpretation, what allows him to draw the *reductio* and argue that (1) is false is the claim in (9) that since we *experience* causes as occurring prior to their effects, then at least one cause *does* in fact occur prior to its effect. Now, suppose what we experienced as occurring prior to its effect was only ever an effect's *partial* or *component* cause but never its *sufficient* cause. Then since what is at issue in (9) and throughout my argument are sufficient causes, Hume would not be able to draw the *reductio* that he wants. But, I contend, this is not what Hume thinks we experience. When it comes to our experience of causation, we do not just experience an effect's partial or component cause as occurring prior to its effect; we experience the effect's *sufficient* cause as occurring prior to it.

## 6. Conclusion

My aim in this paper has been to offer a new and improved reconstruction of Hume's argument for temporal priority. Unlike existing interpretations, I have developed a comprehensive account of the argument that successfully addresses all the argument's interpretive challenges. Thus, with this new interpretation in hand, I conclude that the argument's dismissal by most commentators as confused, obscure, and ill-arranged as unwarranted.

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