

## RESEARCH

# A Defense of Shepherd's Account of Cause and Effect as Synchronous

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Lady Mary Shepherd holds that the relation of cause and effect consists of the combination of two objects (the causes) to create a third object (the effect). She also holds that this account implies that causes are synchronous with their effects. There is a single instant in which the objects that are causes combine to create the object which is their effect. Hume argues that cause and effect cannot be synchronous because if they were then the entire chain of successive causes and effects would all collapse into a single moment, and succession would not be possible. I argue that Shepherd has a ready, although implicit response, to Hume's argument. Since causation is combination on Shepherd's view, she is free to hold that there are times in between those instants in which combinations occur, during which times other, non-combinatory changes (such as changes in the location of objects) occur, which changes account for succession.

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## I Introduction

In her 1824 book, *An Essay upon the Relation of Cause and Effect (ERCE)*, Lady Mary Shepherd defends the thesis that causes are simultaneous with their effects. That book, however, is in large part intended as a refutation of Hume's understanding of causation, as is indicated by the first part of its subtitle: *Controverting the Doctrine Of Mr. Hume Concerning the Nature Of That Relation*. Thus, Shepherd is certainly familiar with Hume's argument that causes must *precede* their effects.<sup>1</sup>

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; SBN 75–76)<sup>2</sup>

Hume's argument takes the form of a *reductio ad absurdum*: if causes and effects are simultaneous, then everything would be simultaneous; but not everything is simultaneous; therefore, causes and effects are not simultaneous.<sup>3</sup> Because Shepherd's focus in *ERCE* is primarily on her defense of the principle of the uniformity of nature, she does not offer an explicit rebuttal to this argument, but an adequate response can be made using elements of her account of causation.

Most fundamentally for Shepherd, causation is to be understood as the combination of two objects wherein a distinct third object is created. So, for example, a flint and a steel combine to create a spark; that

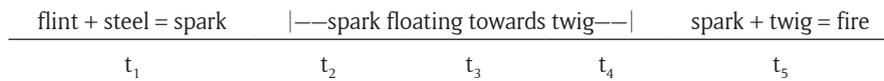
<sup>1</sup> My thanks to Daniel Collette for first bringing this puzzle to my attention, and to Louise Daoust, Deborah Boyle, Drew Johnson, and Ariel Melamedoff for talking through earlier versions of the solution offered here, and finally to the anonymous referees at the *Journal of Modern Philosophy* for their insightful, constructive, and enormously helpful feedback.

<sup>2</sup> For citations from Hume's *A Treatise of Human Nature* I employ the standard convention of citing the book, chapter, section, and paragraph number from the Clarendon edition, followed by the page number from the Selby-Bigge/Nidditch edition.

<sup>3</sup> As it stands there are a great many suppressed premises in this argument, some of which one might expect Hume to reject. Others have done work investigating that topic (e.g., Ryan 2003) and my goal here is to understand Shepherd's response to Hume, so I will leave those premises suppressed.

spark and a twig combine to create fire, etc. This, in turn, is why Shepherd holds that causes and effects are synchronous: the moment at which the spark and twig combine is the very same moment that fire is produced. It is the very same moment in which the spark and the twig are destroyed and the fire is created. Whatever may precede this moment, and whatever may follow it, it is this single moment that is the moment of causation: the moment in which the two causes combine to create the effect.

Whatever the merits and demerits of that unusual account of causation, what I want to argue here is that it makes possible a response to the challenge issued by Hume's argument. Specifically, if one understands causal relations as the combination of one object with another in production of a new object, then it is possible for there to be moments in time between such interactions that account for succession. Consider the flint, steel, spark, and twig in the moments before the fire is created. Suppose the twig is lying on the ground and the spark is floating in the air towards it. As we typically think of the spark during that time, its motion towards the twig is composed of a series of events, the spark's occupying various locations along its path towards the twig, each of which is caused by the event preceding it. On Shepherd's account, however, there is something fundamentally mistaken about this depiction. The flint and the steel combine to create *the spark*, one of the qualities of which is its motion through the air.<sup>4</sup> An effect, as Shepherd sees it, is an *object*. It is *the spark*, qua a bundle of qualities, that is the effect of the combination of the flint and steel, not the *events* of the spark's being in various locations along its path towards the twig. So, the moments in which the spark is moving towards the twig are moments in which a change (of place) is occurring, even though no further causal interactions, or combinations, need be. During that time, no objects are combining in order to create new objects with new causal powers.<sup>5</sup> It is this interstitial time that accounts for the non-collapse of all causes and effects into a single moment. At some time,  $t_1$ , flint and steel combine to produce a spark. At some later time, say  $t_5$ , spark and twig combine to produce a fire. Between  $t_1$  and  $t_5$ , however, there are other moments in which no other such combinations occur, and yet in which changes continue to occur, and thus in which time continues to pass.



Now, the natural Humean response here would be to point out that what occurs at  $t_2$  is itself an effect of what occurs at  $t_1$  and in turn a cause of what occurs at  $t_2$ , and so on until we reach  $t_5$ . What I want to suggest, however, is that this claim comes out as false on Shepherd's account of causation. Events or occurrences are themselves *abstractions* from the more fundamental ontological category of objects, and are not the proper relata of causal relations. While it might be true that what occurs at  $t_5$  could not have occurred if not for what occurred at  $t_2$ ,  $t_3$ , and  $t_4$ , that alone is not sufficient to make what occurs at  $t_2$  a *cause*. Again, events are not causes and effects, as Shepherd sees it, only objects are. A causal interaction is one in which objects, qua bundles of qualities, combine with each other to produce new objects, with new qualities. The former objects are the causes; the latter the effects. Cause and effect are synchronous insofar as this combination and production occurs in a single moment. Whatever one makes of that account of causation, the point here is simply that it is not open to Hume's objection, precisely because these moments of combination are not the only moments of change in the world.

That is the broad outline of how I understand Shepherd's response to Hume, but there remain a host of important details on which the success of that response will turn. I will begin with Shepherd's arguments concerning the synchronicity of cause and effect, and the example she uses to demonstrate her thesis (digestion). Next, I will turn to an objection to the account I extract from Shepherd's text: that it requires that

<sup>4</sup> This thesis is complicated by the fact that Shepherd takes objects themselves to be bundles of qualities. If the motion of the spark is among the qualities that constitute it, then the spark's being created is in part constituted by its motion being created, in which case that motion is at least a part of the effect of the combination of flint and steel. Furthermore, that motion, which is essentially durational, must also be, in some sense, synchronous with its cause, created in a single instant, etc. I will address these complications farther along.

<sup>5</sup> It might naturally occur to a reader here that there are, in fact, further combinations occurring while the spark travels towards the twig, namely the effect of gravity: a combination between the earth and the spark. That is certainly true, but the important point is that this is not *necessarily* so. Imagine a world in which all that exists are a flint and steel, which combine to create a spark. That spark might move through space as a result of the motion imparted to it in its creation. In such a case, the spark would continue to move undisturbed, thus there would be a change in the succession of events, even without any further causal interactions (combinations).

some of the qualities that constitute objects are essentially durational, but that this conflicts with her thesis that causes are synchronous with their effects. Having addressed that objection, I will conclude by considering Shepherd's diagnosis of Hume's mistake, and the account of the real nature of the causal relation that emerges from that diagnosis.

## II The Synchronicity of Cause and Effect

Shepherd's arguments that causes are simultaneous with their effects occur mostly in a fairly short stretch of text in *ECRE*, and so my procedure in this section will be simply to work through that text, noting the relevant features of Shepherd's broader understanding of causation along the way, and drawing from the resources that she provides to sketch her answer to Hume. I begin with Shepherd's rejection of Hume's definition of cause and effect as including the precedence of the cause to the effect, and her claim that in fact causes and effects are synchronous.

*'Antecedency and subsequency,'* are therefore immaterial to the proper definition of 'Cause and Effect;' on the contrary, although an object, in order to act as a Cause, must be in Being antecedently to such action; yet when it *acts as a Cause*; its *Effects* are *synchronous with that action*, and are *included in it*; which a close inspection into the nature of cause will prove. (*ERCE* 49–50)

What precedes this announcement is Shepherd's presentation of her account of causation as the production of a new object via the combination of precedent objects, so the 'therefore' here indicates that she takes her thesis regarding the synchronicity of cause and effect to follow from that account. That is confirmed by the promissory note that closes this sentence: that her thesis will be proved through a close inspection of the nature of cause as she understands it. Thus, we next find Shepherd offering just such a proof by drawing on her own definitions of cause and effect. Before turning to that proof, it will be helpful to rehearse those definitions, as well as that of an object, and note some important features of them. Here, then is Shepherd's definition of 'cause'.

A Cause, therefore, is such an action of an object, as shall enable it, in conjunction with another, to form a new nature, capable of exhibiting qualities varying from those of either the objects unconjoined. This is really to be a producer of new being.—This is a generation, or *creation*, of qualities. (*ERCE* 63)

While Shepherd does write here that cause is an 'action' of an object, not the object itself, as we will see farther along, the action to which she is referring is the combination of the object with another to create a third. Shepherd writes in this way to emphasize that the object itself is a cause, but only insofar as, and in the moment that, it enters into a causal relation. That will be crucial to understanding Shepherd's argument for the synchronicity of cause and effect in a moment. Equally important is the nature of the causal relation itself, which is that it is one wherein two objects combine to create a third. That third is the effect, and here is Shepherd's definition of 'effect'.

An Effect is the produced quality exhibited to the senses, as the essential property of natures [causes] so conjoined. (*ERCE* 63)

Just as causes are defined as those objects that combine to create a new object, effects are complementarily defined as those objects that are the result of that combination. Now, again, Shepherd does write that effects are 'qualities', not objects, which might appear to introduce yet a third ontological category into her account, but her definition of 'object' a moment later belies that appearance.

An *object* may be defined, a *combined mass of qualities*; the result of proportional unknown circumstances in nature. (*ERCE* 64)

An object just is a bundle of qualities, so the production of any new quality (an effect) amounts to the production of a new object. Effects are these new objects; causes are the objects that combine to create them. As noted, it is from these definitions that Shepherd constructs her proof of the synchronicity of cause and effect.

For effects are no more than the new qualities, of newly formed objects. Each conjunction of bodies, (now separately in existence, and of certain defined qualities,) produces upon their union those new natures, whose qualities must necessarily *be in, and with them, in the very moment of their formation.*

Thus *the union of two distinct natures, is the cause, producer or creator of another; which must instantly, and immediately, have all its peculiar qualities; but the cause has not acted, is not completed, till the union has taken place, and the new nature is formed with all its qualities, in, and about, it. (ERCE 50)*

Shepherd's argument here appears to be something like the following. Causes and effects are both objects, bundles of qualities. What makes some objects causes and other effects is that the former combine to create the latter. While the objects that will serve as causes certainly exist prior to the objects that are their effects, they only exist *as causes* insofar as, and *in the very moment* that, they combine to produce some effect. This is what she means when she writes that, 'the cause has not acted, is not completed, till the union has taken place, and the new nature is formed with all its qualities.' Complementarily, the objects that are effects exist consequent to their causes, but are *effects* insofar as, and 'in the very moment' that, they are formed from their causes. Thus, the objects that are causes exist *as causes* and the objects that are effects exist *as effects* only in a single instant: the instant in which the combination of objects that is the causal relation occurs, and in which the objects that are causes *become* the objects that are their effects.

This point is one worth belaboring for a moment as it will be of crucial importance farther along. Objects are masses or bundles of qualities. The spark, for example, has among its constituents its heat, its color, its power to combine with a twig to cause a fire, and—as I will argue later—its motion. The sense in which the spark and twig are synchronous with the fire that they combine to cause is that there is a single moment in which the spark's and twig's qualities exist synchronously with the qualities of the fire. As Shepherd points out, the spark and twig also have these qualities *antecedent* to their combination, as the fire also has its qualities *consequent* to that combination, but what is essential to the causal relation is that all three objects have their qualities at once, for at least the moment in which the causal combination occurs. The spark has its heat before it combines with the twig, and in the very moment that it does. One way to put this is that the spark's qualities *overlap* temporally with those of the fire, for at least a single moment. So, while the spark's heat exists prior to the moment of combination, it *also* exists in that moment. It is this temporal overlap of qualities in the single instant of combination that makes cause and effect synchronous because this is the very same moment in which these objects act as causes and effects.

In fact, Shepherd holds the stronger view that since the relation of cause and effect just *is* the combination of precedent objects to form new ones, cause and effect are not only synchronous, but really just different names for this self-identical combination.

The objects (whose *union is necessary* to a given result,) must certainly exist, *antecedent* to such an union. But it is *in their union*, there exists those *newly formed objects*, or masses of qualities called *Effects*, which are therefore *identical* with the *similar cause*; for in *this union*, Cause and Effect are *synchronous*, and they are but different words for the same *Essence. (ERCE 57)*

Since the relation of cause and effect just *is the combination* of objects, even calling this a *relation between* cause and effect is misleading.<sup>6</sup> The objects that are causes exist antecedently to the objects that are effects, but in some sense at least, the causal relation is not a relation between these objects, but is the transformation of the former into the latter in a vanishingly short instant.<sup>7</sup> It is the spark and twig that combine in this moment to become fire, and so all three must exist synchronously, if only momentarily.<sup>8</sup>

<sup>6</sup> Jennifer McRobert notes that for Shepherd our taking cause and effect to be distinct from each other, and our taking cause to be antecedent to their effects, 'is merely a by-product of our abstract analysis of the causal relation in the representational object' (McRobert 2002: 59), and rightly notes that this thesis is defended more thoroughly in Shepherd's later, *Essays on the Perception of an External Universe (EPEU)*, than it is in *ERCE*, although it is clearly at work in both texts.

<sup>7</sup> In conversation, Deborah Boyle suggests an alternative to the solution that I will offer. Rather than there being interstitial times between causal relations, she suggests that causal relations may themselves be processes that occupy non-instantaneous times, and that their imperfect overlap is what accounts for continued succession. I take Shepherd's insistence that effects 'must instantly, and immediately' have their qualities as evidence in favor of my reading. I also acknowledge, however, that there is evidence to the contrary, for example, in the passage on digestion to be considered farther along, wherein Shepherd refers to causation as a process consisting of a continuous chain of causes and effects.

<sup>8</sup> It is an open question that I will not attempt to answer here how strongly to take this claim: that 'cause' and 'effect' are but dif-

Fire and Wood must be antecedent to combustion, no doubt; but in the *union of Fire and Wood*, there exists immediately *combustion* as a new event in nature;—also in this union exists the similar *cause* allowed by the *data*, whilst combustion is also termed the *Effect* of the union of Fire and Wood; but, however termed, an *effect* is in fact a new but similar object as heretofore. (ERCE 57)

Here Shepherd emphasizes that while it might *appear* that combustion is an 'event' that is subsequent to the 'event' that is the union of spark and twig, that is merely a misleading feature of the *language* that we use to talk about causal relations.<sup>9</sup> In fact, whatever words we use to describe it, the effect in this relation is the *object*, fire. Importantly, it is because Shepherd takes the relata of causal relations to be objects (insofar as causation is a relation at all), rather than events, that she takes cause (qua cause) and effect (qua effect) to be synchronous. It is because the qualities of the spark and twig *overlap* in the moment of combination with those of the fire, that these causes are synchronous with their effect.

Consider an alternative. Suppose one holds that it is the event of the spark's making contact with the twig that is the cause of the event of the fire's starting. Since the making contact clearly does precede the fire's starting, the cause precedes its effect. (This alternative is one that we will see Shepherd address in the next section.) By contrast, on Shepherd's view, it is objects, the spark and the twig, that are causes of the fire, but *only insofar as* those preceding objects combine to form the fire. The relation of cause to effect is constituted by this combination, and this combination *changes* the objects that are the causes *into* the new object that is their effect. Thus, while the objects that are the causes precede the object that is their effect, the combination which makes these objects into causes and effects is shared between them: their qualities overlap in that moment of combination.

### III An Example: Digestion

Having thus argued for the synchronicity of cause and effect, or the causal relation, Shepherd goes on to explain why it has appeared to philosophers that causes and effects are successive. Understanding Shepherd's diagnosis of the philosopher's mistake is important because it is that diagnosis that points to Shepherd's deeper reasons for resisting Hume's portrayal of the causal relation as taking events as its relata. Namely, she takes this error of Hume's to be rooted in his more fundamental misconstrual of the nature of perception as involving only the senses. Those important points are best made in light of Shepherd's return to them in her 1827 book, *Essays on the Perception of an External Universe (EPEU)*, and so before wandering down that garden path, it will be helpful to complete the sketch of Shepherd's implicit answer to Hume's argument against synchronicity by considering an example that she presents immediately following her diagnosis of the philosopher's mistake.

As a short illustration of the doctrine unfolded, let us take the idea of nourishment, considered as the effect, subsequent to the taking of food, its cause. Here the *nature* of nourishment, is a *process* which begins to act immediately that food is in conjunction with the stomach. 'That we are nourished;' is only the last result of a continuous chain of causes and effects, in formation from the first moment the food enters the stomach, to that, in which every particle is absorbed and deposited in the proper place in the body. Here, the capacity of food to exhibit certain qualities, when in conjunction with the body, is shown; the nature of the human body, to exhibit certain other qualities, in consequence of that conjunction, is also shown; but the *effect of nourishment*, being *subsequent* to, and at such a distance of time from, the original Cause, is only so, on account of its being the effect of a vast number of causes, or unions of objects in succession, of which the union of the stomach and the food was first in order. (ERCE 51–52)

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ferent words for the same Essence. For example, taking it very strongly, it appears to introduce yet another object into the world over and above the antecedent objects and the subsequent one: the momentary combination of them in this single essence. The introduction of that new object, in turn, raises new questions. E.g., is this combination really the cause and effect rather than the twig, spark, and fire? Does the causal relation hold between the twig, the spark, and the combination, or the combination and the fire, or all four? Etc. As I said, these are issues best left for another occasion.

<sup>9</sup> Throughout *ERCE* Shepherd emphasizes that when philosophers deliberately change the language we use to describe causal relations, this can amount to a kind of sleight of hand, wherein they smuggle their conclusions into their premises unnoticed by their inattentive audiences. Most notably, she accuses Hume of doing just this in order to arrive at his conclusion that causes and effects are not necessarily connected. (ERCE 31–34)

What we observe is food entering the stomach and our later being nourished. If one were to adopt an event-based view of the causal relation, one might be inclined to conclude that food entering the stomach is the event that causes the later event of our being nourished, and also therefore that causes precede effects. What is actually occurring, on Shepherd's account, is that particles of food are combining with various parts of the body, to produce new parts of the body, which together form a new object, the nourished body.

What I want to suggest is that this passage contains the key to understanding Shepherd's solution to Hume's puzzle concerning synchronicity. Notice first that the body's being nourished consists in a successive series of causal relations, 'unions of objects in succession'. Food is broken down into parts by the stomach. Those food particles are absorbed by various parts of the body. Etc. Next notice that, while Shepherd does refer to this process as, 'a continuous chain of causes and effects,' she also implies that there are times *between* these combinations, where other kinds of changes are occurring. Specifically, 'every particle is absorbed *and deposited in the proper place* in the body.' The depositing of particles into various parts of the body is significant here because a change in the location of these particles, while it is a quality of the particles created in the previous causal interaction, is not *itself* an instance of such a relation. That is, change in location is a change that is not itself a combination of objects to create a new one. Thus, one way to understand why this process takes time, rather than occurring all at once, is precisely because in between, and as a condition of, each *causal transformation*, is a period of time marked by a succession of processes, that are not *themselves* causal ones, namely, those whereby particles are *moved* from one part of the body to another.

Consider the nutritive process in more detail. One ingests some food, which food enters one's stomach. There, that food combines with various enzymes and hydrochloric acid to form a new object, say, an amino acid. That combination is a causal relation. The causes are the food, enzymes, and hydrochloric acid; the effect is the newly produced amino acid. This amino acid is then absorbed by the stomach and shuttled off to another part of the body where it is used to synthesize certain proteins. That synthesis is also a causal relation: the causes are the amino acid and some other biochemical agent, and the effect is the complex protein that results from the combination of those causes. In this context, to engage Hume's puzzle regarding synchronicity is to ask, what prevents the synthesis of amino acids into complex proteins from occurring in the same instant that that amino acid is produced in the stomach? Shepherd's answer, I want to suggest, is that the biochemicals needed for such a synthesis are located outside of the stomach. Thus, while the breakdown of food into amino acids occurs in a single instant, and the synthesis of those amino acids into complex proteins occurs in a single instant, these instants are separated by a succession of changes, or a process, during which no further combinations of objects, and thus no causal relations, need occur.

Recall that for Shepherd an object is a bundle of qualities. So, when the amino acid is created in the stomach, what is created is a bundle of qualities. What I am suggesting here is that among the qualities of this acid is its *motion*. That motion can carry the amino acid to another part of the body where it would interact with some other biochemical agent to create a new object, or effect, a complex protein. Of course, typically the acid's motion will *not* carry it all the way to this other part of the body, but it will interact with various other bodily organs along the way that affect this motion, etc. The point here, however, is that even in these cases, the amino acid will interact with these other organs only after it has moved to a location where it is possible to do so. Each of these motions is a quality created in the amino acid by its various combinations throughout the body, the temporal separation of which is explained by that motion. The time between such combinations can be accounted for via the motion of the amino acid from one place to another, and this motion is not itself a further combination, but rather one of the qualities produced in such combinations.<sup>10</sup>

Again, during the time that the amino acids move from one place in the body to another, since causal relations are combinations of objects to produce new objects, and the movement of an object from one location to another does not in itself produce a new object, no causal relation need occur during that movement. This explanation also generalizes so that we get a more comprehensive answer to Hume's puzzle. Why don't all events occur at once, since causes and effects are synchronous? Because each such synchronous relation is separated from others by some spatial distance, the traversing of which by the objects involved in these relations accounts for their 'delay' and therefore for succession.

It is important to note here that all of this is not to say that the movement of bodies is uncaused. The movement of a body is one of the qualities created in that body as a result of its original formation via the

<sup>10</sup> As noted earlier (n. 5), the motion of such particles is, in fact, influenced and altered by a myriad of intermediary causal relations, for example, repeated contractions of the heart, interactions with the walls of blood vessels, etc. The point here, though, is that in each of these interactions a new impulse is created in the particles, which carry them to their next interaction, etc.

combination of the antecedent objects that are its causes. *That moment of combination* is the moment in which the causal relation, in which the objects that are the causes combine to form the object that is the effect, takes place, and the effect is created with all of its qualities, including the quality that is its subsequent motion through space over time.<sup>11</sup>

To see this, it will be helpful to examine some of the texts in which Shepherd writes about motion and its causes. What we will see from those texts is that Shepherd considers motion to be among the qualities of objects that can serve as either a cause or an effect. That thesis is an important one because it both adds an important piece of the puzzle of Shepherd's response to Hume's argument, but also generates a new puzzle of its own: how can an *essentially durational* quality of an object be *synchronous* with its causes, which causes might well have been destroyed in the creation of that object? I will return to that objection in the next section. For now, here are some of those passages concerning motion and its causes. We can begin with one in which Shepherd is contrasting our representation of motion with the motion of bodies themselves, and casts the motion of bodies themselves as both an effect of something unperceived and as the cause of our perception of it.

But it must be observed further, that the *cause* of motion, or unperceived motion, is the *essence* of what motion is in nature; and in its unperceived state, we know that it *cannot be like its effect*, a perception; all we know is, that it is in its *unperceived state*, in which it must act as a *cause*, and that the perception of it must be an *effect*, and owe its existence to a prior cause; because it is a *dependant being*, and *begins to be*, even when *unrelated* to us; for we know our *sensation* of it does not cause it, therefore something else does. (EPEU 60)

Putting aside Shepherd's claims here about perceived and unperceived existence, it is clear that she takes motion to be both a cause and an effect, that is, a quality of objects that can produce and be produced by other qualities. This accords with the form that Shepherd's skepticism of an 'inherent quality of propulsion' (EPEU 369) takes, namely, that since motion is different from rest, the causes of motion and rest must be different.

Let two balls be supposed, of the relative sizes and densities of the sun and moon;—and to be placed at the same relative distance in a state of *complete rest* in an exhausted receiver, with *empty space* alone between them; is it imagined for a moment they would ever begin to move, and direct their motions towards each other after any *law of attraction* whatever? They could not,—for the causes being efficient to *rest*, they could not be also efficient to motion. And if it be said the bodies were not or could not be *at rest*, then they were in motion—but motion is not *attraction*, and the motion supposed, still lies in need of being account for, both in its beginning and direction. (EPEU 363)

The principle driving Shepherd's argument here appears to be her thesis that all beginning of existence requires a cause. As we have seen, objects are bundles of qualities, and so an object begins its existence when a new bundle of qualities is produced. An object that is previously at rest, but is then set in motion, requires a cause of its motion precisely because that motion is a new quality in the object, and so the moving object is a new existence.

Similarly, Shepherd applies the same principles—that like causes require like effects, and that all beginning of existence requires a cause—in her discussion of Hume's treatment of the difference between geometrical proof and causal reasoning.

Now then let the data be the same, and the IMPULSE given not only be like, but the BODY given be like; and I conceive that every man, and every child, would expect, upon a second trial, that the same body would move in the same manner as before. The inference would be drawn from the mind perceiving (in the first instance) that no motion would have taken place except from the conjunction of the body with the impulsive force. (ERCE 92–93)

<sup>11</sup> It is worth noting that motion is not the only essentially durational quality that objects might have. For example, heating up or cooling down (as opposed to being a certain fixed temperature) might be a quality imparted to an object via its causal creation. Entropy might be another.

Again, Shepherd casts motion as an effect, the product of a causal relation, this time a conjunction of a body with an impulsive force to produce a moving body. So, it appears that Shepherd takes motion to be one of the qualities that constitutes an object, and which can therefore act as either a cause or an effect. This serves to address Hume's argument against the synchronicity of cause and effect by making possible interstitial times between causal combinations in which changes (in location) continue to occur, even though there are no further causal combinations at those times. Particular causes and effects are synchronous, on this picture, and yet all events are not simultaneous because there are times in between causal combinations in which objects are moving from one place to another. The flint and steel combine to create a spark. Among the spark's qualities is its motion, and that motion is what accounts for the time between its creation and its subsequent combination with the twig to create fire.

With that, I have completed my sketch of Shepherd's response to Hume. There are, however, at least two important pieces of business remaining on my agenda. First, there is a looming objection that needs to be addressed. If motion is a quality of an object that can be an effect of a causal combination, and effects are synchronous with their causes, then it appears that the motion of an object is synchronous with the causes of that motion. This conclusion, however, is implausible insofar as motion is essentially durational and at least some of the time in which such motion occurs must be *consequent* to its moment of creation, and so not synchronous with its causes (especially since those causes might have been destroyed in its formation). Second, in completing my sketch of Shepherd's response to Hume, I skipped over a paragraph in which Shepherd accounts for why Hume makes the mistake that he does in taking cause and effect to antecedent and subsequent. I there noted that this explanation is particularly important because it gets to the deep foundation of Shepherd's differences with Hume, namely, her competing account of perception and ontology, and promised to return to these points later. I will now touch on each of these issues in turn, beginning with the objection.

#### IV An Objection Regarding Durational Qualities

Here again is that objection. Suppose that the motion of the spark through the air is a quality of the spark that is an effect of its creation via the combination of flint and steel. Causes are synchronous with their effects. It seems to follow that the motion of the spark is synchronous with its cause, the combination of flint and steel. The entire thrust of the response that I have been constructing on Shepherd's behalf, however, is that this motion is what accounts for the interstitial times *between* the combination of flint and steel and the combination of the spark with the twig. Therefore, the motion of the spark must be *consequent* to the combination of flint and steel, not synchronous with it. Furthermore, motion is essentially durational, it is change of location over time. As we have seen, Shepherd takes the causal relation to be instantaneous. The bundles of qualities that are the causes become in an instant the bundle of qualities that is the effect. If, however, motion is a durational, or non-instantaneous, quality, then it does not appear to be possible for it—that essentially temporally-*extended* quality—to be synchronous with the other qualities that constitute the causal relation *in an instant*. The motion of the object cannot *fit*, so to speak, in the instant in which the causal relation takes place.

To see our way clear of this objection, it will be helpful to return to a pair of passages that we considered earlier. Recall that in her introduction of the synchronicity thesis, Shepherd writes that,

although an object, in order to act as a Cause, must be in Being antecedently to such action; yet when it *acts as a Cause*; its *Effects* are *synchronous with that action*, and are *included in it*. (ERCE 49–50)

A few pages farther along, she puts the same point as follows.

The objects (whose *union is necessary* to a given result,) must certainly exist, *antecedent* to such an union. But it is *in their union*, there exists those *newly formed objects*, or masses of qualities called *Effects*, which are therefore *identical* with the *similar cause*; for in *this union*, Cause and Effect are *synchronous*. (ERCE 57)

The causes of some effect are objects that exist antecedently to that effect, but these objects only *act as causes* in the moment that they combine to create the effect. Keeping in mind that Shepherd holds that objects are bundles of qualities, it follows that objects will have a wide variety of qualities that exist both prior to, and in the moment that, that object serves as cause of some effect. So, in this sense, if there is a problem with the

motion of an object being synchronous with some cause or effect, this will not be a problem that is *unique* to motion. The heat and color of a spark are also qualities of it that are temporally extended, and that must nonetheless be synchronous, in the moment of the causal relation, with the fire that is its effect.

Shepherd's solution to this puzzle is to note that these enduring qualities need not be *entirely* synchronous with the qualities that are their causes and effects, but only synchronous with them insofar as they *overlap* in that single instant in which the causal combination takes place. In the moment that the spark and twig combine to create fire, the qualities of all of these objects exist synchronously, for just that moment, and these same qualities also exist in those objects at the other moments of its existence. So, in this sense the motion of the spark through the air is synchronous with the flint and steel that are its cause insofar as the first, vanishingly small, part of that motion is the moment in which the spark is created. This is no different than the spark's heat and light overlapping and being synchronous with the flint and steel for that moment as well. Causes and effects are synchronous just insofar as the causal relation is the single moment in which the causes are transformed into their effects, during which moment an instantaneous temporal part of the qualities of the causes and effects both exist synchronously. That is, there is a temporal overlap of some temporal part of the qualities of the causes and effects, including their motions.

## V Shepherd's Explanation of Hume's Mistake

Having addressed that objection, the time has come to return to the paragraph I skipped over in my earlier exegesis, in which Shepherd diagnoses the root cause of the philosopher's mistake in taking causes to be antecedent to their effects.

*A chain of conjunctions of bodies, of course, occupies time; and is the reason why the careless observation of philosophers, enabling them, to take notice only of some one distinct effect, (after perhaps innumerable successive conjunctions of bodies,) occasions the mistake, by which they consider subsequence of effect, as a part of the essential definition of that term; and priority, as essential to the nature of Cause. (ERCE 50–51)*

Superficially, it might appear that Shepherd's explanation of the mistakes of her opponents here is that in a successive series of cause and effect relations, one might easily overlook some of the intermediary relations, thereby focusing one's attention on the relations at the beginning and end of the series. Because, *ex hypothesi*, these occur at some temporal distance from each other, the careless observer then concludes that causes always precede effects. What I want to suggest is that while there is something to this reading of this paragraph, there is evidence that Shepherd is after something deeper here as well. Specifically, she takes the philosopher's mistake to be the result of his confusions about the nature of perception and ontology themselves. That is, it is because of the philosopher's underlying commitment to an ontology of 'events' and corresponding account of perception as involving only 'the senses' that he is led to this erroneous conclusion concerning causation.<sup>12</sup>

The first such piece of evidence comes from Shepherd's discussion of the same issue in *EPEU*, where she explicitly casts Hume's fundamental mistake as abstracting from the ordinary and proper understanding of causation we find in *perception*, and deliberately limiting his investigation to the deliverances of 'the senses'.

*This impossibility of sensible qualities, being the productive principle of sensible qualities, lies at the root of all Mr. Hume's controversy concerning the manner of causation; for he, observing that such ideas could only follow one another, resolved causation into the observation of the customary antecedency and subsequence of sensible qualities. But objects, when spoken of and considered as causes, should always be considered as those masses of unknown qualities in nature, exterior to the organs of sense, whose determination of sensible qualities to the senses forms one class of their effects. (EPEU 127)<sup>13</sup>*

<sup>12</sup> This line of interpretation develops a suggestion made by Martha Brandt Bolton: that Shepherd's arguments are undergirded by her implicit rejection of the theory of mental representation that leads Hume to his own conclusions. See Bolton (2010: 243–44), and also Bolton (2019: §1).

<sup>13</sup> Shepherd makes this very same point in defining 'cause' in the section prior to the one concerning synchronicity in *ERCE*, although with less explanation.

This is a generation, or *creation*, of qualities not conceived of, antecedently to their existence;—and not merely an '*idea always followed by another*,' on account of a 'customary association between them.' (*ERCE* 63)

Shepherd here agrees with Hume that if one considers the succession of our perceptions, qua a series of distinct events occurring in time, then it would in fact appear not only that causes precede their effects, but also that there are no necessary connections between such events. That, however, is because perceptions are not necessarily connected to *each other*, but are rather new qualities of the experiencing subject that are individually necessarily connected to the unknown object that is their cause.

The necessary connection therefore of cause and effect, arises from the obligation, that like qualities should arise from the junction, separation, admixture, &c. of the like aggregates of external qualities. But the necessary connection of *invariable antecedency and subsequency* of successive aggregates of sensible qualities, arises from the necessity there is, that there should be *invariable sequences of effects*, when one *common cause* (or exterior object) mixes successively with different organs of sense, or various parts of the human frame, &c. (EPEU 131)

As Shepherd understands them, sensible qualities are themselves effects on a perceiving subject of which some external object is the cause. Thus, sensible qualities do not cause each other. Each is, in fact, caused by some external objects, and so sensible qualities are, in fact, necessarily connected to each other *indirectly*, but only insofar as they are each necessarily connected to that object.

Thus, if one limits one's observation to sensible qualities alone, it will appear that there are no necessary connections, and that whatever the causal relation is, it must require causes to be antecedent to their effects, because sensible qualities are antecedent and consequent to *each other*. The reason that Hume takes causes to precede their effect, then, is precisely that he deliberately limits his investigation to what he purports to observe via introspection, but as Shepherd sees it, that limitation is itself artificial and distorting, and even its deliverances are themselves implausible and theoretically loaded.

As Shepherd understands our representational faculties, the very notion of our senses is itself an abstraction from a more fundamental perceptive faculty.

Now I repeat there is one sense in which it may be said that objects are perceived immediately, as existing *outwardly, by the senses*. It is this; *the conscious powers of the understanding*, and the *senses*, are blended together in man; *we are analysing them, but in nature they are united as intimately as are the prismatic colors in one uniform mass of light.* (EPEU 67)

Our most fundamental representative faculty is perception. While that faculty can be *analyzed* into the contributions of 'the senses' and 'understanding', these are merely nominal parts that cannot in fact be separated. Consider, for example, Hume and Shepherd's competing accounts of our representation of a table. First, here is Hume.

The table in front of me is alone sufficient by its view to give me the idea of extension. This idea, then, is borrow'd from, and represents some impression, which this moment appears to the senses. But my senses convey to me only the impressions of colour'd points, dispos'd in a certain manner. If the eye is sensible of any thing farther, I desire it may be pointed out to me. But if it be impossible to show any thing farther, we may conclude with certainty, that *the idea of extension is nothing but a copy of these colour'd points, and of the manner of their appearance.* (T 1.2.3.4; SBN 34, emphasis added)

As Hume understands it, our representation of a table is entirely constituted by its sensible qualities: certain colored points arranged tablewise. Contrast this with Shepherd's account.

Now the truth is, that no real table is formed, no image of a table is formed, unless the whole united mass of the unknown objects in nature exterior to, and independant of the instruments of sense, (not *yet worthy of the name of k'TABLE,*;) unite with the mechanical action of these, and by their means with the sentient principle, in order to *create* such an union that object which alone can properly be termed 'TABLE.' Yet *after* experience, *the* outward OBJECTS, the CONTINUALLY EXISTING PARTS of the whole causes necessary to the creation of a *table*, must be named by the name by which the whole is named; for there is no other name whereby they can be called, nor any other *ideas* by which

the *memory* of them can be introduced into the mind, save by the appearance of 'the faint images of those sensible qualities' which their presence originally created. (EPEU 148–49)

As Shepherd understands our representation of a table, it is *essentially* the representation of *that which causes* the sensible qualities that correspond to it. Hume claims to introspect, find only these qualities, and thereby conclude that there is no necessary connection between, say, the parts of a 'table', and that insofar as, say, hammering is the cause of a table, since these are each nothing but successive sensible qualities, the causal relation requires causes to be antecedent to their effects. Shepherd, by contrast, introspects and finds the representation of *a table*, qua the cause of the sensible qualities that in part constitute that representation, and concludes that while these sensible qualities are not necessarily connected to each other directly, they are so connected indirectly by their relation to the table that is their cause. These indirect necessary connections, of course, depend not on the succession of sensible qualities, but on the combination of their real causes in a single moment to form those sensible qualities in the subject. Thus, Shepherd finds that a more accurate observation of our representative powers yields the result that cause and effect are synchronous.

Notice that this deeper explanation of Hume's mistake in taking causes to be antecedent to their effect does not rely on observing a series of causes the first of which is at a temporal remove from the last. Rather, it is the nature of *observation* itself, and the results that it yields that does the real explanatory work. The explanation for Hume's mistaken supposition that causes are antecedent to their effects is the result of misidentifying what the relata of a causal relation are. Hume takes these to be sensory events, and thereby concludes that cause and effect are successive. The truth of the matter, however, is that the actual relata of causal relations are *objects*—in this case the causes are the unknown object and the ready observer, and the effect is the observer in their newly-formed sensory state—all of which combine in a single instant. It is only by *misconstruing* our typical perception of causation, or *deliberately changing* the meaning of the words 'cause' and 'effect',<sup>14</sup> that the philosopher comes to his false conclusions about the causal relation.

In short, concomitant, or 'successive sensible qualities,' are considered by all men when they come to analyse their notions, (and ought to be held by philosophers;) as concomitant or *successive* EFFECTS, *arising from the different actions of an external independent object, meeting either at the same time or, or successively, with different instruments of sense with which it unites.*—Thus the *antecedency* and *subsequency* of certain respective aggregates of sensible qualities, must *necessarily* be INVARIABLE in like circumstances; *for they are successive and similar effects, from successive and similar cause, instead of the succession itself forming essential cause and effect.* (EPEU 127–29)

Notice that Shepherd holds that, 'all men when they come to analyse their notions,' of sensible qualities will see it is not one perception's being antecedent to another that constitutes the causal relation, but rather that this succession of perceptions itself is the result of the successive effects of a combination of our sense organs with an unknown object (or objects). That is, she takes herself to be providing a conceptual analysis of the notion of 'cause' and 'effect', which anyone not already in the grips of a misguided theory of perception and mental representation could likewise perform for themselves.

With that explanation at hand, we can return to the paragraph from *ERCE* where Shepherd appears to offer a more superficial account of the same mistake.

*A chain of conjunctions of bodies, of course, occupies time; and is the reason why the careless observation of philosophers, enabling them, to take notice only of some one distinct effect, (after perhaps innumerable successive conjunctions of bodies,) occasions the mistake, by which they consider subsequency of effect, as a part of the essential definition of that term; and priority, as essential to the nature of Cause.* (ERCE 50–51)

Again, it might first appear that Shepherd's explanation of the mistakes of her opponents is that in a successive series of cause and effect relations, one might easily overlook some of the intermediary relations, thereby focusing one's attention on the relations at the beginning and end of the series. Because, *ex hypoth-*

<sup>14</sup> Cf. note 11.

*esi*, these occur at some temporal distance from each other, the careless observer then concludes that causes always precede effects. What I want to suggest is that this reading is belied by the deeper explanation that we have seen Shepherd offer in *EPEU*. It is not that the philosopher merely overlooks some pertinent facts about the causal relation, but that he does so precisely because he is in the grips of Hume's theory of perception as consisting of a succession of a events of sensory qualities.<sup>15</sup>

Notice that what Shepherd actually says in the above passage is just that it is the fact that a chain of conjunctions of bodies occupies time that allows the careless observer to take notice only of some one distinct effect, and to thereby conclude that causes precede effects. What I want to suggest is that the mistake that the careless observer makes is not first and foremost to overlook intermediate causes, but is rather the more fundamental mistake of understanding causation as a relation between *events* occupying discrete moments in time. Thus, when Shepherd reports that her opponent will, 'take notice only of some one distinct effect,' the problem with doing so is not that he focuses on just *one* event, overlooking intermediary ones, but rather that he conceives of such an effect as *distinct* from everything that precedes it.

To see the plausibility of this understanding, consider first that Hume does hold that causes and effects are distinct from each other.

all distinct ideas are separable from each other, and as the ideas of cause and effect are evidently distinct, 'twill be easy for us to conceive any object to be non-existent this moment, and existent the next, without conjoining to it the distinct idea of a cause or productive principle. (T1.3.3.3; SBN 79–80)

This passage occurs in a section of the *Treatise*, 'Why a cause is always necessary,' with which Shepherd is very familiar, as the self-reported foundation of her grand argument against Hume is her rejection of Hume's thesis in this section that an object can begin to exist uncaused (*ERCE* 34–35). So, Shepherd certainly knows that her main opponent here, Hume, holds that causes and effects are distinct. Equally important is that this thesis is one that Shepherd herself rejects. (Recall that we saw earlier that Shepherd holds that 'cause' and 'effect' as the names for the objects that combine and are produced in a causal relation are, 'but different words for the same *Essence*.') She holds that insofar as some object is the cause of another, its effect, this is true of both objects *by definition*.

Therefore fire, in order to have a right to the sign of the word fire, for an expression of its attributes, in order to be a '*like cause*,' must be red, otherwise the red object were not fire; and *could not have been produced by those causes that elicit that element*. I mean therefore to conclude, that Effects are but the qualities of an object not experienced by some of the senses of the human frame, whilst certain others at present touch it; *the knowledge of which last*, being joined to the observation of the WHENCE the object was produced, beget the knowledge of what new untried qualities may be

<sup>15</sup> The superficial reading has problems of its own as well. Notice firstly, that the superficial explanation casts the careless observer as making a bizarre kind of mistake: the observer, in fact, begins by seeing a simultaneous relation of cause and effect, then sees another of these, then another, and so on. If all that the observer did was neglect his observation of the intermediary relations, then we would not expect him to conclude that cause and effect are successive, but rather that one simultaneous causal relation is followed by another at some temporal distance. That is, Shepherd's careless observer, understood in this way, makes *several* mistakes. First, he overlooks the synchronous relation that is cause and effect; secondly, he takes some of the relata (the causes) of this relation to be related to some of the relata (the effects) of an entirely different synchronous relation; finally, he takes these (in fact, unrelated) relata to interact at a temporal distance from each other. Shepherd's explanation, at most, explains the mistake concerning temporal distance. It does nothing to explain the more fundamental mistake of somehow overlooking the essential synchronicity of cause and effect. It might be that the observer that Shepherd is considering is just this careless, but recall that Shepherd takes her own account of the causal relation to be an *analysis* of the very concept of that relation. Thus, the philosopher ought to know that causal relations are synchronous, etc., and should not be turning to observation to discover this at all. (Cf. *ERCE* 43.)

That is the first set of problems with understanding Shepherd's explanation of her opponent's mistake in this way. The second is that doing so casts even the most successful part of this explanation—why philosophers come to think that causation occurs at a temporal distance—as being aimed at a straw man. Shepherd's explicit target throughout this section is Hume, and while Hume does define causation in such a way as to include precedence and antecedency in its definition, he also includes that these must be *immediate*, or contiguous (T 1.3.2.6; SBN 75 and T 1.3.15.3; SBN 173). Hume is well aware that a series of causes and effects can span a temporal distance, and far from concluding that the causes and effects that lie at the extremities of such a span can be separated by such a distance, he instead notes that, when we cannot discover the intermediary causal links, we still presume these to exist. So, if we understand Shepherd's explanation here as making an essential appeal to her careless observer's overlooking intermediary causal relations in a series, and on those grounds concluding that causes must precede their effects, we must read it as a bad explanation of a phenomenon that does not occur. Thus, we should not understand her explanation as operating in this way, especially since she accounts for it more plausibly elsewhere.

expected in future under given circumstances. It becomes therefore part of the definition of fire to burn certain bodies, to melt others; of bread to nourish the human body; of snow to be cold, and white. (*ERCE* 54–55)

Fire, by definition, is the kind of object that is caused by the combination of a spark and a twig, and in turn is the kind of object that causes others to melt. (Recall that for Shepherd an object just is a bundle of qualities, some of which qualities are its causal powers.) Thus, while there may be a sense in which causes and effects are distinct from one another—they are different objects with different causal powers—each of these objects is the object that it is in virtue of its standing in certain causal relations to its causes and effects. Thus, we should expect Shepherd to hold that a fundamental part of the mistake that her opponent, Hume, makes in taking causes to precede their effects is his understanding of causes and effects as *distinct events*, rather than as necessarily connected objects.

The above passage also brings out another important aspect of Shepherd's explanation of Hume's mistake. While what we *observe of* objects might be this or that momentary state, objects themselves consist of more than what we observe of them.<sup>16</sup> Thus, while observation is how we learn what causal relations there are in the world, what we thereby learn *about* is more than what we observe. Again,

Effects are but the qualities of an object not experienced by some of the senses of the human frame, whilst certain others at present touch it; *the knowledge of which last*, being joined to the observation of the WHENCE the object was produced, beget the knowledge of what new untried qualities may be expected in future under given circumstances. (*ERCE* 55)

It is our knowledge of what at present touches the senses that is the means by which we learn of causes and effects, but causes and effects themselves exist independently of our senses. Part of the mistake that Shepherd takes Hume to make is taking that which the senses observe to be *all* that there is to cause and effect. Hume 'takes notice only of some one distinct effect' and concludes not only that this effect can exist independently of its cause, but also that causes in general precede their effects. That, however, is a purely superficial observation as Shepherd sees it, and is divorced from the reality that underlies it, that causal relations are the formation of a new object by the combination of precedent ones. Again, Shepherd is not wrong about the content of Hume's view.

I repeat what I have often had occasion to observe, that as we have no idea, that is not deriv'd from an impression, we must find some impression, that gives rise to this idea of necessity, if we assert we have really such an idea. 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. (T 1.3.14.1; SBN 155–56)

Hume restricts his attention to what can be found by examining our impressions and ideas of cause and effect, and in so doing concludes that since impressions and ideas can be nothing more than momentary representations of momentary events, our representations of cause and effect must likewise be representations of such momentary events, in this case those in which the momentary causes precede the momentary effects. Shepherd, however, rightly notices that this entire framework of conceiving representations in terms of only what the senses provide is a deliberately impoverished one. Recall the following passage.

Now I repeat there is one sense in which it may be said that objects are perceived immediately, as existing *outwardly, by the senses*. It is this; *the conscious powers of the understanding*, and the *senses*, are blended together in man; *we are analysing them, but in nature they are united as intimately as are the prismatic colors in one uniform mass of light.* (*EPEU* 67)

As Shepherd sees it, the entire framework of Hume's investigation of the relation of cause and effect is a misguided one. Hume sets out to understand this relation using the resources of the senses alone, but what

<sup>16</sup> Atherton (1996: 355–56) investigates the grounds of Shepherd's analysis of the idea of an object in the context of her arguments against Berkeley.

Hume calls the senses are in fact an abstraction from a more fundamental faculty, perception, that also 'includes' the understanding. As Shepherd sees it, the contribution of the senses is essentially tied to the contribution of the understanding in perception, and to focus only on the former is to take on a deliberately impoverished and inaccurate view of our cognitive faculties. It is that view, however, that leads to conceiving the relation of cause and effect as taking so-called distinct events as its relata, and thereby to the conclusion that causes precede their effects.

Thus, I take it that Shepherd's explanation of her opponent's mistake is not that he overlooks intermediary causal relations, but rather that in relying on superficial observations of causal relations, he comes to misconceive causes and effects as distinct events, thereby paving the way for his error of taking causes to precede effects. It is only by adopting a superficial understanding of the causal relation, deliberately restricting one's conception of it to what can be observed (in an impoverished sense of that term), that one would come to believe that causes precede their effects.

## VI Conclusion

What I hope to have established at this point is the following. Shepherd's account of cause and effect as synchronous is not subject the objection that Hume presents in 1.3.2. That objection is that if cause and effect were synchronous, then all events, being causes and effects, would occur at the same time. Thus, there would be no succession of changes, and therefore no time itself. Shepherd resists this conclusion by holding that while cause and effect are synchronous, there are interstitial times between causal relations that are accounted for by the changes in location of the objects involved in such combinations. Motion is a quality of objects created in the combination of causes that produce them, and it is this motion that accounts for the time between such combinations. Flint and steel combine to create a spark. One of the qualities of that spark is its motion through the air. This spark, with this motion, comes into contact with a twig, and combines with that twig to create fire. The flint and steel are synchronous with the spark, the spark and twig are synchronous with the fire, but flint and steel need not be synchronous with spark and twig, because synchronicity it itself a relation between temporal parts of qualities, and the motion of the spark through the air accounts for the times between these combinations.

Furthermore, Shepherd offers a sophisticated diagnosis of Hume's mistake in taking causes to be antecedent to their effects. As she understands it, Hume limits his investigation of cause and effect to what can be observed of sensible qualities. Sensible qualities, however, are successive effects of objects on perceiving subjects, and so in separating such effects from their causes, Hume is left with only this succession, and is unable to properly analyze the causal relation. Shepherd explains Hume's separating sensible qualities from their causes, in turn, by casting the senses themselves as an abstraction from a more fundamental representative faculty, perception, that also includes the understanding. This faculty represents *objects* as the causes of our sensible qualities. As Shepherd sees it, it is because he considers those qualities themselves in isolation that Hume takes the relata of the causal relation to be events, not objects, and to consider causes to be antecedent to effects rather than synchronous with them.

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