

Ariel Melamedoff

NYU

September 1, 2021

Shepherd's Metaphysics of Emergence

[DRAFT – DO NOT CITE]

1. Introduction

In her 1824 *Essay Upon the Relation of Cause and Effect* (ERCE), Mary Shepherd sets out to refute Humean theories of causation.¹ In doing so, she does not only criticize Hume's theory and arguments. She also presents an alternative conception of the causal relation, under which Hume's problems regarding necessary connections do not arise. She begins her positive project by arguing for the Causal Maxim - that every beginning of existence requires a cause.² She then goes on to draw other conclusions from this principle which seem unwarranted by its apparently narrow scope.³ First she argues that there could never be a difference in effects without a difference in causes, on pain of violating the Causal Maxim. She then moves on to a "really philosophical" way of looking at the causal relation (ERCE 46). This sophisticated analysis of causation reveals that causes and effects are *synchronic*, rather than diachronic as the Humeans believe; that every instance of causation

¹ Citations of Shepherd's works are drawn from Jennifer McRobert, ed., *Philosophical Writings of Mary Shepherd*, vol. 1 and 2 (Bristol: Thoemmes Press, 2000).

² See Martha Brandt Bolton, "Causality and Causal Induction: The Necessitarian Theory of Lady Mary Shepherd," in *Causation and Modern Philosophy*, ed. Keith Allen and Tom Stoneham (Routledge, 2010); Cristina Paoletti, "Restoring necessary connections: Lady Mary Shepherd on Hume and the early nineteenth-century debate on causality," *I Castelli di Yale* XI, no. 11 (2011); Jennifer McRobert, *Mary Shepherd and the causal relation*, 2014; Jeremy Fantl, "Mary Shepherd on causal necessity," *Metaphysica* 17, no. 1 (2016); Antonia LoLordo, "Mary Shepherd on Causation, Induction, and Natural Kinds," *Philosophers' Imprint* 19, no. 52 (2019); David Landy, "Shepherd on Hume's argument for the possibility of uncaused existence," *Journal of Modern Philosophy* 2, 13, no. 1 (2020); and Jessica Wilson, "On Mary Shepherd's *Essay upon the Relation of Cause and Effect*," in *Neglected Classics of Philosophy* ed. Eric Schliesser (2021) for discussions of Shepherd's argument for the Causal Maxim.

³ By this I mean that it is constrained only to beginnings of existence and that it says only that these must have *some* cause, but does not specify what properties this cause must have or how it must be related to the effect. It thus has neither the strength nor scope of, for example, the Principle of Sufficient Reason.

requires a *union* of previously existing entities; and several other significant metaphysical commitments. Bolton (2011)'s description of Shepherd's conception of cause as a "compositional determination relation" is a helpful starting point for understanding how these commitments are connected to each other and the Causal Maxim.¹ But Shepherd's claim that her theory is "the *only true foundation* of scientific research, of practical knowledge, and of belief in a creating and presiding Deity" suggests there are deep logical connections between her views that no interpretation has yet uncovered (ERCE 194; emphasis added).

I argue that we can make progress on the project of systematizing Shepherd's metaphysics by considering her concept of *cause* as a species of the contemporary concept of *metaphysical emergence*. Emergence is typically thought of as a relation between different levels of fundamentality, and is a core component of a physicalist worldview according to which the fundamental level of reality is populated by the entities referred to in our best physical theories.² Typical examples of emergence are the relation between a mental state and its associated brain state; or the macroscopic properties of a quantity of water (*being liquid at room temperature, or having a certain viscosity*) and the microphysical properties of the H₂O molecules that constitute that quantity of water. The *emergent* entity or property is higher-level (meaning less fundamental), and its *emergent base* is lower-level, and is sometimes called the *realizer* of the emergent entity.

In this paper I do not distinguish between strong and weak emergence. Instead I argue that there are at least five distinct metaphysical theses in Shepherd's *ERCE* which follow from the Causal

¹ Fantl (2016) and Wilson (2021) also include extended discussions of the relations between Shepherd's various metaphysical commitments, as well as comparisons between Shepherd's views and popular metaphysical views of the 21st century. However, neither attempts to give a systematic account of the connections between these views.

² For an overview of emergence and its role as an alternative to physicalist reductionism see Jessica Wilson, "Supervenience-based formulations of physicalism," *Nous* 39, no. 3 (2005); "Metaphysical Emergence: Weak and Strong," in *Metaphysics in Contemporary Physics*, ed. Tomasz Bigaj and Christian Wüthrich (Boston: Brill Rodopi, 2016); and David J. Chalmers, "Strong and Weak Emergence," in *The Re-Emergence of Emergence*, ed. Philip Clayton and Paul Davies (Oxford: Oxford University Press, 2006). For the history of the concept, see See Brian P. McLaughlin, "The Rise and Fall of British Emergentism," in *Emergence or Reduction?: Prospects for Nonreductive Physicalism*, ed. Hans Flohr and Jaegwon Kim (De Gruyter, 1992).

Maxim if causation is understood as a special case of metaphysical emergence, whether weak or strong. As a matter of fact, I believe there is good reason to attribute *weak* emergentism to Shepherd, rather than strong; I argue for this in Melamedoff (manuscript). Understanding Shepherd's causal theory as a theory of emergence is thus only the first step to a systematic understanding of her metaphysics. This model has the potential to clarify not only her causal theory in ERCE, but also the theory of mind from her later work *Essays on the Perception of an External Universe* (EPEU).

2. An emergentist conception of cause

2.1. Emergence as a relation between properties

In this paper I treat emergence as a relation between properties: higher-level properties (like *being liquid at room temperature* or *believing that P*) emerge from lower-level properties (like *having microphysical structure M*).¹ Emergent entities can be understood as the bearers of these properties; minds emerge from brains because they have properties that emerge from the properties of brains. This pairs well with Shepherd's metaphysics because she has a bundle theory of objects under which they are metaphysically individuated by their qualities.² These qualities, in turn, are individuated by their dispositions to respond to other qualities in different circumstances.³

To understand this relation we need a few more terms. First, we need an intuitive grasp of relations of *metaphysical dependence*. A precise theory of dependence is not needed, but we can intuitively understand that composite wholes depend on their parts, chemical properties of atoms depend on physical properties of subatomic particles, and so on. Dependence is antisymmetric, irreflexive, and transitive; and the dependent entity must be *less fundamental* than the entity it depends

¹ I use property to mean 'property instance', i.e. a property token rather than a type.

² ERCE (46, 55, 57, 64, 69). See Fantl (2016) for a discussion of Shepherd's bundle theory of objects.

³ This is clear when Shepherd implies that qualities can also be thought of as causal powers (ERCE 46, 49), and it connects nicely with the concept of causal profiles of properties. For simplicity, I will use Shepherd's 'quality' interchangeably with the more contemporary 'property'.

on. Second, we can think of a relation of *necessitation* which can hold with different *modal strengths*. X necessitates Y just in case X's existence at time t at world w entails Y's existence at t, w. The strongest version of this entailment is with *metaphysical* strength: Y must coexist with X at any metaphysically possible world. But this can be weaker as well: perhaps Y only coexists with X at *nomologically* possible worlds, worlds with the same physical laws. Finally, we need the concept of the *causal profile* of a property. A property Y's causal profile is modeled as a set of ordered pairs of possible circumstances K and effects F, where each ordered pair represents what effect would result if an entity with P were in those circumstances. These are sometimes referred to as the causal powers that the property *bestows* on its bearer.¹

Given this terminology, we can understand property emergence as follows. A property *E* is emergent from a property *B* just in case the following hold:

1. **Realism:** E and B are both *real*.
2. **Necessitation:** An entity's having B at time t and world w (at least nomologically) *necessitates* its having E at t, w.
3. **Dependence:** An entity's having E at time t and world w requires its having either B or some other base property B' at t, w that (at least nomologically) necessitates E, and on which E metaphysically depends.
4. **Causal Distinctness:** E's *causal profile* is non-empty and distinct from B's causal profile.

Realism clarifies that emergentism is incompatible with eliminativism: emergentism maintains the reality of the non-fundamental. According to **Necessitation**, an entity with a base

¹ See Jessica Wilson, "Causal powers, forces, and superdupervenience," *Grazer Philosophische Studien* 63 (2002) for a careful treatment of bestowal.

property could not fail to have the emergent property at the same time, at least at physically possible worlds. **Dependence** says that an emergent property requires *some* base to be instantiated. It also entails that there is no ‘lateral’ emergence: it is a relation of *relative fundamentality*. Finally, **Causal Distinctness** requires that the two properties differ with respect to the causal powers they bestow. If the emergent entity has the same causal profile as the base (or bestows no causal powers at all), then the view collapses into epiphenomenalism, with the emergent entity having no distinct causal role to play.¹

We can formulate entity emergence in terms of property emergence. An entity is emergent just in case it has at least one emergent property (water emerges from H₂O, since it has properties that emerge from the properties of H₂O).²

2.2. Causation as a special case of emergence

With the concept of emergence in hand, we can formulate an emergentist conception of cause that will allow us to connect several metaphysical theses of Shepherd’s to the Causal Maxim. Her argument for the Causal Maxim crucially involves the claim that “the *beginning* of any thing must always be supposed... to be a quality of something in existence” (ERCE 37).³ This fits well with the following emergentist conception of beginning of existence:

Emergentist causation: X causes Y at time t just in case Y is metaphysically emergent from X, and Y begins to exist at t.

¹ This account of emergence is largely drawn from Wilson 2016. Unlike Wilson, I do not appeal to *physicalism* directly when defining emergentism, as it is more broadly a view about the relation of the fundamental to the non-fundamental.

² We could talk as though the quantity of H₂O itself has the property of liquidity, but this would just be to think of it in higher-level terms. That is, if we think of this property as being multiply realizable (such that a quantity mercury could also have it), then we are really thinking about the quantity of H₂O as a quantity of water. To think of it as H₂O is to think of properties like its molecular structure, which is not shared by any quantity of another [chemical](#).

³ Of course this quotation is not sufficient to attribute emergentism to Shepherd. The methodology of this paper is rather to show the benefits that such an attribution generates in order to motivate the plausibility of this interpretation. I believe there are enough statements and views that fit well with emergentism to generate a compelling case for interpreting Shepherd this way.

On this conception, ‘causation’ is a special name we give for the relation of emergence *at the moment that the emergent entity begins to exist*. Emergent entities (i.e. those with emergent properties) metaphysically depend on their base. This means the emergence relation must continue to hold for as long as the emergent entity exists; but it is only at the initial moment of emergence that we call this relation ‘causation’. The Causal Maxim, on this conception, tells us that everything that begins to exist must do so by *emerging* from some (more fundamental) metaphysical base.¹ We can now show the benefits of this interpretation by seeing how five metaphysical commitments of Shepherd’s can be derived from the causal maxim under this conception of cause.

3. Five Theses

3.1. The Difference Principle

The Difference Principle says there cannot be a difference in two effects without a difference in their causes. Shepherd argues that a violation of the Difference Principle would consist in:

“...a change of being, an altered existence, an existence which cannot “begin of itself”... there would be a *difference* of qualities, that is, new qualities.” (ERCE 48)

A violation of the Difference Principle would then be a violation of the Causal Maxim, since it would be a case where something is *new* – that is, begins to exist – without a cause.

3.1.1. *The emergentist interpretation*

The Difference Principle cannot be derived from the Causal Maxim without first specifying what it means for one thing to cause another. The fact that everything requires *some* cause does not mean

¹ It is worth noting that the Causal Maxim must hold for all emergent entities given **Dependence**. Emergent entities must emerge *from* deeper reality, so they cannot “begin of themselves”. What is striking about Shepherd’s account, on this reading, is the expansion of emergence to *all* beginnings of existence, which I explore further in Sections 3.4-5.

that the same cause will give rise to the same effect every time. Consider the hypothetical theory that the cause of everything is ‘God’s will’, which is eternal and unchanging: it permits violations of the Difference Principle, but not the Causal Maxim.

Under an emergentist conception of cause, however, the Difference Principle follows from the Causal Maxim. This is because of the second requirement on emergence stated above:

Necessitation. An entity’s emergent properties are *necessitated* by the properties of its emergent base, otherwise this would not be a relation of emergence. This allows us to prove the truth of the Difference Principle in much the same way that Shepherd does.¹ To rule out a violation of the Difference Principle, we must show it is impossible for there to be two causes B and B* that have identical causal profiles, yet B gives rise to some emergent entity E and B* does not. If E emerges from B, E’s emergent properties must be necessitated by B’s properties. But E’s emergent properties cannot be necessitated by B’s properties, because B* has all the same properties and E does not emerge from B*. This means E’s emergent properties must have begun to exist without emerging from any properties, since there are no base properties on which they depend. As a result, this would require E’s emergent properties to ‘begin of themselves’, which is a violation of the Causal Maxim as Shepherd points out.

3.2. Cause and effect are necessarily synchronic

“Antecedency and subsequency, are therefore immaterial to the proper definition of Cause and Effect; on the contrary... when [an object] acts as a Cause, its Effects are synchronous with that action...” (49)

“[the effect of a union of distinct natures] must instantly, and immediately, have all its

¹ We can prove that the Difference Principle holds with at least nomological necessity, but not with metaphysical necessity unless we distinguish between strong and weak emergence. A weak emergentist conception of the Causal Maxim entails the Difference Principle with the full strength of metaphysical necessity, while strong emergence does not (see Melamedoff, Causation as weak emergence in Shepherd’s metaphysics, 2021). Shepherd claims later in ERCE that the Difference Principle constrains even the powers of God: He cannot create a difference in effects without a difference in causes (ERCE 72, 79). I take this to mean she thinks the Difference Principle holds with metaphysical necessity. This is significant evidence for taking her to be a weak emergentist.

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*.” (50)

3.2.1. *The emergentist interpretation*

This is the simplest result to prove: emergence is typically understood as a synchronic relation. This is captured clearly by the formulation of **Necessitation**: if an entity has a base property B at time t and does not have E at t, then E is not necessitated by B and cannot emerge from B. If Shepherd’s ‘really philosophical’ conception of cause is emergentist, then it is easy to see why cause and effect must be synchronic.¹

3.3. Causation requires union

Any case of causation requires at least three objects for Shepherd: two distinct objects which “must be in being antecedently” (49) to producing the effects, and at least one “*new nature*, capable of exhibiting *new qualities*” (47) which is the result of the interaction. This interaction consists of the *mixture* of the two prior objects, forming a *union* (50). The formation of this union is simultaneous with the beginning of existence of the new qualities that characterize the effect. It is the union, and not the pre-existing objects, that Shepherd identifies with the cause.²

3.3.1. *The emergentist interpretation*

Given **Dependence**, a quality E cannot begin to exist at time t unless it emerges from a more fundamental quality B. Since E did not exist at t-1, B also cannot have existed at t-1, due to

¹ For a defense of Shepherd’s commitment to synchronic causation, see David Landy, “A defense of Shepherd’s account of cause and effect as synchronous,” *Journal of Modern Philosophy* 2, 1, no. 1 (2020).

² This feature of Shepherd’s causal theory is connected to what has been called her *chemical* model of causation, as opposed to the traditional (i.e. billiard balls) mechanistic models of the early modern period (see Lolordo 2019). This fits well with the notion of emergence, which became popular in 19th Century Britain precisely because discoveries in Chemistry had put a strain on the explanatory capacity of the mechanistic model (McLaughlin, 1992). An emergentist conception of cause is at home on a causal model in which more fundamental chemicals mix to create compounds with new properties.

Necessitation. The transitivity of metaphysical dependence means that it will not help to claim that B itself is an emergent quality: its base B* would also have to come into being at t, reintroducing the same explanatory demand and threatening a vicious regress of emergence.

This regress can be avoided. What we need is for fundamental (i.e. non-emergent) qualities to be able to change their external relations to each other. We could then have a situation in which multiple fundamental qualities enter into a new arrangement or configuration at t. B could then be a higher-order property of the arrangement, a *structural* property of the mass of fundamenta that is only present under a particular configuration (say, the *lattice structure* of H₂O molecules at freezing temperatures). B is present at t but not t-1, avoiding any problems from **Necessitation**. But B is not a ‘beginning of existence’ in Shepherd’s sense, since it involves no “new nature” or “new qualities”, thus avoiding the regress problem. The new quality E (say, the *solidity* of ice) is nevertheless metaphysically explained by B (the lattice structure of H₂O), which is precisely what Shepherd’s view requires.¹

3.4. The fundamental is plural, eternal, uncaused

“Should an objection arise to my doctrine, that on account of supposing causes to act as the junctions of different qualities, and yet by pushing back all causes to the ONE UNCAUSED ESSENCE; I thereby prevent the idea of him [God, the one uncaused essence] being reposed in as a Cause; as he forms ONE object only: I answer, that the uncaused essence, however mysterious in his nature, and however awful and distant to our speculations, must nevertheless have attributes; or in other words, its own peculiar qualities, which required no former beings, to *give birth to them.*” (96)

3.4.1. *The emergentist interpretation*

Shepherd’s theory leads her to conclude that the fundamental level of reality consists of a *plurality* of

¹ Technically, a new arrangement of external relations could be achieved by *subtraction* rather than union. A quality could leave a previously existing union, giving rise to a new arrangement of the other components of that union. I take it that this, too, would count as a new union according to Shepherd, since the union is metaphysically individuated by its causal profile, which is now different than it was previously.

fundamental qualities. She now considers an objection: if the fundamental is plural, then it cannot be identified with God, whose essence is supposed to be unified. She does not engage in much discussion about the nature of God's essence in ERCE, but here confirms that on her theory, it must consist of a plurality of qualities (or attributes). How exactly these are unified (if they are) is "mysterious", but that they are plural is not up for debate on her view.

There are three components of this passage that follow from an emergentist reading of the causal maxim. First, if every beginning of existence requires an emergent base, there must be a fundamental level of reality (in this case, the qualities that constitute God's essence) whose configurational properties give rise to the non-fundamental emergents.¹ Second, these fundamental entities cannot themselves begin to exist, since that would require them to emerge from something more fundamental - as a result, these are "uncaused" and require "no former beings, to give birth to them" (96). Third, there *must* be a plurality of these fundamenta, in order for them to be able to enter into configurations with each other and give rise to the non-fundamental. All three claims in this passage are required by an emergentist conception of the Causal Maxim.²

3.5. The nonfundamental is a manifestation of the fundamental

"Thus God [whose essence consists in the fundamental qualities], the universal Father, and with him any noble *manifestations* of his essence; then archangel and angel; man (or beings analogous to him) and animals; mind, and matter; may be considered as having existed eternally, coming forth from him, living in him, and supported by him." (98)

3.5.1. *The emergentist interpretation*

Emergent properties are often referred to as *manifestations* of their metaphysical base in emergentist

¹ We saw this requirement already in 3.3 as the only strategy for the emergentist to avoid a vicious regress of metaphysical explanation.

² It is otherwise puzzling why Shepherd would accept that the essence of God is too "mysterious" to theorize about yet feel so strongly that it must consist of a plurality of qualities. Why not just say it is mysterious and leave it at that? The emergentist interpretation predicts that her theory would be strongly committed to the plurality of the fundamenta, and this passage conforms to that prediction.

literature.¹ In this passage, Shepherd describes several entities that have a beginning of existence and are therefore caused (“animals; mind and matter...”). She says explicitly that these are manifestations of the essence of God, which she has previously identified with the fundamental qualities. On the emergentist reading, all matter is indeed a manifestation of the configurations of the fundamental entities. It is not at all clear how the manifestation vocabulary could be interpreted on a non-emergentist conception of cause.

4. Conclusion

I have argued that five seemingly unconnected theses actually follow from the Causal Maxim if causation is read as emergence in ERCE. The emergentist reading vindicates many of Shepherd’s apparently puzzling inferences and reveals systematic connections between her metaphysical views. This analysis also leaves several outstanding questions. First, what kind of emergentist is she? I argue elsewhere² that we have reason to believe she is a *weak* emergentist, but even this encompasses a variety of more specific views.³ Second, how does Shepherd fit into the broader history of emergentism? The British Emergentist tradition is said to begin with Mill’s *A System of Logic* in 1843, nearly 20 years after Shepherd’s ERCE.⁴ Understanding Shepherd as an emergentist would require at least a minor re-writing of the history of emergentism. Finally, how is this connected to her broader philosophical picture? Emergentists have traditionally paid special attention to the mind-body problem. If Shepherd’s view is that emergence is the most basic explanatory relation and the

¹ For example, Shoemaker appeals to manifestation when explaining the emergence of the mental: “It is a commonplace that the behavior we attribute to mental states is typically the manifestation of a combination of mental states rather than any single state by itself” Sydney Shoemaker, “Realization and mental causation,” *The Proceedings of the Twentieth World Congress of Philosophy* 9 (2000).

² Melamedoff (manuscript, 2021).

³ Jessica Wilson, “How superduper does a physicalist supervenience need to be?,” *The Philosophical Quarterly* 194 (1999); 2016 argues that several non-reductionist physicalist theories of the mental (like Hilary Putnam, “Psychological Predicates,” *Art, Mind, and Religion* 1 (1967)’s functionalism and Stephen Yablo, “Mental Causation,” *The Philosophical Review* 101, no. 2 (1992)’s determination view) fall under weak emergentism.

⁴ J.S. Mill, *A System of Logic* (Toronto: University of Toronto Press, 1843).

foundation of scientific reasoning, she must also have an emergentist account of the mind. It remains a significant research project to connect the emergentism of ERCE to her philosophy of mind in EPEU.

Works Cited

- Bolton, Martha Brandt. "Causality and Causal Induction: The Necessitarian Theory of Lady Mary Shepherd." In *Causation and Modern Philosophy*, edited by Keith Allen and Tom Stoneham: Routledge, 2010.
- Chalmers, David J. "Strong and Weak Emergence." In *The Re-Emergence of Emergence*, edited by Philip Clayton and Paul Davies, 244-54. Oxford: Oxford University Press, 2006.
- Fantl, Jeremy. "Mary Shepherd on Causal Necessity." *Metaphysica* 17, no. 1 (2016): 87-108.
- Landy, David. "A Defense of Shepherd's Account of Cause and Effect as Synchronous." *Journal of Modern Philosophy* 2, 1, no. 1 (2020): 1-15.
- . "Shepherd on Hume's Argument for the Possibility of Uncaused Existence." *Journal of Modern Philosophy* 2, 13, no. 1 (2020): 1-14.
- LoLordo, Antonia. "Mary Shepherd on Causation, Induction, and Natural Kinds." *Philosophers' Imprint* 19, no. 52 (2019): 1-14.
- McLaughlin, Brian P. "The Rise and Fall of British Emergentism." In *Emergence or Reduction?: Prospects for Nonreductive Physicalism*, edited by Hans Flohr and Jaegwon Kim, 49-93: De Gruyter, 1992.
- McRobert, Jennifer. Mary Shepherd and the Causal Relation.
- , ed. *Philosophical Writings of Mary Shepherd* Vol. 1 and 2. Bristol: Thoemmes Press, 2000.
- Melamedoff, Ariel. Causation as Weak Emergence in Shepherd's Metaphysics (manuscript).
- Mill, J.S. *A System of Logic*. Toronto: University of Toronto Press, 1843.
- Paoletti, Cristina. "Restoring Necessary Connections: Lady Mary Shepherd on Hume and the Early Nineteenth-Century Debate on Causality." *I Castelli di Yale* XI, no. 11 (2011): 47-59.
- Putnam, Hilary. "Psychological Predicates." *Art, Mind, and Religion* 1 (1967): 37-48.
- Shoemaker, Sydney. "Realization and Mental Causation." *The Proceedings of the Twentieth World Congress of Philosophy* 9 (2000): 23-33.
- Wilson, Jessica. "Causal Powers, Forces, and Superdupervenience." *Grazer Philosophische Studien* 63 (2002): 53-78.
- . "How Superduper Does a Physicalist Supervenience Need to Be?." *The Philosophical Quarterly* 194 (1999): 33-52.
- . "Metaphysical Emergence: Weak and Strong." In *Metaphysics in Contemporary Physics*, edited by Tomasz Bigaj and Christian Wüthrich, 345-402. Boston: Brill Rodopi, 2016.
- . "On Mary Shepherd's *Essay Upon the Relation of Cause and Effect*." In *Neglected Classics of Philosophy* edited by Eric Schliesser, 2021.
- . "Supervenience-Based Formulations of Physicalism." *Nous* 39, no. 3 (2005): 426-59.
- Yablo, Stephen. "Mental Causation." *The Philosophical Review* 101, no. 2 (1992): 245-80.