

Does Microrealization-Robustness Necessitate Causal Explanatory Holism?

Causal Overdetermination and Wild Disjunctions solve the problem

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Abstract

List & Spiekermann (2013) argue that causal-explanatory holism is needed to explain the causation of phenomena that remain persistent even if the underlying individual causal factor changes. This does not follow from the counterfactual account of causation that they borrow from David Lewis (1973). In line with Lewis' (1973) own argumentation, Causal Preemption is better suited to explain the examples given by List & Spiekermann (2013) and is in line with causal-explanatory individualism. If one assumes that the disjunction of lower-level properties is again a lower-level property, Causal-Explanatory Holism fails altogether because every phenomenon can be reduced to the individual level.

1 Introduction

Whether or not explanations provided by the social sciences should be on an individual or on a holistic level has been a topic of great division in the philosophy of science. Christian List and Kai Spiekermann (2013) attempt to reconcile individualists and holists by providing an argument on why Supervenience Individualism can be compatible with Causal-Explanatory Holism.

In particular, they attempt to argue this using a counterfactual account of causation in which, some-times, only higher-level properties can be said to cause a particular effect. For this, they make use of a property they name *Multirealization-Robustness* in which one higher-order property can be instantiated by multiple lower-level properties.

In the following, I will at first provide a brief summary of the argument given by List & Spiekermann (2013). For this, I will define counterfactual causation, define the two crucial criteria employed by List & Spiekermann (2013) and then show how they believe Multirealization-Robustness violates causal-explanatory individualism. In a second section, I will provide two arguments against their point. The first point is about causal preemption and shows that the author's argument does not support Causal Explanatory Holism. In the second point, I will show that, using disjunctions of individual-level facts, their choice of causation is unfortunate because it allows to always redraw causal graphs so that Causality is identified on the individual level. I will conclude, then, that List & Spiekermann (2013) do not make a convincing case in favour of Causal Explanatory Holism and that their use of a counterfactual account of causation is unfruitful, i.e. their argument does not show why causal explanatory holism is *necessary*.

2 List & Spiekermann's (2013) Argument: Counterfactual Causation

The argument provided by List & Spiekermann (2013) goes from showing that some effect E can be instantiated by both some lower level fact C_L or some other lower-level fact C_L^* , both of which instantiate as well the higher-level fact C_H . Their argument can be rephrased in the following manner:

1. In all the nearest worlds in which C_H is true, E is true
2. In the actual world, some C_L is true and, hence, C_H is true
3. In the closest world where C_L is not true, C_H is still true and E is true
4. Hence, it is not true that $C_L \Box \rightarrow^1 E$, but $C_H \Box \rightarrow E$

I shall explain their argument in the following manner. First, I will give a very brief explanation of what it means that A counterfactually causes C . Then, I will explain the Exclusion-Principle on which List & Spiekermann (2013) base their argument, which I will then present.

2.1 Counterfactual Causation defined

Even though it is one of the most basic concepts in Philosophy, the notion of 'Causation' has notoriously eluded a finite grasp by philosophers for centuries. Lewis (1973) defined a reductive account of causation using a modal conception of possible worlds. Broadly speaking, Lewis (1973) first defines a predicate of what it means that one world is closer to the actual world than another and then orders possible worlds in their closeness to the actual world.

One can then say that A counterfactually causes C , i.e. $A \Box \rightarrow C$, if:

- In the closest world to the actual one in which A is true, C is true
- In the closest world to the actual one in which A is not true, C is not true

Having thus defined counterfactual causation, I will give a sketch of the argument by List & Spiekermann (2013). For this, I first need to define the Exclusion-Principle and the Causal-Closure-of-Lower-Level-Principle as this is what the authors say is violated in their example.

2.2 The Exclusion Principle & Causal Closure of Lower Level

List & Spiekermann (2013) provide two principles under which Supervenience Individualism (henceforth abbreviated as SI) is incompatible with Causal-Explanatory Holism (henceforth abbreviated as CEH). I will first define these two terms and then show how, in the view of the

¹ $A \Box \rightarrow C$ is to be read as 'A counterfactually causes C'.

authors, the incompatibility takes place only in the presence of the Causal Closure of the Lower Level and under the Exclusion-Principle.

First, take SI:

"Supervenience Individualism: The individual-level facts fully determine the social facts; i.e., any possible worlds that are identical with respect to all individual-level facts will necessarily be identical with respect to all social facts." (List & Spiekermann, 2013: 632)

As the authors emphasize, this is just a statement about dependencies: one lower-level fact cannot be connected to two conflicting higher-level facts.

Next, take CEH. It is defined as follows:

"Causal-Explanatory Holism: Some causal relations (of the kind that a social-scientific explanation would describe) are distinct from (and not re-describable as) any individual-level causal relations." (List & Spiekermann, 2013: 634)

Are these two definitions in conflict with each other? On first glance, not at all. SI merely states that all Social Facts are fully determined by (not made up of!) individual facts, i.e. given a list of individual facts, the corresponding social fact is determined. Whether the higher-level causal relation is more than the sum of its individual terms or not, and hence is irreducible to the individual-level, is not mentioned.

List & Spiekermann (2013) proceed to argue, however, that under the presence of two other oft-invoked principles, SI and CEH do conflict. These are the two following:

"The Causal Closure of Lower Level: Any effect E (regardless of whether E is described at the lower level or at the higher level) must ultimately have a lower-level cause; call it C.

The Exclusion Principle: If a lower-level property C is the cause of E, no distinct higher-level property C* that supervenes on C can also be a cause of E. (So C* is at most an "epiphenomenon" of the "real" cause.)" (List & Spiekermann, 2013: 635)

These two principles are compatible with SI and, combined, imply Causal-Explanatory Individualism, i.e. the proposition that every causal relation is identical to (or re-describable

as) some individual-level causal relation (cf. List & Spiekermann, 2013: 634). To see this, suppose that CEH were true. Then, there would be a higher-level C_H that, given SI, supervenes on some C_L whereas C_H causes some effect E and C_L does not. This is in direct conflict with the Causal Closure of the lower level, which requires C_L also to cause E . However, then the Exclusion Principle is violated, which would require that only C_L , not C_H , cause E . Hence, CEH cannot be true in the presence of the two above principles.

Having defined these two, I will now briefly sketch the argument provided by List & Spiekermann (2013).

2.3 The Argument

Take the following graph provided by List & Spiekermann (2013):

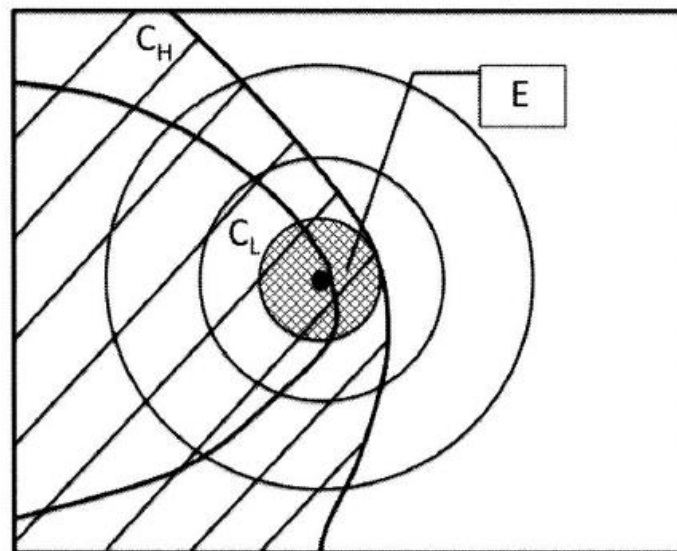


Figure 1: (List & Spiekermann, 2013: 637)

In this graph, there is a lower-level property C_L , a higher-level property C_H , and an effect E . The black dot in the middle represents the actual world, and the circles outside of the actual world represent sets of worlds that are close to the actual world, with proximity decreasing the further away a circle is.

In this graph, $\neg(C_L \square \rightarrow E)$, but $C_H \square \rightarrow E$. To see this, observe that in the world closest to actuality in which C_L is not true, C_H and E are still true, and the closest world in which C_H is not true, E is not true. Given the definition of Counterfactual Causation, then, only $C_H \square \rightarrow E$ is true. This obviously violates both the Exclusion Principle and the Causal Closure of the lower level. This is due to something the authors brand *Multirealization Robustness*. The area in which C_H is true but C_L is not true is in their view inhabited by a distinct lower-level phenomenon that I will call C_L^* and on which C_H supervenes. If neither C_L nor C_L^* alone occupy the entire area of C_H but both instantiate C_H and in both cases E is an effect that is observed, then neither $C_L \square \rightarrow E$ nor $C_L^* \square \rightarrow E$, but $C_H \square \rightarrow E$.

List & Spiekermann (2013) later summarize this in saying that if

- Multiple levels of description (i.e. a higher and a lower level) exist,
- A higher level-property can be realized in multiple lower-level ways, and
- An effect E persists through these different realizations of the lower-level instantiations (i.e. E is microrealization-robust),

then "a social system requires causal-explanatory holism" (List & Spiekermann, 2013: 639). Hence, their argument must take the form: In case the higher-level property is multirealization-robust to changes in the lower level, Causal-Explanatory Holism is required in the sense that the causal relation described cannot be reduced to or redescribed as an individual-level causal relation. The authors succeed in making this point only to the extent that their example shows that an account of causation identifies the causal relation at work on the higher, not the lower level. If they do not succeed, the case for CEH is not better or worse than without any argument. Having explained the argument of the authors, I will proceed to refute them.

3 A Counterargument

In the following, I will argue that 1. the case of the authors can be rephrased as one of causal preemption and hence in individual-level terms and 2. the possibility of creating wild disjunctions of individual-level properties solve the challenge of microrealization-robustness to Causal Explanatory Individualism because any higher-level property can always be rephrased as the disjunction of individual-level properties that instantiate it.

3.1 Causal Preemption Explains Microrealization-Robustness

Recall Figure 1. That graph strongly resembles one of causal preemption, or causal overdetermination.²

To see this, note what would happen in Figure 1 if C_L did not happen. Intuitively, one might be tempted to say that the closest world to the actual one in which C_L is not

true is one in which no other lower-level C_L^* is true either on which C_H could supervene. Then, both E and C_H are false if C_L is false in the next possible world³. In that case, one may treat C_H as an epiphenomenon of C_L as proposed by the Exclusion Criterion and identify the Causation on the lower Level. Hence, this is no possible line of argumentation for List & Spiekermann (2013).

Instead, they correctly identify the nearest world in which C_L is not true as one in which some other C_L^* is true on which C_H supervenes. Then, E is also true. This is what List & Spiekermann (2013) appear to have in mind with the term microrealization-robust which they display in Figure 1. List & Spiekermann (2013) aim to use this case to show that there is some causal relation that, according to CEH, cannot be redescribed in individual-level terms.

However, it is possible to redescribe this case in individual-level terms if we understand their example as one of causal preemption, i.e. that C_L caused E and preempted C_L^* from causing E . To see this, note that it is necessary for the authors to suppose that, had C_L not happened, C_L^* would have instantiated C_H anyway⁴, which is precisely what causal preemption means: two competing events have a claim to be a causal factor.

Then, the case in Figure 1 can be redescribed in individual-level terms: C_L caused E and preempted C_L^* from causing E , whereas both C_L and C_L^* have C_H as a supervening

² I will use these two terms interchangeably here.

³ One might be tempted to say that C_H , and consequently E , are still true even in the absence of any C_L that C_H could supervene on. This point will be discussed at the end of section 3.2.

⁴ This is necessary as explained above: the next closest world must be one in which C_L is false but C_L^* is true and instantiates C_H .

epiphenomenon. Then, CEH still remains as plausible or implausible as without any argument in favour of it.

However, as List & Spiekermann (2013) correctly observe, the counterfactual account of causation still has a hard time identifying one of these two lower-level properties as the cause of E. Lewis (1973) anticipates this and gives an instruction on how to identify the decisive causal factor. Can the authors use this to show that it is a higher-level property that is the decisive factor? Unfortunately, they cannot.

Lewis (1973) proposes the following solution to determining which causal factor is decisive in a case of causal preemption: assume there are two potential causes c_1 , c_2 and one effect, E. In his view, if c_1 caused E and, had c_1 not happened, c_2 would have happened and caused E, it is best to say that c_1 caused some intermediate event d which caused E. d is said to cause E in the sense that, had d been absent, c_1 would still have occurred and preempted c_2 from causing E, and in the absence of d , E also would not have happened (cf. Lewis, 1973: 567). Then, only $d \square \rightarrow E$ is true.

What exactly is d in the case of the graph of possible worlds? Analytically, it can either be a lower-level property or a higher-level property⁵.

Suppose, first, that d is some higher-level property C_H . Then, in the actual world, C_L is true and C_H is true, and in the next nearest world where C_H is not true, C_L is still true⁶. This is a contradiction of Supervenience Individualism, which demands that, given a lower-level property, the higher-level property must be determined. Then, d can only be a lower-level property and Lewis' (1973) solution to causal preemption allows only for lower-level causation, not higher-level causation.

It is unfavourable, then, for List & Spiekermann (2013) to accept their example as one of causal preemption. What point can they make against this? Unfortunately, very little. Given that they use a counterfactual account of causation, there is nothing to be said about the causal mechanism at play here - causality is identified only via its difference-making property. Given

⁵ Or something third, but given that the authors do not discuss this and it is unclear what such an object would be, I shall not discuss this.

⁶ Qua Lewis' Requirement.

Supervenience Individualism, any possible higher-level property must be perfectly correlated with a set of lower-level properties that instantiates it. As I will now show, it is then always possible to create a wild disjunction of all these lower-level properties to perfectly match the area of C_H in the causal graph. Then, it becomes impossible to distinguish whether the actual causality is on the higher or the lower level.

3.2 Wild Disjunctions solve the problem

Recall that CEH demands that some causal relations are distinct from any individual-level causal relation and are also not rediscrivable as those. List & Spiekermann (2013) put forward a case in which they believe this definition to be fulfilled. I will argue, however, that introducing a disjunction-operator will solve the problem of microrealization-robustness. For this argument, I will require the following principle:

The Principle of Disjunctions: For all lower-level properties C_L^1, C_L^2, \dots holds: any disjunctive union between two lower-level-properties $C_L^1 \cup C_L^2$ is itself a lower-level property.

I shall not argue extensively in favor of this principle, as it seems to follow straightforwardly from what an individual-level property is: a fact about individuals. The statements *Anna is a girl* and *Anna is a girl or Brian is a boy* are both exclusively statements about individual-level properties. Hence, a disjunction does not change the level of two statements of the same level. Regarding the graph above provided by List & Spiekermann (2013), let us assume that the entire region in which C_H is true and C_L is not, some lower-level property C_L^* is true instead on which C_H supervenes (this is, after all, microrealization-robustness).

Then, the entire region of C_H is made up of the disjoint Union $C_L \cup C_L^*$ which, according to the Principle of Disjunction, is also a lower-level property. Define this Union as \bar{C}_L . Then, $\bar{C}_L \square \rightarrow E$ and we can view C_H as an epiphenomenon of \bar{C}_L . Then, the Exclusion Principle and the Causal Closure of the Lower Effect still hold and this particular form of Causal-Explanatory Holism is contradicted. Naturally, this principle can be repeated with more than two lower-level facts: as long as the area of C_H in the graph above can be redescrived as a wild disjunction of lower-level-facts, CEH will remain false.

This is necessarily so. The only possibility in which CEH can remain valid is if there is at least one point in the region of C_H in which there is no lower-level property C_L^* and both C_H and E are still true. Then, no disjunction of lower-level properties can be said to cause E , but only $C_H \square \rightarrow E$. However, what does it mean that there exists a higher-level fact C_H without any corresponding lower-level fact⁷? It seems most plausible to understand this as a case in which there is a higher-level property emerging from the joint union of a set of individual properties⁸, call it \overline{C}_H .

However, to necessarily identify only \overline{C}_H , not \overline{C}_L as the decisive causal factor, i.e. $\overline{C}_H \square \rightarrow E$ and $\neg(\overline{C}_L \square \rightarrow E)$ ⁹, it is necessary that the nearest world in which \overline{C}_H is false, E is false but \overline{C}_L remains true, contradicting Supervenience Individualism.

As long as C_H and \overline{C}_L are perfectly correlated, then, it is impossible for difference-making account of causation to distinguish whether the causal relation takes place on the higher or the lower level. That is bad news for CEH, because this means that any higher-level causal relation can, under a counterfactual account of causation, always be redescribed in terms of individual-level causal relations. Hence, the example by List & Spiekermann (2013) fails at showing what they set out to.

4 Conclusion: A Reductive Account of Causation is needed

My paper aimed at making two points against the argument by List & Spiekermann (2013) that microrealization-robustness necessitates CEH. The first point consisted in showing that their proposed case can be rephrased as one of causal preemption and hence is no example for CEH. The second, more general point showed that in the counterfactual account of causation CEH is false because any area in the causal graph of a higher-order property can always be redrawn as

⁷ Even though the authors do not discuss this, it seems plausible to assume that also the absence of a particular lower-level fact constitutes itself a lower-level fact.

⁸ The alternative would be to interpret it as a property resting on no lower-level basis at all, which would mean assuming a social level fact without any individual-level fact on which to supervene. Emergence is the better fit.

⁹ Which is necessary to motivate the need for CEH.

the wild disjunction of all the individual-level properties that instantiate it and, thus, it is always possible to redescribe a higher-order causal relation in individual-level terms.

Some words remain on the authors' choice of account of causation. List & Spiekermann (2013) themselves acknowledge that there are both reductive and non-reductive accounts of causation, citing e.g. the mechanistic account of causation as a competitor to the difference-making one of Counterfactual Causation. The argument that List & Spiekermann (2013) provide are based solely on the Counterfactual account of Causation.

The Counterfactual approach, as shown above, fails at making this point because, under Supervenience Individualism, there is perfect correlation between any higher-level property and the set of lower-level properties that instantiate it. Then, it becomes impossible, quite like in statistical analysis, to distinguish between higher-level and lower-level cause. Perhaps other accounts of causation are better at making the point the authors are seeking to make. I have only attempted to show that the counterfactual approach fails at this.

References

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