Is negative causation a case of causal relation?

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Abstract

By the term negative causation is meant the cases of omission and prevention.

In the first case, the absence of a specific factor is considered to be the cause for the effect, while in the latter a certain factor prevents the effect. Negative causation has been discussed in a number of recent works on causation. This paper examines the main difficulties which faces negative causation. Moreover it is argued that omissions are just cases of preventions, while the distinction of these cases is stemming from the description of the process. Finally is trying to establish the view under which prevention is a type of relation but not a causal one.

Introduction

Causal talk is very common in our every day life as well as in the sciences. We search for causes in order to understand how the things around us are the way they are, or change in certain ways. But what is a cause? According to Hume (Hume, D):

"We may define a cause to be an object followed by another, and where all the objects, similar to the first, are followed by objects similar to the other".

By this definition a causal relation is established between two entities. The relata of this may be events, facts, objects, depending on ours general philosophical view.

Quite often, we report as instances of causation cases in which either the cause or the effect is missing. For example we say: "The father's inattention was the cause of the child's accident", or "I didn't go shopping today because it was raining".

In the first case the absence of father's attention serves as the cause of the accident while in the latter raining was the cause for not going shopping. In both cases negative entities are involved, such as "absence of attention" or "not going shopping". Cases in which an absence serves as cause or effect constitute cases of negative causation. Omissions when the cause is absent and preventions when the effect is absent

Unfortunately, some questions are raised: can negative entities serve as the relata of a causal relation? Does negative causation constitute a case of genuine causation?

Answers are difficult. Many philosophers refute negative causation, while others adopt it. For example:

Lewis notes "Absences are not events. They are not anything: where an absence is, there is nothing relevant there at all. Absences are bogus entities. (Lewis 2000, 195-196)" Armstrong refutes negative causation claiming that there is always causal process among positive entities

(Armstrong 1978). Humphreys accept negative factors as necessary for a good explanation (Humphreys 1981). Finally Dowe asserts the notion of causation* or quasi-causation in the place of the negative causation which is defined with the usage of counterfactuals (Dowe 1999).

There are three major problems with negative causality:

1. Negative entities are involved,
2. the distinction between negative-positive causality is description dependent and finally
3. it is not always possible to define a single negative cause for an effect.

Few comments on negative entities

According to negative causality a negative entity is causally related with a positive one, with the negative entity standing for the cause or the effect. Unfortunately, if one adopts the existence of negative entities and that they could serve as the relata of a causal relation, then the world is duplicated. A whole new world consisting of negative entities is added.

In the literature there are many powerful arguments against the existence of them.

Ramsey argues against complex properties and as a consequence against negative ones (Ramsey 1925). So, following Kim (Kim 1973, 1980), if we adopt that events are instantiations of a property – at a time – by a substance, there couldn't be negative events because there couldn't be negative properties, if Ramsey's argument is true.

But even if we don't adopt that events are instantiations of a property, still there are many counterexamples for the existence of negative stuff.

If we suppose that objects are suitable relata for a causal relation then negative objects faces many problems. For example, the non-king of Italy is both married and unmarried and so on. Mellor has given similar arguments with Ramsey for negative events and facts. "john does not die" entails that "John does not die painfully" and "John does not die painlessly".

The point is that negative entities are a little bit obscure and that is better to avoid them, if it is possible.

About the description dependence

The second problem stems from the description of the causal process. Every circumstance of negative causation can be formulated as a case of the positive one. Instead of saying "we didn't go shopping because it was raining" we can say "we stayed at home because it was raining" or instead of "the father's inattention caused the accident" we can say "the child's desire to catch the balloon caused the accident". Of course there is the objection that we can describe every case of positive causation as a negative one. This is true but the point is that we can describe a causal process by using negative or positive terms. It is up to us to decide which the privileged way is.

There are some consequences of the view that negative causation is a causal relation, but in order to investigate them omissions and preventions must be examined separately.

About Omissions

Omissions are by far more obscure than preventions. If omissions are adopted as cases of genuine causality then, causal powers must be attributed to negative entities. Apart from the Ramsey-Mellor type arguments against negative entities, this assertion is also contrary to our intuitions. It is very difficult for a human mind to understand that a non-thing or a non-event or a non-fact has the ability to give rise to anything. Another way to understand it is in a counterfactual way. When we say "the child broke his leg because of his father's inattention" this could be understood as "if the child's father has not been inattentive then the child would not have broken his leg", but it is a counterfactual claim there is no direct causal mechanism. Even more the last sentence expresses the same with the sentence "the child is safe because his father was careful". In this sentence negative entities are not involved and it is intuitionally preferable.

Furthermore, if omissions constitute cases of genuine causality then it is difficult to determine a single cause for the effect.

Suppose that a thief commits a robbery at Jim's house. Jim returns to his house, goes up the stairs and meets the thief at the top of the stairs. The thief shoots him but he misfires. We can use the thief's misfire as a cause saying: "Jim is alive because of the thief's misfire" But this is not the only negative cause for Jim being alive. It is also true that "Jim is alive because he didn't have a heart attack when he saw the thief" and "Jim is alive because he didn't fall down the stairs when he saw the thief". We can find many more such negative causes. It must be noticed that these negative causes are not irrelevant to the described situation that is we don't say "Jim is alive because it was not raining in Athens". Now the question is: is it possible to determine which one from the above mentioned negative causes is the cause for Jim being alive? The answer is no. In fact, Jim is alive because of the thief's misfire and because he didn't fall down the stairs when he saw the thief and because he didn't have a heart attack when he saw the thief and so on. It seems that negative causation faces a special kind of over determination. In positive causation an effect may have a number of causes, C_1, C_2, C_3 and so on. Each of these causes is sufficient but not necessary for the effect. That means that if C_1 is present then the effect will be realized, but if C_1 is absent, E may be realized too, because of the presence of another cause of it, say C_2. This does not hold for negative causality. In most of the cases the negative cause is necessary but not sufficient. The omission of C_1, while it is necessary for the $\sim E$, is not sufficient, because all the causes of E must be absent in order E do not be realized. The misfire of the thief is necessary for Jim to stay alive but is not sufficient because Jim might have had a heart attack or he might have fallen down the stairs

and so on. But talking about causation, causes must be sufficient for their effects and as we saw this not the case for omissions. If we want to make omissions sufficient for the effect the negative cause must be considered as the conjunction of the negation of all possible causes for E. The cause of Jim is being alive is that the thief misfired and he didn't have a heart attack and he didn't fall down the stairs and so on. But then which criteria will determine which negative factor will be a term of this conjunction as well as are all the possible causes for the effect known? And so on.

So, it seems that omissions are not suitable to be considered as cases of genuine causality. Also because the first place relatum is not well defined, they can not serve even as simple relations.

About Preventions

Preventions can't be perceived as cases of genuine causality, too. The reason is that when we say "C prevents E", C is not sufficient to prevent E, it is a contingence relation. When we say "father's attention prevents the boy from an accident", father's attention does not guarantee that there will be no accident to the boy because there are many reasons for an accident independent from father's attention.

Preventions are more attractive than omissions, because while they involve negative entities, they do so not in the same mode as omissions do. Causal powers are not attributed to them. In preventions causes are always positive entities, the negative ones serving as effects. Even more there are two ways to understand the phrase "C prevents E". The first is to understand that C is a cause for the realization of ~E while the second, which is much more rational, to think that C changes the causal chain that leads to E and as a consequence E' is realized instead of E. The father's attention was the cause for catching the boy when the boy was falling down and no accident occurred, father's attention neutralizes the cause of the accident, in this case the boy's fall. The following example clarifies the point.

In chemistry we call enantiomers, molecules that have the same molecular formula, but have a different arrangement of the atoms in space. The enantiomers are distinguished in L and D antipodes. When we produce such substances in the laboratory, L and D antipodes are produced in equal quantities. These substances are also produced by natural systems through catalyzed chemical reactions by an enzyme. In this case only one of the antipodes is produced, say L. So it is rational to say that "when antipodes are synthesized from the A chemical compound, the presence of enzyme prevents D-antipode" This is correct, but if we examine the processes closer we will find out that in the lab, the antipodes are synthesized directly from the chemical compound A by chance, and so equal quantities of them are produced.

In natural systems the enzyme and the A compound produce a complex chemical compound from which only L-antipode can be produced. So the presence of the enzyme changes the causal chain from A to antipodes.

So under the phrase "the presence of enzyme prevents D-antipode" is hidden a causal chain different from the initial one. This is true for every case of prevention. Paraphrasing Cartwright, when in the presence of the cause the effect is not realized then there must be a reason for it. In other words, when we say "C prevents E', it is meant that C either neutralizes a factor of the causal chain which lead to E or interacts with such a factor changing the causal chain and E' is realized instead of E.

So far, it has been attempted to understand omission and prevention as cases of causation. It seems that negative stuff is not suitable to serve as the relata in a causal relation. Perhaps, we can do it differently.

First, we can reject negative entities and admit that there are only positive entities and only positive entities can be causal related to each other.

Secondly, we can think of prevention as a separate non-causal relation. Prevention shares some features of causation, but it is not causation. It relates events in the sense that the first relatum blocks the realization of the second. It supports counterfactuals: if C hadn't happened, then B would have happened. The non-occurrence of C would have been an omission, but this is not a problem, because it is a counterfactual claim. But there seems to be no straightforward mechanism that connects the preventer with the prevented. As we have seen a preventer interferes with a causal chain such that, had it been completed without the presence of the preventer it would have led to an effect E, but given the presence of the preventer, the causal chain leads to a different effect E' which conveniently called: the absence of E. So it's not that C caused ~E to happen, rather C prevented E. So prevention could be admitted as a relation between C and E but not as a causal one. This relation is distinct from causation, though perhaps partly understood by reference to causal chains between events (say C and E') that are not directly involved in the prevention relation.

Finally, we have seen that omissions create much more problems than they solve.

But we can avoid them, changing the linguistic terms we can convert cases of omission to cases of prevention. Instead of saying "~C caused E" we can say "C prevents E". For example, "father's attention prevents the accident" instead of "father's inattention causes the accident". Of course, the reverse is possible too, but we have no reason for this. Cases of prevention have "good behaviour" As it was argued in the paper they could be perceived as relations, although not as causal ones.

Conclusions

As we see negative causation could not be seen as causal relations. So we can reject negative entities and admit that only positive events can be causal related to each other. We can think of prevention as a separate non-causal relation. This relation is of such a kind that it covers different causal chains between events that are not directly involved in the prevention relation. Changing the linguistic terms we can convert cases of omission to cases of prevention.

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