'If time travel were possible, I could kill my own grandfather.
I can't kill my own grandfather. So time travel is impossible'. Discuss

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While this essay title has the structural form of a philosophical argument (a reductio ad absurdum), its content actually seems closer to science fiction than philosophy. Indeed, the main reason this question, from a 2019 Finals paper, caught my eye is because it reminded me of a *Doctor Who* episode I watched when I was much younger. In 'The Sound of Drums', humans living in the far future, on the last days of earth in fact, travel back in time to the present day and murder their ancestors. While the show's writers did not concern themselves greatly with the physical and logical difficulties posed by time travel (it would not have been much of a show if they did!), in this particular episode they did acknowledge the paradoxical nature of such a murderous rampage - with The Master (the antagonist) having to harness the power of the Doctor's Tardis to create a 'Paradox Machine'. In this essay I will attempt to provide a response to this question, albeit with the initial warning that I myself have still not fully made my own mind up. Instead, my main aim is to offer some insight to the science fiction fan about how a philosopher might attempt to answer such a question. In an attempt to do justice to both the philosophical and science fiction elements of the question, I will take part in the ancient philosophical practice (although with significantly less skill than Socrates or Plato) of presenting my essay as a conversation - between my alter-ego Louie (a science fiction fan) and myself, Louis (a Philosophy student).

Louie: It seems I could go back in time and kill my grandfather, but only after the birth of my mother, his child. The apparent problem with travelling back in time and killing your own grandfather arises from the fact that if you were to kill him, and as a consequence not be born yourself, you would not be there to travel back in time and commit the murder. It seems though, that if we just travelled back into the more recent past, we could avoid this difficulty. Consider, for example, whether we think it would be possible for me to travel back in time just one hour to kill my grandfather. Leaving aside the physical difficulties of time travel (since we've been told to assume for the sake of argument that time travel is indeed physically possible), it doesn't seem that any logical contradiction would ensue from this act. Indeed, there would clearly be no logical contradiction if I had just decided to kill him an hour earlier the first time round and saved myself the hassle of time travelling, so it's unclear why introducing a fairly tame journey back into the very recent past would pose a problem to the laws of logic. Given that there therefore only appears to be a paradox if I were to murder my grandfather before the birth of my mother, thus preventing her or me from being born, it seems right to suggest

that I can kill my own grandfather if this condition *is* satisfied. As such the second premiss of the argument, namely that 'I can't kill my own grandfather' is false.

Louis: This is certainly a sensible thought, but you are thinking too much from the perspective of someone who is trying to assassinate their grandfather, rather than from the point of view of a philosopher. It is certainly true that if someone did want to go back in time and murder their grandfather, they would be very wise to avoid the pitfalls of logical paradox by making sure their parent had already been conceived by the time of the attempt. However, what the philosopher is interested in is whether, if we had a person who was so inclined to shoot their grandfather before their parent's conception, would they be able to do it? It seems that the answer is yes. If they can go back to just after their mother's conception, why can't they go back to just before? And if they can shoot their grandparent just after and successfully kill them, what is physically stopping them from shooting their grandparent just before? In this sense, it seems correct to say that, if time travel were possible, I could go back and kill my own grandfather. Yet clearly, if I did shoot him before my mother's conception, this would create somewhat of an 'error' in reality. For if I were to shoot him, then my mother would never have been born, therefore I would never have been born, therefore no one would have shot him, so he would have lived, so I would have been born and so would shoot him, … (and repeat ad infinitum). Such a vicious circle (logical paradox) would certainly constitute an 'error' and since it is assumed that 'errors' in reality are not possible, it must be the case, so the argument goes, that time travel is impossible.

Louie: Well, if the argument presented above is as conclusive as you've just made it sound, why is there any debate in the philosophical literature? Surely, that's it and we should just conclude that time travel is impossible?

Louis: Several philosophers, most notably David Lewis and Ted Sider, have 'maintained that time travel is possible'[1]. They both accept that it cannot be the case that I go back in time and kill my own grandfather (in other words they do not deny that this is a paradox). Instead, it is argued, that were I to go back in time and attempt such a murder, I necessarily *must* fail. As Sider notes, this could be for any number of mundane reasons: a slip on a banana peel, I accidentally shoot the wrong person, or a sudden gust of wind which blows the bullet off target. The crucial thing is that, for whatever reason, the assassination mission would not succeed.

Louie: If we can know in advance that the assassination attempt fails, and must fail, is there any meaningful sense in which we can say that I could go back in time and kill my grandfather? It seems rather convenient that there is always a banana peel, or something of the sort, that prevents the murder from occurring. In this sense, I can appreciate the force of the argument in the title. If, for time travel to be

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[1] Lewis *The paradoxes of time travel*

possible, there always has to be such an unfortunate coincidence which makes the assassination attempt fail, it doesn't seem very likely to be possible.

Louis: I agree, it's true that it is required that there always be a coincidence, but I'd say this is neither absurd nor surprising. Consider the difference between the counterfactual statements: (i) 'if I were a very good football player and was taking a shot in front of an empty goal from two metres away, it would be the case that I trip and miss the shot' and (ii) 'If I, as a very good player, had been taking a shot in front of an empty goal from two metres away, and missed the shot, it would be the case that I tripped [or some other unfortunate incident occurred]'. The latter seems much more plausible than the former; and what Sider seeks to convince us, is that in the case of the assassination attempt on our grandfather prior to our mother's conception, we are dealing with the latter (much less absurd) counterfactual. This is because we already know that the attempt must fail, so in essence we are already picking out cases which necessarily involve such coincidences. An analogy from Sider elucidates this point further. Consider the set of 'permanent bachelors' – men who remain unmarried for their entire life. By definition, these people will include many people who have suffered from unfortunate incidents, which mean they do not succeed in marrying even when it seems certain that they will. These include people who, hours before their wedding, are delayed by an event (perhaps a storm disrupts travel), and before rescheduling end their engagement, as well as people who tragically have a fatal accident or other such unfortunate coincidences. In much the same way, it is argued, that by choosing the set of people who go back in time and attempt to assassinate their grandparents, we are self-selecting people who are scuppered by *coincidences*.[2]

Louie: From the non-philosopher's perspective, this just seems like a bit of a cheat. It seems that we have interpreted the problem in such a way that we have ruled out the seeming contradiction that I both can and cannot kill my grandfather, just by definition.

Louis: I think you're asking too much of such an argument. We're not trying to definitely prove that time travel is possible - indeed as stipulated earlier this involves much more than philosophical investigation (we must see if it is compatible with physics first) - but simply trying to provide an explanation for why we cannot rule out the possibility of time travel a priori (from the armchair). I think the achievement of Lewis and Sider is that they nullify the seeming contradiction that we both can and can't go back in time and kill our grandfathers, if time travel were in fact to be possible. This is because, to return to the permanent bachelor analogy, it would seem wrong to say that any of these men were not able to get married. Indeed, just because they ultimately do not (due to unfortunate circumstances), it doesn't mean they were not able to. In the same way, we have a reason for thinking that it is consistent to say that we have both the ability to kill our grandfathers (we could do so if time travel is possible), but circumstances are such that we never

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[2] This paragraph draws heavily on Sider's argument in *Time travel, coincidences and counterfactuals*

actually do. In this way, a contradiction is avoided, and we cannot conclude that time travel is impossible by a reductio ad absurdum, as the question invites us to.

Louis: Nonetheless, just because this particular argument does not succeed, it does not mean that other philosophical arguments against time travel will be similarly unsuccessful. I myself, despite finding Sider's argument in this case convincing, am still sceptical of the possibility of time travel. For it seems to me, that although obvious examples of paradoxes can be somewhat defused (such as the case of murdering your ancestors), any form of time travel may well end up being problematic. Even where time travel seems to be fairly harmless - such as the case of someone who time travels back for just thirty seconds, is seen by no one, and then returns to the present day - will end up leaving difficult questions. They have still changed the event from how it was previously. Would it be the case that they were always there or is there somehow a timeline when they are both there and not there? This seems a very challenging question to answer, and one I leave to philosophers far more intelligent and better qualified than myself.

References

Lewis, David (1976). *The paradoxes of time travel*. American Philosophical Quarterly 13, 145-152.

Sider, Theodore (2002). *Time travel, coincidences and counterfactuals*. Philosophical Studies 110, 115-138.