

# On Killing as Causing Death

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**ABSTRACT:** Common sense has that killing someone amounts to causing the death of someone. This makes killing a physical, biological, or, at best, metaphysical issue, and, as a consequence, the ethics of killing can be dealt with independently of the non-ethical issue of who the killer is. However, in this paper, we show that this is not the case. A physical/biological definition of death plus a metaphysical definition of causation does not exhaust the meaning of killing. Rather, the notion of killing *per se* generally presumes a notion of default, which often involves ethical considerations.

**KEY WORDS:** Causation, death, killing, social norm.

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The ethics of killing has been a hotly debated subject in ethics ever since, even well before the publication of McMahan's seminal book, *The Ethics of Killing, Problems at the Margins of Life* (McMahan 2002), and Sinnott-Armstrong and Miller (2013)'s urging for the dropping of the Dead Donor Rule, the sympathetic attitude of Giubilini and Minerva (2013) towards infanticide, and some furious reactions to their papers demonstrate that there is little sign of convergence in the debate. We, however, deem it desirable to clarify how much of the debate really belongs to ethics. Surely some issues in the debate can be dealt with non-ethically. In particular, the identification of a killer seems to be outside the realm of ethics. One can imagine a project being proposed to settle the metaphysics of killing before being concerned with the ethics of killing. In this paper we show that this attempt is likely to be futile. More specifically, the target of our attack will be the identification of the notion of killing with a metaphysical notion of causing death. Before we proceed demonstrating this point, the following simple observation serves as a hint that a metaphysical account of killing is indeed difficult, if not impossible, to set up.

Who killed Jesus? The Roman soldiers who nailed him to the cross? Pilate, who approved his execution? The Jews who demanded his death? Judas, who betrayed Jesus and handed him over to the Romans? All sinners like you and me, for whose sins Jesus went up to the cross? Or, none of the above at all, it was God who killed him, as God is the ultimate cause of all things. Or, rather, Jesus voluntarily killed himself. We would not try to answer this question here, but would only stress that, at least, the matter of identifying a killer cannot be settled on physical/metaphysical ground alone.

### 1. Killing as Causing Death

Understanding killing as causing death amounts to separate an account of killing into two portions: an account of death and an account of causation. To make our project manageable, we will, in this paper, assume that we already have a theory of death<sup>1</sup> – presumably a physical/biological account – and concentrate on how one person's act can be related to another person's death, without worrying about whether the person has been dead in borderline cases such as those arising in brain death, total-disability, infanticide, abortion, and related situations, and be concerned only with how one can classify some acts as causing death, while some others as not.

Recall that the possibly simplest account of killing is as follows,

[C] *A* kills *B* if and only if *A* causes the death of *B*.

Indeed, if one can grasp the meaning of causation then [C] is a promising candidate for a theory of killing.<sup>2</sup> Nevertheless, we will see that the notion of causation itself is difficult to be framed within the realm of metaphysics, despite that philosophers have spilled much ink writing about it over the years, see Paul and Hall (2013) for a comprehensive treatment of the subject.<sup>3</sup>

We will illustrate this point in three sections. Sec. 2 maintains that physics does not provide any ground for a notion of causation; Sec. 3 stresses that resorting to necessary and sufficient conditions does not help either; and finally Sec. 4 points out that killing generally involves a deviation from a socially constructed default, so it cannot be explained merely by a metaphysical notion of causation – unless we are prepared to develop a new notion of causation that involves a social norm.

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<sup>1</sup> A more thorough investigation of how UDDA (Uniform Determination of Death Act) can be interpreted and defended will appear elsewhere.

<sup>2</sup> Here, *A* can be an agent or an event, depending on how we would like to develop the account.

<sup>3</sup> The present paper can, in a sense, be seen as exploring possible interpretations for the arrows in that book.

Before we proceed with the detailed analysis, some remarks are at hand.

Concerning Section 2, many people seem to believe that causation is a notion founded on physics and one simply needs to examine its bearing on social issues when it comes to ethics. However, this is not the case.

Concerning Section 3, resorting to necessary and/or sufficient conditions would not help either, and this is supported by three facts, namely, neither being a necessary condition nor being a sufficient condition is sufficient for causation [3.1]; neither being a necessary condition nor being a sufficient condition is necessary for causation [3.2]; and even in an ideal situation where an *if-and-only-if* (*iff*) correlation has been established between two events, one still could not assert that one event “causes” the other [3.3].

Concerning Section 4, we claim that a key ingredient for an account of killing is the notion of default or null action, and this notion of default can neither be grounded physically nor metaphysically.

## **2. Physics Does not Provide any Ground for a Notion of Causation**

While logicians and philosophers are usually more prudent than others in saying that some event is the cause of another, it is commonly thought that insofar as physical events are concerned, causation is easy to establish and less likely to evoke disputes. For example, the gravity of the earth causes the moon to circle around the earth, certain initial condition of an asteroid inevitably causes it to hit the earth, and the heat causes the water to boil. However, we think this is mistaken in the following way.

First, in real-world physics, that is, in contrast to an idealized situation in which the world consists of two particles only, the earth and the moon, whose interaction is governed by Newton’s Laws, there has never been a situation where the property of one thing alone determines the behavior of another. For instance, one might object that it is not the gravity of the earth alone that causes the moon to circle around it, the fact that all other planets in the solar system are too far away from the moon so that their gravity courteously grants the earth the sole ownership of the moon plays an important role as well. That being said, are we not obliged to thank the sun for not interfering as well? How about all other stars? In sum, there is no way to isolate a cause for the moon’s circling around the earth.

Second, even if one, after being reminded of the above facts, rephrases the physical account of causation into a more general form, namely, *the initial condition of a particle, together with the situation it is in, and all the laws that govern the physical world causes it to end up in a certain state*, we can still object that this move in effect makes causation a useless concept to be employed in

our daily talks. This revised position amounts to saying that when everything at present is taken into account, certain event would happen at some later time. On the face of it, this is not all that disastrous, because at least we can retain that the present causes the future. But if we take the special theory of relativity into account, in which there is no universal concept of simultaneity—in particular there is no *now* that is agreed upon universally—then, we should further revise the causation thesis into ‘every event is caused by the initial/boundary condition of the universe, together with the natural laws governing the universe.’ But even if this proves to be a non-trivial fact about the universe, it is, after all, about the overall “causality” of the university in itself, rather than about the causation of one event upon another which concerns us in the first place.

In sum, physics can live without the concept of “causation”, and even if one insists on referring to whatever could be simply expressed as the predictability of physical events, given a complete set of initial/boundary conditions, as “causation”, this all-too-general notion of causation is surely different from the causation that people are, seemingly, talking about in their daily lives.

### **3. Resorting to Necessary and Sufficient Conditionals Would not Explain Causation Either**

As the holistic nature of the so-called physical causation fails to grant us a basis for claiming that some event causes another, we may try to find an account in which one event can be said to be connected, in some unique way, to another event so that we can assert that the former causes the latter. Possible notions that one could resort to include, ‘*A* determines *B*’, ‘*B* supervenes on *A*’, ‘Given *A*, the probability that *B* happens is extremely high’, ‘If *A* then (necessarily) *B*’, and ‘Had not been *A*, *B* won’t have happened’ etc.. Diverse as they might seem, these notions can all be reduced to some conditionals between events, and be analyzed logically. This approach indeed allows us to isolate two events and consider their correlation – which the physical causation cannot do – however, we will show that this approach still could not capture our intuition about causation.

We shall first show that neither *A*’s being a necessary condition nor *A*’s being a sufficient condition for another event *B* is sufficient for us to establish that *A* causes *B*. Then we assert that neither are they necessary. Finally, we claim that even if an *iff*-correlation can be established between two events, one still might not assert that one event causes the other. In other words, there is more to our intuition of causation than could be provided by an *iff*-correlation.

### *3.1 Neither being a sufficient condition nor being a necessary condition is sufficient for causation*

If you ask someone on a street what ‘ $A$  causes  $B$ ’ means, as the author often did, it is likely that you would get one of the two responses: ‘If you do  $A$  then you will get  $B$ ’ or ‘If you had not done  $A$ , you would not have got  $B$ ’. However, these answers surely would not work, as we can easily think of cases in which  $A$  and  $B$  satisfy either of these conditions and yet we would not thereby assert that  $A$  causes  $B$ .

First, suppose a professional sniper Jones was assigned the task of killing Smith, who was two hundred yards away and seemed to be at rest, and he aimed at Smith’s head and fired a shot. While we can say that if he fired the shot, Smith would die, we do not necessarily say that his shot “caused” Smith’s death. For instance, Smith might have been dead already due a heart attack a minute ago, or another sniper Jack had aimed at Smith’s heart and fired a shot before Jones did, which “caused” Smith’s death. In the latter case, both Jack’s shot and Jones’ shot are a sufficient condition for Smith’s death, but those facts alone do not prompt us to assert that both events are the cause of Smith. We seem to require more information in order to determine which of the events is the “real cause” of Smith’s death. For example, who pulled the trigger first? Whose bullet reached Smith first? Whether the heart-lung failure came before the brain death, or the other way around? In other words,  $A$ ’s being a sufficient condition for an event does not imply that  $A$  is the cause of the event. A more radical example is that you may say that if I go to bed early today, then the sun will rise in the east tomorrow, but you surely would not say that my going to bed early today causes the sun to rise in the east tomorrow.

The scheme here is basically that even if the turning on of either switch  $S_1$  or switch  $S_2$  is sufficient for the electric current to pass from left to right and kill someone sitting on an electric chair, we would not say that, in case that  $S_2$  has been switched on, the turning on of switch  $S_1$  causes the death of the person.

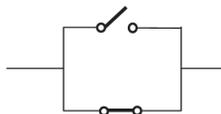


Figure 1

Second, at around midnight, a critically ill patient’s oxygen mask accidentally fell off and, with the nurse on duty leaving her post to have a cup of tea and no one around to help put the mask back, the patient would die in

less than a minute. Luckily Dr. White happened to be *about to* enter the ward and, surely, on noticing that the mask was off she would replace it and save the patient's life. Yet, while she was about to turn the door knob, her husband ringed and they spoke for a few minutes and the patient died before they finished their conversation. In the situation just described, we could say that if there had not been that phone call then the patient would not have died, but would we say that the phone call "caused" the death of the patient? A more radical example is that the fact that the battery of the cell phone still had charge is in itself a necessary condition for Dr. White's receiving the call – in other words, had the battery been out of charge, the doctor would not have received the call, and the patient would not have died – but surely, we would not say that the battery's having charge is the cause of the patient's death.

The scheme here is basically that it requires the turning on of both switch  $S_1$  and switch  $S_2$  for the electric current to pass from left to right and kill someone sitting on an electric chair, yet we would not say, in case that  $S_2$  has been switched on, that because the turning off of switch  $S_2$  would have prevented the killing, the turning on of switch  $S_2$  causes the death of the person.



Figure 2

### *3.2 Neither being a sufficient condition nor being a necessary condition is necessary for causation*

Is it possible that  $A$  is the cause of  $B$ , yet  $A$  is not a sufficient condition of  $B$ ? Alternatively, is it possible that  $A$  is the cause of  $B$ , yet  $A$  is not a necessary condition of  $B$ ? The answers for both questions are 'yes'.

First, while Jones used to be quite good a sniper, his old age together with the strong wind and a distance of four hundred yards today makes the assignment more difficult than usual. As a matter of fact, no one would assert that if he pulls the trigger then Smith will be dead, especially when everyone knows that the other sniper Jack has retired and Jones is the only one in action. However, he did pull the trigger and, as if only by luck, his bullet did find Smith, and Smith was dead in no time. Would we say, given that Jones' firing at Smith is not a sufficient condition for his death, that Jones' firing at Smith does not cause his death? Surely not! In case Jones was the only one in action and Smith was not already dead due to, say, heart attack, we would indeed say that Jones' firing at Smith causes the death of Smith. As a matter of fact, most successful killing attempts in our daily life cannot be said to be a sufficient condition for the death that they have caused. For instance, Dr.

White might have used her cell phone to control some switch on a panel and kill one of her patients, but we would not accept her claim that she did not cause the death because it was possible that the battery of her cell phone was out of charge, thus her action itself is not a sufficient condition for the death.

Teaming up the present case with the situation in the second part of 3.1, that is, the serial case, we can say that i) the turning on of  $S_2$  is a necessary condition for the death of the victim, yet, given that the turning on of  $S_1$  and many more facts are also necessary, it may not be the cause of the death, and ii) even though that the turning on of  $S_1$  is not sufficient for the death of the victim yet, given that  $S_2$  has been closed before  $S_1$ , it can be the cause of his death still.

Second, Jack has shot Smith dead, and was convicted because his shooting action “caused” the death of Smith. Upon knowing that Jones was actually in ambush and would fire a bullet that would have killed Smith had Jack’s bullet failed to do so, Jack defends for himself claiming that because his action is not a necessary condition for Smith’s death so his action is not the cause of his death. Presumably, no one would accept his excuse: an event  $A$ ’s being a necessary condition for another event  $B$  is by no means a necessary condition for  $A$ ’s causing  $B$ .

Teaming up this with the situation in the first part of 3.1, that is, the parallel case, we can say that i) the turning on of  $S_1$  is sufficient for the death of the victim but, given that the turning on of  $S_2$  and many other factors may have been sufficient for the death already, it may not be the cause of his death, while ii) the turning on of  $S_2$  is not necessary for the death of the victim, yet, given that  $S_1$  has not been turned on, it can indeed be the cause of the death.

To be more theory-laden, consider the following example from Howard-Snyder (2002):

Moreover, suppose an SS officer, Franz, tortures someone to death. But this is standard practice in the Gestapo. If Franz had stayed home with a sore throat, or if Franz had never existed, his pal Hans would have done the torturing, in the same way, at the same time Franz did. If the counterfactual account is correct, then Franz is negatively relevant to the victim’s death by torture ...

However, according to Howard-Snyder, “the fact that Hans was waiting in the wings in no way diminishes Franz’s wrongdoing in this case”. This refutes the counterfactual account and, in effect, asserts our intuition that, while Jack’s shooting Smith is not a necessary condition for his death, Jack causes his death still.<sup>4</sup>

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<sup>4</sup> One naïve attempt to save the counterfactual account is that Jack’s shooting Smith is indeed a necessary condition for *that particular death* of Smith by Jack’s bullet. But, that would deprive the account of its explanatory power and render many claims circular:  $A$  causes *the B that was caused by A*. In comparison, admitting that being a necessary condition for the death is not a necessary condition for causing the death is a simpler option.

3.3 *Even if an iff-correlation has been established between two events, one would not, still, assert that one event “causes” the other*

The observations in 3.1 and 3.2 above cast doubt on the possibility of formulating a theory of causation in logical/metaphysical terms, namely through necessary and sufficient conditions. But there remains a chance that this vein of approach will work, namely, requiring a condition that is both necessary and sufficient.

Along the line of thought of subsection 3.1, we had better discard sufficient conditions and necessary conditions that are uninteresting. Concerning sufficient conditions, as any event is a sufficient condition for an event that is necessary ( $1+1=2$ , say) yet we would not say that the former event causes the latter, we can perhaps impose an additional condition to account for killing, namely, the event should not be such that the victim would die even if the event has not happened. This in effect requires the event to be not only sufficient but also necessary. This explains why Jones shooting Smith after his death by heart attack does not cause his death.

Similarly, concerning necessary conditions, as a killing involves many necessary facts (the existence of the earth, say), yet we would not say that the latter causes the former, we can impose an additional condition to account for killing, namely, the event should not be such that it is a background that has nothing to do with the death, in the sense that we can easily imagine many cases in which the event did happen yet the victim was not dead. This in effect requires the event to be not only necessary but also sufficient. This explains why the battery’s having charge does not cause the death of the patient of Dr. White.

In sum, the identification of ‘*A causes B*’ with ‘*A if and only if B*’ remains a candidate for an account of causation. As could be expected, it would significantly reduce the number of cases for which we can say ‘*A causes B*’. In effect, we will be dealing with cases such as the following.<sup>5</sup>

In a remote, ancient village, in a meeting to determine whether some suspect should be killed, ten out of a total of eleven elders have already made up their minds, five yes’s and five no’s, and everyone turns to the last elder, Pete, say, for his decision. Pete’s vote is now correlated to the death of the suspect in an *iff* way.

Now, in case that Pete’s vote is yes, do we then say that Pete’s vote causes the death of the suspect (or that Pete kills the suspect)? Possibly not. Apparently, we demand more than merely an *iff*-correlation between events to assert a causation. We shall return to this scenario in the next section. And, for the

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<sup>5</sup> See Tsai (2016) for more discussion about this example.

time being, let us look at two possible objections for the move to an *iff*-correlation.

First, we have seen in 3.2 that neither being a necessary condition nor being a sufficient condition is necessary for some event  $A$  to be the cause of  $B$ , how come we now embrace an even stronger claim that  $A$  has to be both necessary and sufficient for  $B$  for it to be the cause of  $B$ ? One possible answer to this objection is that to evaluate a conditional 'if  $P$  then  $Q$ ', we typically add  $P$  into our stock of knowledge hypothetically, while requiring other things to remain unchanged, and then consider whether  $Q$  holds (see Ramsey 1990). So perhaps in evaluating whether  $P$  is a necessary or sufficient condition of  $Q$ , we should do the same and strive to have all other things fixed. In other words, in terms of the  $S_1$  and  $S_2$  in the serial and parallel circuits above, when considering the correlation between the turning on of  $S_1$  and the death of the prisoner, we should presuppose that the status of  $S_2$  has been given. In this way, our earlier claims in 3.2 fail.

In the serial case, given that  $S_2$  has been closed beforehand, the turning on of  $S_1$  becomes a sufficient condition. So, even though the elderly Jones' skill is no longer a guarantee for the death of his victim in general, insofar as the specific circumstance at the moment of his pulling the trigger remains the same, his act is a sufficient condition for the death, and Dr. White's evil deed of using her cell phone to control a switch that is related to the death of her patient cannot be excused because her act is a sufficient condition for the death given that other factors remain unchanged, in particular, her cell phone is in good order.

Similarly, in the parallel case, given that  $S_1$  has not been turned on beforehand, the turning on of  $S_2$  becomes a necessary condition. So, if Jones was only in ambush while Jack fired his shot, or if Hans was only waiting in the wings while Franz tortured someone to death, Jack and Franz's actions become a necessary condition for the death of the victim because if they do not make the move and everything else stays unchanged then the victims would not have died at that time. If, on the other hand, Jones and Hans will act regardless of whether Jack and Franz would act – and Jones and Hans did act before the victim was dead – then Jack and Franz's involvement in the killing is diluted. In sum, after a closer scrutiny, Jack's shot can still be regarded as a necessary condition if he was indeed considered as the sole killer of Smith.

So, if, in considering a conditional, we place more weight on the requirement that everything except those that logically follow from the antecedent remains the same, then the elderly Jones's shot is not only a necessary but also a sufficient condition for Smith's death; and even with Hans waiting in the wings, Franz's deeds is not only a sufficient condition but also a necessary condition for the victim's death at that time. In other words, granting our

selves some freedom in interpreting a conditional grants us a decent chance of setting up an *iff*-correlation account of causation.

However, as we have seen in 3.1 and 3.2, these interpretations are, on the one hand, too arbitrary and, on the other, unrealistic. In our daily life, there is simply no way that we can assume that all other factors that can possibly affect an outcome are known, or that they stay unchanged. So, there does exist an intrinsic difficulty to this move to *iff*-correlation.

Second, this move would in effect render temporal considerations as irrelevant to causation, because temporal order plays no role in determining logical consequences, just as it plays no role in determining physical consequences. Some might think this would be an unwanted feature for causation, but we think this is an essential feature that we should embrace. Interested readers are referred to Dummett (1964), for a general thesis on the justification of retrospective prayers and the sensibility of bringing about the past. However, even if backwards causation can be accepted, there still remains the task of deciding whether it is *A* causing *B*, or *B* causing *A*, and an *iff*-correlation alone would not help us answer this problem.

The above being said, our position now is as follows. For the sake of argument, we would accept, reluctantly, that causation can be captured by an *if and only if* correlation between events – even if it is extremely unlikely that we could have such a relation between events, or it in effect restricts causation to be applicable to only very rare, idealized or even artificially constructed cases such as the Prisoner's Dilemma – and draw the reader's attention to the fact that while theoretically we can accept such a robust account of causation, when we are confronted with the problem of killing – or causing death – that we set off to find an account for in the first place, there is more to the killing of someone than that can be accounted for by a mere *iff*-correlation between an event and the person's death. We will deal with this matter in the next section.

#### 4. Killing and Deviating from the Norm

What, after all, is the additional bit required of causation in general, or of causing death in particular? I claim that what is required in addition to an *iff*-correlation is a notion of default, and this notion of default does not lie in physics, logic, or even metaphysics, but rather in ethics, or a moral theory, or a social regulation whatsoever. This amounts to refuting the attempt to define causing death metaphysically, or developing a new theory of causation that incorporates social norm into the picture. This is too big a project to be accommodated in this paper. The reader is referred to Tsai (2016) for a lengthy first attempt towards setting up a social-norm account of killing, nonetheless.

Recall that the subject of the present paper is killing *per se*, and we have mentioned that understanding killing as causing death *might be* a good first trial. Now, on our way towards a possible account of causation, we have located, for ideal cases, a key ingredient of causing death, namely, an *iff*-correlation with someone's death. It is just that this correlation alone does not exhaust the meaning of causing death, and our philosophical instinct together with some observations we are about to see suggest that a general metaphysical theory of causation can be difficult to obtain. Nonetheless, we can still go beyond the *iff*-correlation and see what more should be added into our picture for us to get a theory of killing. The fact that we shall need to get into the realm of ethics is a fatal blow to the traditional, metaphysical causing-death account of killing, but not to the account of killing that we shall sketch in this section and develop elsewhere. As a matter of fact, we will see now that the notion of killing involves an *iff*-correlation with death and a social norm.

Recall that in the case of The Eleven Elders, after we have five yes's and five no's from ten of the elders, the last elder's decision amount to a necessary and sufficient condition for the death of the suspect, yet in case the elder happens to say 'yes', we would not normally say that he kills the suspect. There seems to be something in addition to an *iff* that we require in order to assert that the last elder kills the suspect. The presence of an intention, the input of external work, and the association of a change of value are three candidate features which may be required of a killing. However, in Tsai (2016), I show, through many well-known scenarios in medical ethics concerning killing and letting die, that none of them captures the essence of killing, and it is rather the deviation from a social norm that constitutes an act of killing. Here, I will only indicate, in a more general and schematic way, where the key problems lie.

The cases considered in Sec. 3 can be summed up in the following circuit which decides the fate of victim based on whether an electric current can flow from the left to the right.

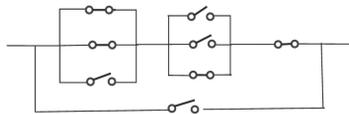


Figure 3

Clearly, the fate is jointly “determined” by eight switches together. If the controller – an executioner, specifically – of each switch makes his or her decision without knowing what the others are doing, then, regardless of what the outcome turns out to be, no one should be said to be causing the death

of the victim. In other words, it is nonsense to try to locate a killer in situations like this.

The following example further illuminates the absurdity of this attempt. Suppose 20001 people would determine the fate of a prisoner, to die or not to die, by voting, and suppose an *iff*-correlation with the prisoner's death is the sole criterion for killing. If the result is 10001 vs. 10000, then *everyone* who votes for death is a killer, because each of them can alter the fate of the prisoner. If the number of votes for death turns out to be 10002 rather, then *no one* who votes for death is a killer. All these complications in effect re-emphasize the two recurring themes. First, in evaluating an *iff*-correlation, we should assume that all other relevant factors have been determined, and even known to the agent, yet this assumption is utterly unrealistic. Second, given that an *iff*-correlation to death has been established, we should still resort to some social norm to decide whether the act in question is indeed an act of killing.

A society in which every executioner is expected to follow the order and close the switch he or she is responsible for so as to allow electric current to pass through it would not classify any of the executioner as the killer of victim, even if by some mechanical faults some switches fail to close so that the on/off of a particular switch (for instance, the rightmost one in Figure 3) happens to be *iff*-correlated with the death of the victim. On the other hand, imagine that an evidently mistaken death-penalty order that upset the whole society was hastily carried out by a handful of executioners who happened to have a personal hatred toward the victim, despite that a cancellation of the order was on the way and due to arrive in less than an hour. Furthermore, all the executioners were repeatedly urged by the public to withhold their action. In this case, even if the closing of the top-leftmost switch is strictly speaking not *iff*-correlated with the death of the victim, the executioner will be regarded as causing the death still.<sup>6</sup> So, clearly, being a killer or not is neither to be determined by the physical constitution of the circuit and the on/off of the switches, nor to be determined by the logical consequence of the on/off of each of the switches. A social norm apparently plays a more important role than these physics/logic/metaphysics factors. Interested readers are referred to Tsai (2016) for a more systematic, comprehensive treatment of this account.<sup>7</sup>

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<sup>6</sup>The top-leftmost two switches are only *jointly iff*-correlated with the death of the victim (either one of them close the switch and the victim dies, and otherwise the victim lives). But the social norm is so strong that the executer will be counted as a killer.

<sup>7</sup>Acknowledgement: This work was supported in part by the Ministry of Science and Technology, Taiwan; grant number: MOST 102-2410-H-715-001-MY3.

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