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A Teleofunctionalist Solution to the Problem of Deviant Causal Chains of Actions

Abstract: Donald Davidson's causal theory of actions states that actions must be rationalized and caused by a belief-desire-pair. One problem of such a causal theory are cases of deviant causal chains. In these cases, the rationalized action is not caused in the right way but via a deviant causal chain. It therefore intuitively seems to be no action while all conditions of the causal theory are met. I argue that the problem of deviant causal chains can be solved by adding a teleofunctionalist condition. This condition requires that the belief-desire pair that rationalizes an action must cause that action in a *selection-historically normal way*. I try to show that this additional condition drops counterintuitive cases of deviant causal chains out of the class of actions while being flexible enough to classify such cases as actions in which causal detours are intuitively permissible.

Keywords: action theory, deviant causal chains, teleofunctionalism, Millikan, Davidson, reasons and causes, Frankfurt

1 Introduction

In his essay "Actions, Reasons, and Causes," Donald Davidson argues that actions not only must be rationalized, but also *caused* by the justifying reason. One problem of such a causal theory of actions is the problem of deviant causal chains. There are scenarios in which all conditions of Davidson's causal theory are met, the behavior therefore is caused by the justifying reason, but where the behavior nonetheless seems to be no action since the behavior is not caused "in the right way" (Davidson 1973, 79), but rather via a deviant causal chain.

Cases of deviant causal chains pose two problems for the causal theory. First, the causal theory must be adapted so that cases of deviant causal chains do not meet all conditions and are no longer analyzed as actions. Second, a theory of actions must provide the resources to explain why some causal chains are deviant. It is uncertain if a pure causal theory can differentiate between normal and deviant

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causal chains by a causal criterion. Maybe, a non-causal characterization of normal and deviant is necessary.

In this essay, I will argue that a teleofunctionalist supplementary condition can offer a solution to the problem of deviant causal chains. I will start by presenting Davidson's causal theory of actions and confronting it with the problem of deviant causal chains. Then, I will briefly outline Ruth Millikan's teleofunctionalism. I will argue that we can solve the problem of deviant causal chains by supplementing Davidson's causal theory with a teleofunctionalist condition, namely that an event is an action only if it was caused *in accordance with a Normal explanation*. Normal explanations of actions indicate how actions have typically been caused in the selection history in cases of success, that is, in those cases, in which the action-causing primary reason fulfilled all its proper functions. Moreover, since Normal explanations can be used to differentiate between normal and deviant causal chains, my proposal also meets the second challenge of determining deviance in a naturalistic way.

2 Davidson's Causal Theory of Actions

Donald Davidson proposes a theory of action that requires that the reason of an action rationalizes and causes the action. Therefore, there are two necessary and, when combined, sufficient conditions for actions. First, for an event *a* to be an action, there must be a primary reason for this action that consists of a pro attitude, for example a desire, for actions of type *A*, and the belief that *a* will be an action of type *A* (*belief-desire-condition*) (cf. Davidson 1963, 685–7). Second, the primary reason must cause the action (*causation condition*) (cf. Davidson 1963, 693).

(CT)   An event *a* is an action under the description d^1 iff
    (BD)   there is a primary reason *r* for *a* under the description *d*, that
          rationalizes a, and *r* consists of
          (a)   a pro attitude of the agent towards actions of type *A*, and
          (b)   a belief of the agent that *a* under the description *d* is an action
              of type *A*, and
    (CC)   *r causes a.*

Controversial about this definition is the causation condition (CC), that the reason that explains the action must also cause it. To motivate this, Davidson points out

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1 An event can only be an action under a certain description because there are always countless other descriptions of an action under which it is not rationalized by the primary reason. Under those descriptions, it cannot rightly be said that the person performed this action.

that we can have multiple reasons to perform an action, but only the reason that, in the end, causes the action can explain the action. For example, I can have two reasons to cut the lawn. First, I wish the grass to be shorter; second, I want to annoy the neighbors with the noise (cf. Horn and Löhrer 2010, 19). Only the reason that caused my lawn-cutting explains why I did it.[2] We therefore need the causation condition (CC) to differentiate between the reason why the person acted and other reasons that the same person has for the same action (cf. Davidson 1963, 691). An explanation of an action is, therefore, always both a rationalizing explanation, stating reasons for the action, and a causal explanation, stating the cause of the action.

3 The Problem of Deviant Causal Chains

One serious problem for Davidson's causal theory of actions is the *problem of deviant causal chains*. There are counterexamples in which both conditions of the causal theory are fulfilled, but we would still deny there was an action because the behavior was not caused in the "usual" way, but via "deviant" causal chains.[3] Two types of such counterexamples were presented. In cases of *primary causal deviance*, the deviant causation happens before the action so that the person ultimately does not act. Davidson gives such an example in his essay "Freedom to Act":

> A climber might want to rid himself of the weight and danger of holding another man on a rope, and he might know that by loosening his hold on the rope he could rid himself of the weight and danger. This belief and want might so unnerve him as to cause him to loosen his hold, and yet it might be the case that he never *chose* to loosen his hold, nor did he do it intentionally. (Davidson 1973, 79)

In this case, both conditions of the causal theory are met. The behavior was both rationalized and caused by the desire and the belief. However, the causation happened via the intermediate step of nervousness. The primary reason caused the climber to be nervous, which caused him to loosen his hold on the rope. However, since the loosening was not intended by the climber but rather happened solely because of his nervousness, we would intuitively say that the loosening was not an action. Thus, the causal theory seems to be extensionally inadequate.

In cases of *secondary causal deviance*, the causal chain deviates after the agent's behavior. The behavior happens as planned, but the goal of the action is later fulfilled in an unintended, "deviating" way. Davidson gives the following example:

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2 If both reasons caused my action, of course both can explain why I did it.

3 With the quotation marks, I am marking the provisionality and vagueness of those expressions.

> A man may try to kill someone by shooting at him. Suppose the killer misses his victim by a mile, but the shot stampedes a herd of wild pigs that trample the intended victim to death. (Davidson 1973, 78)

Below I will concentrate on cases of primary deviance. In Section 5.3, however, I will briefly argue that my proposal can also capture cases of secondary deviance.

The problem of deviant causal chains poses a challenge to the causal theory to establish conditions under which the causal chain runs the "right" way, so that counterintuitive cases, like the ones mentioned above, can be excluded as cases of actions. I make a proposal for such a condition in Section 5.

In addition to this main challenge, deviant causal chains give rise to another problem that I refer to as the "*problem of determining deviance.*" "Deviant" and "right" are normative terms in the sense that they imply that there is a norm, relative to which a causal chain can be "right" or "deviant." Causal chains cannot deviate without there being a norm from which they deviate. In a purely causal theory, however, there seems to be no such norm and therefore no deviation (cf. Keil 2007, 75). The causal theory, if it is to remain a pure causal theory, is thus also faced with the challenge of giving a causal description of what the "right" way is, i.e., what is the norm from which to deviate in such cases. Moreover, the problem of determining deviance confronts all theories of action, including non-causal theories, with the task of specifying what the norm is from which causal chains can deviate. My proposal is that *deviance consists in the fact that the action is not caused according to a Normal Explanation*, that is, according to an explanation that specifies how the ancestors of present actions were typically caused in their selection history. Since I propose a teleofunctionalist determination of deviance, I will not defend a purely causal theory, but rather propose a teleofunctionalist theory of action.

I will introduce teleofunctionalism in the next section and then argue that a teleofunctionalist additional condition both gets a handle on the problem of deviant causal chains and provides naturalistic resources for determining deviance.

4 Teleofunctionalism

Contrary to reductive physicalism, according to which purely physical identity criteria can be given for types of mental states like beliefs and desires, functionalism in the philosophy of mind proposes that there are functional identity criteria for types of mental states. For example, not all desires share a particular physical property, but all have the function of bringing about the state of affairs that the

desire represents. One variety of functionalism is teleofunctionalism in which having a function does not consist in having a certain disposition, but in the fact that the ancestors of the trait were selected for because they showed certain effects. Thus, for example, also malformed hearts have the function to pump blood and are thus hearts, even if they actually cannot pump blood at all (cf. Millikan 1984a, 17–8). In this section, I will present the main features of Ruth Millikan's teleofunctionalism.

Whether an object has a (direct) proper function depends, according to Millikan, on whether that object is a member of a reproductively established family (REF). There are first-order and higher-order reproductively established families.

(REF$_F$)   "Two items are members of the same first-order REF if one is a direct reproduction of the other or if they are direct reproductions, copies,[4] of the same original." (Millikan 2017, 158; see also Millikan 1984a, 23–4)

An example of a first-order reproductively established family (REF$_F$) are genes. My genes and my parents' genes are members of a REF$_F$ because my genes are direct reproductions of my parents' genes. My brother's genes and mine are also members of the same REF$_F$ because both are direct reproductions of the same original, our parents' genes.

Along with first-order REFs, there are also higher-order REFs (REF$_H$) whose members are not direct reproductions of each other, but are produced by mechanisms that are members of another REF.

(REF$_H$)   "Two items are members of a higher order REF if they are like one another because [they are] produced in the same way by mechanisms that are members of a prior REF (first or higher order), these prior mechanisms having produced these products in performing the same proper function." (Millikan 2017, 158f; see also Millikan 1984a, 24–5)

Organs like hearts form a REF$_H$ because they are produced by the prior REF$_F$ of genes, and it is a function of these genes to produce the organs encoded on them. Propositional attitudes like beliefs and desires also form higher-order REFs since they are produced by cognitive mechanisms that have specific functions to produce beliefs adapted to the environment and desires adapted to the needs of the organism. Beliefs are produced by belief forming mechanisms (e.g. perceptual

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4 Millikan uses "direct reproduction" in the sense of copies: An object y is a direct reproduction of an object x iff aspects of y resemble aspects of x because they were caused by those aspects of x. For example, my left arm is not a reproduction of my parents' left arms. If both my parents had lost their left arms in childhood, I would still have been born with two arms, not just one. My parents' arms are not causally responsible for me having arms. What is directly reproduced is not whole organisms or organs, but the genes of my parents (cf. Millikan 2017, 158; for a detailed elucidation of direct reproduction cf. Millikan 1984a, 19–23).

mechanisms, mechanism drawing inferences from other beliefs, etc.) having the proper function to produce mental states that are adapted to the environment insofar as they are true (cf. Millikan 1984b, 243f). For example, visual perceptual mechanisms have the proper function to produce mental states that represent what is in front of the eyes. Desires are produced by cognitive mechanisms having the proper function to produce mental states that are adapted to the needs and other desires of the organism and have the function to fulfill the represented state of affairs. For example, having the desire to drink if you are dehydrated whereas not having this desire if you just drank a lot of water is beneficial for the organism. In general, having desires that match one's needs is very advantageous.

For an object to have a proper function, it must be a member of a first-order or higher-order REF. The proper function then consists in producing those effects which the ancestors in the REF of the object produced, which either explain why the object itself exists or explain why the REF has proliferated and hence why the object exists (cf. Millikan 1984a, 28):

(PF)   Where m is a member of a REF R, m has the *direct proper function to show the effect F* iff
    (a)   certain ancestors of m in R performed F, and
    (b)   a legitimate explanation of the fact that m exists refers to the fact from (a).[5]

For example, my desires have the proper function of bringing about the represented state of affairs because they are members of the REF_H of desires, their ancestors have brought about the represented states of affairs and this explains why desires proliferated and, hence, why I have desires.[6]

Proper functions are always supplemented by Normal explanations and Normal conditions (cf. Millikan 1984a, 33–4; 1989, 284–5).[7] Normal explanations specify how a particular proper function has typically been performed historically in the case of success.

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5 This is a very reduced presentation of proper functions, but it is sufficient for my purposes. For a complete and detailed introduction of proper functions cf. Millikan (1984a, ch. 1 & 2).

6 An anonymous referee indicated that this is a controversial assumption. Unfortunately, it would go beyond the limitations of this paper to justify this basic teleofunctionalist thesis that mental states have proper functions. This paper therefore relies on the empirical assumption that mental states are products of (natural) selection and not products of genetic drift or spandrels.

7 The N of Normal is capitalized to indicate that it is a technical term referring to selection-historical normality rather than pure averages.

(NE) "A 'normal explanation' explains the performance of a particular function, telling how it was (typically) historically performed on those (perhaps rare) occasions when it was properly performed." (Millikan 1989, 284)

A Normal explanation entails a detailed description of the structure of members of the REF, internal and external conditions with both the structure and the conditions "being uniform over as large a number of historical cases as possible" (Millikan 1984a, 33), and natural laws involved, so that it is explained without gaps how the members' structure has historically typically led to the showing of the effect *F*.

For example, a Normal explanation of how the heart performs its function to circulate blood

> must tell something of how the heart is made (its Normal properties or structure), how it works inside, and note such conditions as the regularity of electrical impulses sent to the heart, the oxygen supply sent to the heart, and the presence of a closed circuit of blood vessels emanating from and returning to the heart which carry the blood to and from the proper places in the heart. (Millikan 1984a, 33)

Normal conditions are then the conditions that must be mentioned in a full Normal explanation.

(NC) "A 'normal condition for performance of a function' is a condition, the presence of which must be mentioned in giving a full normal explanation for the performance of that function." (Millikan 1989, 285)

Unfortunately, things get trickier concerning the proper functions of mental states. As we have already seen above, mental states like beliefs and desires form a higher order REF because they are produced by cognitive mechanisms and not directly reproduced from one another. Now, those cognitive mechanisms do not have the proper functions to always produce the same effects (i.e. the same beliefs and desires) but relational proper functions to produce beliefs and desires *that bear a certain relation* to the environment and the needs of the organism (i.e., the belief that it rains given that it rains, the desire to drink given that the body is dehydrated). Both beliefs and desires are *adapted* devices, adapted to the environment and the organism. Hence, there is no common concrete structure for all instances of beliefs and desires. Instead, the structure of beliefs or desires as well as their effects must somehow vary with their content. So, we cannot specify the concrete physical structure of a type of propositional mental states and indicate how it typically led to the fulfillment of its function. Rather, a Normal explanation for the performance of the relational proper function of mental states must mention that the state, i.e., the desire, does something in accordance with some abstract

mapping rule.[8] This makes it harder for us to give a full Normal explanation. But we can nevertheless specify some Normal conditions that very probably must be mentioned in any Normal explanation of how beliefs and desires typically caused actions.

First, two Normal conditions are that (i) *the belief is true* and that (ii) *the action is caused according to the practical syllogism* underlying the action. A belief-desire pair in which the belief stating how the desire can be fulfilled is false is very unlikely to have succeeded in causing the desired states of affairs in the past. Rather, the belief must state a way how the desire can actually be fulfilled and then initiate together with the desire some behavior that is represented by the belief and ultimately leads to the state of affairs that is represented by the desire.

What further seems probable is that there is some kind of higher-level mechanism (in a very broad sense) selecting for the belief-desire pair that eventually gets to cause an action.[9] This role could be played by intentions as genuine kind of mental states, by some higher order cognitive mechanism scanning for belief-desire pairs and selecting some of them to initiate an action, or even just a structure allowing the strongest present belief-desire pair to cause an action. Probably, it's a complex process that takes into account how strong a desire is, whether its fulfillment would conflict with other desires, how probable it is expected to be fulfilled, what risks are expected if the action fails, etc. Since we do not try to fulfill every desire at the same time and reason about which desires we should fulfill, it seems probable to me that such a selective mechanism exists. Then, a Normal condition for the performance of actions would be that (iii) *the desire has been selected by this mechanism to be fulfilled*. Given that such a mechanism exists, it seems very probable that most of the *reproductively beneficial fulfilled desires* were selected by this mechanism to be fulfilled. Even though this might still be unsatisfyingly undetailed and does not go beyond empirical speculations, those seem to be some Normal conditions that are part of any Normal explanation for actions.

5 A Teleofunctionalist Solution to the Problem of Deviant Causal Chains

To approach my proposed teleofunctionalist solution to the problem of deviant causal chains, we should take another brief look at the proper functions of primary

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8 Cf. for a more detailed discussion of relational proper functions, adapted devices, and Normal explanations for the performance of relational proper functions Millikan (1984a, ch. 2).

9 These are, of course, in the end just some speculations that must be proved empirically.

reasons. According to the causal theory, actions must be caused and rationalized by a primary reason composed of a desire and a belief about how to realize that desire. The primary reason has, among other things, the proper function of bringing about the state of affairs represented by the desire. For the fulfillment of this proper function of a primary reason it is solely relevant that the represented state of affairs is brought about, in whatever way. Thus, the primary reason fulfills one of its proper functions in the case of bringing about the state of affairs represented by the desire, regardless of whether it was caused in the "right" way or via a "deviant" causal chain.[10]

There are now two ways in which this proper function of desires can be performed. First, desires can be fulfilled according to a Normal explanation, i.e., in a way in which the ancestors of the desires were typically fulfilled in the case of success. Second, they may be fulfilled *not* according to a Normal explanation, that is, in a way in which the ancestors of the desires were *not* typically fulfilled in the case of success.

I propose that events are only actions if they were caused by the primary reason of the action *according to a Normal explanation*. Thereby, all events in which the desired goal is caused in a selection-historically non-Normal way, i.e., by chance, fall out of the class of actions.

(CT⋆)   An event *a* is an action under the description *d* iff
  (BD)   there is a primary reason *r* for *a* under the description *d*, that *rationalizes a*, and *r* consists of
    (a)   a pro attitude of the agent towards actions of type *A*, and
    (b)   a belief of the agent that *a*, under the description *d* is an action of type *A*, and
  (CC)   *r causes a*, and
  (TC)   the causation of *a* by *r* proceeds *according to a Normal explanation* of the performance of the proper function of *r*.

This definition provides an answer to the *problem of determining deviance*. According to my analysis, what deviant causal chains deviate from are ways in which actions were typically caused in selection history. The recourse to Normal explanations and, thus, the recourse to conditions that were typically present in cases of success in selection history enables us to determine in a naturalistic way

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10 I address only this proper function of primary reasons coming from the desire and leave aside other proper functions of primary reasons. This is because, according to my analysis, this proper function is fulfilled in cases of deviant causal chains, but not according to a Normal Explanation. Whether and how other proper functions of primary reasons are fulfilled seems to be irrelevant or secondary to the problem of deviant causal chains.

what is deviated from in cases of deviating causal chains. Which conditions exactly must be fulfilled for something to proceed according to a Normal explanation, i.e., what the Normal conditions are, is then a purely selection-historical empirical question. Normal explanations, therefore, provide a norm relative to which deviance is possible in the first place, and this norm is determined solely by the circumstances in the selection history.[11] Since the recourse to Normal explanations involves a recourse to proper functions, the theory of action (CT⋆) I propose is not a purely causal theory, but a *teleofunctionalist theory of action*.[12]

To make my proposal (CT⋆) plausible, I will show in the following that by adding the teleofunctionalist condition (TC) it is possible to deal with different kinds of counterexamples.

5.1 The Climber and the Spilled Glass

In the case of the climber whose belief-desire pair caused him to become nervous, which in turn caused him to loosen his hold on the rope, his body movement is not caused according to a Normal explanation. For there does not seem to be a Normal explanation – that is, an explanation that specifies how the proper function of primary reasons has historically been typically fulfilled in cases of success – that refers to the fact that the action was caused by the primary reason, *but the agent did not choose to act*. Rather, what seems to be a Normal condition in all Normal explanations of actions is that (iii) the desire has been selected to be fulfilled by some kind of higher-level mechanism. This is not the case here, since the climber "never chose to loosen his hold, nor did he do it intentionally" (Davidson 1973, 79). Therefore, the loosening of the rope has not been caused according to a Normal explanation and is thus not classified as an action by my account (CT⋆).

A very similar example is that of the spilled glass:

> A man at a party intends to spill what is in his glass because he wants to signal his confederates to begin a robbery and he believes, in virtue of their prearrangements, that spilling what is in his glass will accomplish that; but all this leads the man to be very anxious, his anxiety makes his hand tremble, and so his glass spills. (Frankfurt 1978, 157)

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11 Millikan (1984b) has proposed a similar solution to the Gettier problem in epistemology. She argues that knowledge should be understood as true belief acquired according to a Normal explanation.

12 Since I do not aim to offer a causal theory that completely captures what Davidson had in mind, but a theory of actions that can handle the problem of deviant causal chains while still keeping Davidson's basic idea – that actions must be caused by their primary reasons – I have no problem with the fact that my theory is not a purely causal theory.

Again, the primary reason causes the represented action via nervousness or anxiety, *without the acting person having intended or chosen to do so* at that moment, without the desire being selected by a higher-level mechanism to be fulfilled. Such cases in which the acting person had not decided to perform the action but the primary reason caused the represented state of affairs via the detour of nervousness very probably are not the standard cases due to which primary reasons and actions have proliferated, i.e., which were advantageous for the survival and reproduction of the agent. Such causation, if beneficial at all, is beneficial *only in individual cases by chance*, i.e., *due to fortunate external circumstances*. It seems very implausible that such a causation is beneficial to the agent often enough that such cases explain why primary reasons and actions have proliferated in selection history. Rather again, it seems to be a Normal condition that (iii) the desire has been selected to be fulfilled. Thus, in these cases, the behavior is not caused according to a Normal explanation and hence is not an action.

5.2 The Weightlifter

An obvious objection is that my proposal is far too inflexible to cover all the cases discussed, because there does not seem to be a uniform way in which primary reasons cause the goal of an action. To illustrate this, let me present another example put forward by George M. Wilson (1989, 252):

A weightlifter participating in an important competition manages to lift the barbell. Now, it could be that her intention to lift the barbell caused a nervous excitement in her that was actually necessary for her to lift the barbell. Without the touch of nervous excitement caused by her intention, she would not have succeeded in lifting the barbell.

In this case, it seems that we do not want to deny that the weightlifter acted, although nervousness was involved. The example shows that in some cases the detour via nervousness may well be the right way and is even explanatory relevant for the success of the action. This raises the question whether my proposal is flexible enough to deal with such cases where the detour via nervousness is the "right" way.

First, in the weightlifter case, the nervous excitement does not play the same problematic role as in the mountain climber case. The problem with the climber was that he did not choose to act at all, but that the nervousness nevertheless caused the loosening of his hold. In the weightlifter case, she actually decided to lift the barbell, and then nervous excitement came into play and helped to fulfill the desire *that she had independently decided to fulfill*. So, in contrast to the climber, the (iii) the desire of the weightlifter has been selected to be fulfilled by some kind of higher-level mechanism.

But still, one could object, since it is not Normal that nervousness helps our desires to be fulfilled, being nervous still leads to a deviant causal chain according to my account. A single Normal explanation cannot be given both for cases where nervousness was involved in an explanatory relevant way and for cases where it was not involved. But the fact that there is no uniform way in which the primary reason must cause an action does not speak against my proposal at all. It may well be the case that there are different permissible Normal explanations, one including some reference to nervousness, while the other does not. My additional condition (TC) only requires that the causation proceeds according to *a* Normal explanation. Now it seems that there are different Normal explanations in different contexts and even multiple Normal explanations in similar contexts. It seems plausible, for example, that the desire to win a competition, in a large amount of the cases in which it was typically fulfilled, took a detour via nervousness, and that nervousness is therefore part of *a* Normal explanation of the fulfillment of such desires. This can be generalized to the extent that it seems plausible that in the selection history, in those cases where a maximum physical performance was required, the desire, for example to run away from a saber-toothed tiger, was often accompanied by nervousness and excitement, and being nervous and excited in such situations also contributed to the survival. It is therefore part of *one* Normal explanation of the causation of actions in such extreme situations that nervousness is involved. This does not exclude there being a large amount of success cases in which the agent had a calm mind that (in those cases) contributed to fulfilling the desire. Thus, there can be another Normal explanation referring to the fact that the agent had a calm mind. So, neither being nervous nor having a calm mind in those situations is a deviance from selection history.[13] What remains is the difficulty to specify the situations and contexts in such a way that it becomes clear in which contexts which Normal explanations are permissible. However, this does not seem to me to be an unsolvable task in principle, but ultimately an empirical question of how the possibly multiple Normal explanations of the causation of actions by primary reasons must be constructed in different contexts.

5.3 The Herd of Wild Pigs

I briefly want to discuss one example of secondary causal deviance to quickly illustrate that such cases are also captured by my proposal. Let us recall Davidson's example of the wild pig herd:

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13 Thanks to an anonymous referee for stressing this point.

> A man may try to kill someone by shooting at him. Suppose the killer misses his victim by a mile, but the shot stampedes a herd of wild pigs that trample the intended victim to death. (Davidson 1973, 78)

Davidson reacts to the example by suggesting a requirement by David Armstrong that for there to be an action, the desired effect must be produced (at least approximately) according to the practical reasoning that underlies the action (cf. Davidson 1973, 120; Armstrong 1973). This requirement is clearly not met in the wild pig herd example because although the man desired to kill the victim, he did not have the belief that he would accomplish this by startling a herd of wild pigs.

Such cases also seem to me to be covered by my proposal, for, as I have already mentioned above, it seems plausible that it is a Normal condition in most, if not all, Normal explanations that (ii) the desired effect is caused according to the practical syllogism embodied in the primary reason. It is very unlikely that primary reasons have typically caused the goal of the action in the success cases in selection history in a way other than that represented in the primary reason.

However, this does not mean that the shooter did not act at all, but only that his action extends only to the shooting and not to the death of the victim. The event of the shot under the description "shooting at someone" is caused by a primary reason according to a Normal Explanation and thus also according to an underlying practical syllogism, but the later event of the death under the description "killing someone" is not.

With these remarks, I hope to have made it plausible that the additional condition (TC) can defeat counterexamples with deviating causal chains. A further advantage of my proposal that I want to highlight is that it *does not exclude other proposed solutions* for the problem of deviating causal chains. This is because (CT*) does not impose any concrete conditions for actions, but only imposes the condition that the action must be caused according to a Normal explanation. If, for example as Frankfurt (1978, 158) proposed, it should turn out that an event a is an action only if a is under the guidance of the agent, then this is perfectly compatible with (CT*), given that it is a Normal condition of perhaps then all Normal explanations of the performance of the proper function of primary reasons that the action is under the guidance of the agent. So, if a concrete condition such as the guidance condition results from the debate about actions and deviant causal chains, this does not speak against my teleofunctionalist analysis proposed here. However, in this case it would have to be empirically proven that the guidance condition is indeed a Normal condition for the causation of actions. Moreover, if no uniform concrete condition can be found, my proposal would also be compatible with this since it allows for there being different legitimate Normal explanations with different Normal conditions.

6 Conclusion

I have argued that the problem of deviant causal chains of causal theories of actions can be overcome by adding a teleofunctionalist condition: *that actions must be caused according to a Normal explanation*, that is, an explanation of how actions have been typically caused by primary reasons in the selection history. My proposal only requires that actions must be caused according to *one* Normal explanation, leaving open that there can be multiple legitimate Normal explanations for actions.

I was confronted with the worry that we do not gain a more precise understanding of exactly what goes wrong in deviant causal chains by analyzing them as deviating from Normal explanations. After all, since we have no knowledge of the physical structure of beliefs and desires, we do not really know how a *detailed* Normal explanation of actions would look like. While I understand this worry, I still think that there are some aspects that can enhance our understanding of deviant causal chains. *First*, by looking at the selection history of our beliefs and desires, we can accomplish what a purely causal theory seems to be incapable of while staying on naturalist grounds: we can determine what deviant causal chains deviate from. Whether a causal chain is deviant depends on whether such a causation is selection-historically Normal. Maybe this does not enhance our understanding of deviant causal chains in terms of precision, but, if I am right, we make a lot of progress in understanding the characteristic feature of deviant causal chains. They are grounded in the selection history and then depend on empirical facts. *Second*, there are some abstract Normal conditions that seem plausible, no matter how beliefs and desires are physically realized. Among the Normal conditions that must be mentioned in any Normal explanation are probably that the belief is true, that the action is caused according to the practical syllogism underlying the action, and that the desire has been selected by a higher-level mechanism to be fulfilled. Of course, these are empirical assumptions about the selection history, and it is an empirical project to fill in the details. But there are some facts in the natural world that determine whether a causal chain is deviant or not.[14]

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