



# Contextual Causal Dependence and Causal Contrastivism

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## Abstract

This work presents a defense of causal contrastivism based on causal contextualism. As argued, our proposal on causal contextualism is compatible with both causal contrastivism and causal binarism, including explanations of why and in which sense secondary counterfactuals are relevant.

**Keywords** Causal contextualism · Causal binarism · Causal contrastivism · Normativity · Causation in genetics

## 1 Introduction: contrastive causation

Usually, causal statements express a relation between two events. They are binary statements of the form.

### 1.1 CRE,

where  $R$  represents the causal relation, while  $C$  and  $E$  are sentence variables representing the cause and the effect, respectively. Here is an example: “Susan stealing the bicycle caused her arrest”. According to the account of contrastive causation (cf. Dretske 1977; Hitchcock 1996; Schaffer 2005; Northcott 2008), binary causal statements are semantically incomplete. Such statements should rather be interpreted as either ternary or quaternary causal claims, involving relevant sets of contrasts for

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each causal relatum or for one of them. Considering this, a ternary, contrastive causal statement focused on the side of the effect is a claim of the form.

**1.2**  $C R (E, E^*)$ ,

where  $C$  is true,  $E$  is true and  $E^*$  the set of alternatives to  $E$ . An example of a ternary causal claim of this sort is this: “Susan stealing the bicycle caused that she is being arrested rather than being able to go back home”.

Hitchcock (1995, 1996) defends a version of causal contrastivism focused on the side of the cause. Ternary causal statements constructed with such a focus are claims of the form.

**1.3**  $(C, C^*) R E$ ,

where  $C$  is true and represents the cause,  $E$  is true and represents the effect and  $C^*$  the contrast class involving alternatives to the cause. Here is an example: “Susan stealing the bicycle rather than purchasing it caused her arrest”. We can assume that, when the contrast of  $C$  or  $E$  is not explicitly specified, the logical complement of  $C$  or  $E$  plays its role, i.e.  $\neg C$  or  $\neg E$ . Thus, for the ternary causal claim just considered, we assume that “Susan stealing the bicycle rather than purchasing it caused her being arrested rather than not being arrested”.

According to Jonathan Schaffer’s (2005) account of causal contrastivism, complete, quaternary causal statements are statements of the form.

**1.4**  $(C, C^*) R (E, E^*)$ ,

where  $C^*$  and  $E^*$  represent sets of alternatives to  $C$  and  $E$ , respectively. Contrastive causal claims can be semantically analyzed as follows (cf. Northcott 2008):

**1.5**  $(C, C^*) R (E, E^*)$  is true if and only if  $C$  is true,  $E$  is true, and  $C^* \square \rightarrow E^*$  is true.

As usual, the symbol  $\square \rightarrow$  stands for the counterfactual connective. Note that  $C^* \square \rightarrow E^*$  is the only counterfactual entailment that is needed, according to traditional causal contrastivism.

This way of understanding causal claims is quite helpful for describing problematic cases, such as the following (cf. Achinstein 1975). Did Socrates’ drinking hemlock at dusk cause his death? If it did, then his death must somehow depend on the fact that he drank hemlock at dusk. But it doesn’t. Think about what would have happened if Socrates had not drunk hemlock at dusk but, let’s say, if he had drunk hemlock at midnight instead. He would have died anyway. So, his death does not depend on his drinking hemlock at dusk. However, we might want to say that it did.

Here is a treatment for such kind of cases available from the perspective of causal contrastivism. Let  $C$  symbolize the sentence describing the fact or event that Socrates drank hemlock at dusk and  $E$  symbolize the sentence describing Socrates’ death. Let  $c$  be the fact (or event) described by  $C$  and  $e$  be the fact described by  $E$ . Additionally, we can add two relevant contrasts, one from the side of the supposed cause and the other from the side of the effect. Let  $C^*$  describe the possible event of Socrates drinking hemlock at midnight and  $E^*$  describe Socrates dying in a different way as described by  $E$ . Suppose that hemlock acts producing less intense convulsions before causing death if one drinks it with a full stomach than if one drinks it with an empty stomach and that the kind of death described by  $E^*$  involves that sort of mild convulsions, while  $E$  describes a death with severe convulsions. Assume further that Socrates would have eaten something before drinking the hemlock if he had drunk it

at midnight. We arrive then at an instance of 1.4:  $(C, C^*) R (E, E^*)$ . I.e.  $C$  rather than  $C^*$  caused  $E$  rather than  $E^*$ .

We could also say, then, that Socrates' drinking hemlock at dusk rather than at midnight caused that he died suffering from severe convulsions rather than mild convulsions. Let us keep in mind that, according to causal contrastivism, the causal claim " $C$  caused  $E$ " is semantically incomplete. We cannot answer the question of whether Socrates' drinking hemlock at dusk caused that he died suffering from severe convulsions without considering the relevant contrast classes. Now, how does relevance operate here? This is one of the main questions that we want to tackle in what follows.

## 2 Causal contextualism

One of the main points implied in a criticism developed by Steglich-Petersen (2012) is that the evaluation of contrastive causal claims depends on exactly the same conditions as the evaluation of binary causal claims. He claims: "[T]he semantics of contrastive causal claims can be explained in a much simpler way than the contrastivists propose, without giving up the simple binary account of causation" (Steglich-Petersen 2012, p. 122).

So, Steglich-Petersen's argument goes, we do not have to refer to contrast classes to evaluate causal claims. Given a binary causal claim and a context, we are able to assign a truth value to that claim. Contrast classes are irrelevant, according to Steglich-Petersen<sup>1</sup>. The question now is whether so-called secondary counterfactuals are relevant to determine the truth value of a causal claim. For any contrastive causal claim of the form  $(C, C^*) R (E, E^*)$ , let  $\neg C \square \rightarrow \neg E$  be its corresponding primary counterfactual and  $\neg C \square \rightarrow C^*$  be its secondary counterfactual. According to Steglich-Petersen's binary account, the contrastive causal claim is true just in case  $C$  is true,  $E$  is true, and both its primary counterfactual and its secondary counterfactual are true. Note that, in a certain way, these express the usual truth conditions for simple binary causal statements (cf. Lewis 1973). Thus, conditionals of the form  $C^* \square \rightarrow E^*$  are not necessary and the form  $(C, C^*) R (E, E^*)$  can be reduced to  $CRE$ . Binary causal statements are not incomplete and must not be expressed as contrastive claims. Roughly, this is the argument proposed by Steglich-Petersen.

We want to argue that secondary counterfactuals are not necessary to assess contrastive causal claims, once we have fixed a context and relevant contrast classes with it. This does not speak against the binary perspective defended by Steglich-Petersen more than his argument speaks against causal contrastivism. After all, contrast classes may sometimes turn out to be unnecessary to assess causal statements as well. In other words, not all causation is contrastive<sup>2</sup>. However, mentioning them

<sup>1</sup> This can be explained considering that Steglich-Petersen is particularly focused on factual circumstances rather than other types of conditions regarding what is taken to be possible or relevant and what not. In other words, his binary account is compatible with contextualism; it is just based on a too strict kind of context.

<sup>2</sup> We would not say that every binary causal claim should be formulated as a contrastive causal claim. We would agree with contrastivism that binary causal claims alone are incomplete, but adding contrast classes to construct sentences of the form  $(C, C^*) R (E, E^*)$  is not the only way to complete them. Some-

may also enrich the causal context in which a given binary causal claim is being assessed. The same holds for secondary counterfactuals. We do not want to say that Steglich-Petersen's viewpoint is contextualist, but that a contextualist proposal can account for it, as well as for causal contrastivism. So, neither contrast classes nor secondary counterfactuals are strictly necessary. We will try to make sense of this on the basis of causal contextualism, a thesis that can be formulated as follows (cf. Schaffer 2012):

**2.1 Causal contextualism** A causal claim can have different truth values depending on the context according to which it is assessed.

Basically, this is the idea: Binary causal statements of the form “*C* causes *E*” are elliptical and contexts of assessment determine relevant contrasts, such that explicit causal claims may be of the form “*C* rather than *C\** causes *E* rather than *E\**”. Since *C\** and *E\** may vary from context to context, the truth-value of “*C* causes *E*” may also vary in that way<sup>3</sup>.

Let us say something about the notion of a context. We could understand a context as the circumstances of a causal scenario. But this idea is misleading. Should we talk about actual, physical circumstances, holding with independence of the epistemic subjects who assess a causal scenario? We do not want to assume that there is a unique set of circumstances that determine the relevant events for each case. Instead, we prefer to deal with sets of expressions of different sorts (descriptive, normative and nominative). Thus, a context is more than a set of descriptions. As we propose, contexts also involve expressions representing interests, experiences, individuals, properties and different sorts of criteria<sup>4</sup>. Most importantly for the purposes of our argument, contexts may include different conditions of conversational relevance, as considered from the perspective of the assessor of a causal claim. In this sense, contexts fix conditions for both the evaluation of the truth value of a causal claim and the evaluation of how appropriate an expression may be for a conversation. The distinction between truth and appropriateness should become clearer later and will be crucial for our third objection to Steglich-Petersen's argument against causal contrastivism.

Then, for a given claim (a causal claim, for example) and an ascriber, i.e. a subject assessing that claim, we mean by “context” the context of the ascriber<sup>5</sup>. According to this idea, contexts are epistemic items. So, more rigorously, as we understand the

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times, they might be completed by background assumptions associated with probabilistic inequalities; sometimes, they might be better completed by the set of conditions of a causal model; sometimes, by the history of the events involved, together with the relevant regularities; and other times they might be completed by a physicalist set of conditions and conservation laws. There is no absolute, context-independent fact of the matter about which one of these methods is the best.

<sup>3</sup> This is in line with assessment relativism à la MacFarlane (2014): What matters is the context of assessment of truth, not the context of use.

<sup>4</sup> When considering contextualist answers to these problems, Steglich-Petersen is inclined to think that they are trivial, in the sense that they are just based on the idea that in some cases we have more information than in others (cf. Steglich-Petersen 2012, p. 134). But since contexts can be conceived as being more than mere chunks of information, causal contextualism is not trivial.

<sup>5</sup> The ascriber of some relation might not necessarily be also the assessor for the truth value of claims establishing that relation. However, we use “ascriber” for someone who both ascribes a relation and also assesses it for truth.

notion, a context is not a set of factual circumstances<sup>6</sup>; it may, however, determine the relevant descriptions of the circumstances that are associated with a causal scenario.

Having the thesis of causal contextualism in mind, we can now characterize a contextualist notion of causation. Since the discussion has been focused on counterfactual dependence so far, we will maintain that focus.

**2.2 Contextualist binary causal dependence.** Let  $K$  be an epistemic context. Also, let  $C$  and  $E$  be descriptions, in  $K$ , of two distinct events that actually occur,  $c$  and  $e$  respectively. According to  $K$ , the binary causal claim that  $C$  causes  $E$  is true, given  $c$  and  $e$ , if and only if  $\neg C \square \rightarrow \neg E$  is true in  $K$ .

Note that 2.2 is a special case of 2.1. We can support a version of causal contextualism based on counterfactual causal dependence, but we do not have to: We could also (or instead) construct similar characterizations based, for example, on a contextualist account of probabilistic dependence or on some interventionist account of causation, among other alternatives (cf. Suppes 1970; Woodward 2003)<sup>7</sup>. However, the debate about causal contrastivism has been mainly focused on counterfactual dependence and we will follow this tendency, as mentioned before<sup>8</sup>. Note, also, that causal contextualism (2.1) does not imply causal contrastivism. Nevertheless, we can put forward a defense of causal contrastivism based on causal contextualism, together with assumptions about the selection of relevant contrast classes. For some contexts, binary causal claims may need to be formulated as contrastive causal claims, according to suited assumptions and standards on the basis of which sets of contrast classes can be determined<sup>9</sup>. Here is a formulation of this idea:

**2.3 Contrastive causal context.** A context  $K$ , evaluating a causal claim  $CRE$ , is contrastive just in case it involves some epistemic mechanism, such that

**2.3.1** alternatives to  $C$  and  $E$  are considered in  $K$ ,

**2.3.2** these alternatives are ordered by some relevance function, and

<sup>6</sup> Why do not we just take contexts as *conversational contexts*? This could be tricky. First, one could feel that, in this sense, there is a set of facts of the matter according to which we may fix a context. Second, we do not exclude the idea that *some* contexts could be considered to be conversational contexts. In those cases, they are still epistemic items, in our sense. For instance, a couple of speakers may ascribe together a causal relation between two events, even if they disagree with regard to other ascriptions. They are ascribers, both separately and as a conversing couple of speakers.

<sup>7</sup> As one may note, definition 2.2 seems almost indistinguishable from David Lewis's (1973) classical counterfactual analysis of causation. The differences are crucial, however. While Lewis's is an analysis of causation conceived as a metaphysical relation that is based on possible worlds semantics, our proposal on causal dependence is about an epistemic relation between contexts that are understood as epistemic items.

<sup>8</sup> Two things are context-dependent in an important way, regarding counterfactual dependence in particular. One is the selection of relevant contrasts (i.e. which possibilities are relevant) and the other is the closeness relation according to which we evaluate counterfactuals (i.e. how relevant is each possibility compared to another).

<sup>9</sup> Reiss (2013) offers an interesting account on how functions from conversational contexts to contrast classes may operate on the basis of commitments, intentions, physical conditions, presuppositions and laws considered by an agent. We will not discuss now in which ways his account could be compatible with (and extend) our proposal. However, two general remarks might be important. First, his definition of a context in terms of the mentioned factors could be seen as a specific example of our characterization of an epistemic context in terms of descriptive, normative and nominative expressions. Second, we do not agree with Reiss's thesis that contrastive causal claims become redundant when the context selects a unique admissible alternative. Our proposal is perhaps less restrictive in this sense.

**2.3.3** CRE can be extended to  $(C, C^*) R (E, E^*)$ , where  $C^*$  and  $E^*$  are relevant alternatives, according to  $K$ .

Thus, we do not support the main thesis of causal contrastivism, namely that all binary causal claims should be formulated as contrastive causal claims. Sometimes, no concrete alternative is considered. In other situations, although alternatives to  $C$  and  $E$  are considered, they are not clearly ordered. And some other times, they are not used to construct contrastive claims. But in many contexts, binary causal claims should be formulated as contrastive causal claims. And in those contexts, traditional truth conditions for contrastive causal claims are correct. So, we defend something like 1.5, although we may not defend full-blown contrastivism. The version of 1.5 we propose is the following:

**2.4** *Contextualist contrastive causation.* For a context  $K$ , a causal claim  $(C, C^*) R (E, E^*)$  is true if and only if, according to  $K$ ,  $C$  is true,  $E$  is true, and  $E^*$  would have occurred if  $C^*$  had occurred.

Note how this is also a special case of causal contextualism (2.1). On the basis of causal contextualism, both binary claims and contrastive claims have their place. Sometimes, a binary analysis is enough; sometimes, an extension in terms of contrasts is needed.

Now, even if we do not have to defend causal contrastivism in a pure form, what we want to show, rather, is that it can be defended against Steglich-Petersen's criticism, avoiding some misunderstandings and, particularly, without having to accept the principle that secondary counterfactuals are necessary truth conditions. Our proposal can be characterized by something like the following: The context determines which contrasts are relevant for a given binary and incomplete causal statement; the contextual "filling" can be made explicit by the fully contrastivist statement. Once the relevant contrasts are fixed, we can evaluate contrastive claims, i.e. claims of the form  $(C, C^*) R (E, E^*)$ , by seeing whether  $E^*$  would have occurred if  $C^*$  had occurred and without needing any secondary counterfactual.

Without an account on how the contrasts are selected, contrastivism could seem to be vulnerable to arguments like the one put forward by Steglich-Petersen. As we try to argue, a version of causal contextualism compatible with some assumptions about conversational or epistemic relevance may provide a basis for a thesis of causal contrastivism that is not affected by Steglich-Petersen's criticism<sup>10</sup>.

Consider the following scenario:

**2.5** *Car keys.* Susan got locked out of her car and must open the door as quickly as possible because she is late for a very important meeting. She does not have time to call a car locksmith. Moreover, the nearest stations of public transport are too far away. Just beside the place where she parks her car, there is a garden with many ornamental rocks, with which she could break one of the car's windows. These are the only massive objects that she might use and of which she can think now. She picks up the closest rock and smashes one of the car windows with it.

<sup>10</sup> Causal contextualism, in a general form, does not entail causal contrastivism. Different accounts of causality may be based on context-dependence without assuming a transformation of binary causal claims into ternary or quaternary contrastive claims.

Let  $C$  = “Susan hits the window with the closest ornamental rock”,  $E$  = “the window shatters” and  $K$  represent a context assessing the case already described in 2.5. Since, according to  $K$ , the window would have still shattered had Susan not hit it with that rock (because she would have picked another one), her hitting with that rock does not count as a cause of the window shattering, if we focus on a simple binary causal claim. I.e. the claim “ $C$  caused  $E$ ” is false for both accounts: Both causal contextualism and Steglich-Petersen’s binary account give us the same verdict in this case. But we would like to say that  $C$  caused  $E$ . And expressing the causal dependence in a contrastive causal claim helps. Let  $C^*$  = “Susan calls the car locksmith”. Then the claim “ $C$  rather than  $C^*$  caused  $E$ ” is true. However, it is true only for causal contrastivism (as well as for our contextualist view, we might argue). It is not true for Steglich-Petersen’s approach, because the secondary counterfactual generated by it is not true: It is not true that Susan would have called the locksmith if she had not hit the window with the closest ornamental rock.

Consider now a distinct scenario:

**2.6 Impulse.** Susan got locked out of her car and has to open the door as quickly as possible because she is late for work. She is thinking seriously about the possibilities of walking to the next bus station (which is quite far from there) or calling a locksmith. Both options would mean that she would have to arrive late at her place of work. Just beside the place where she parks her car, there is a garden with many ornamental rocks. She could break one of the car’s windows with one of them and get to work on time. It would cost much money to repair it later, but it would be less than what her uncomprehending employer would deduct from her salary for being late. So she picks the closest rock and gets ready to do it. But then she still hesitates, thinking that the other options might be better. Furthermore, she does not want to bother her neighbors with the crashing sound. Suddenly she feels an irrational impulse and smashes one of the car windows with the rock.

Let  $K^*$  symbolize the context in which case 2.6 is being considered. We might say now that, according to  $K^*$ , Susan hitting the window car with that rock caused the window to shatter. If she had not hit the window with it, it would have been because she would have managed to struggle with her irrational impulse, such that she would have either decided to take a bus or call a locksmith. The window would not have been shattered in that case.

Let us evaluate, according to  $K^*$ , the contrastive causal claim “Susan hitting the window with an ornamental rock rather than calling a locksmith caused the window to shatter”. It sounds right. It could be assessed as true in  $K^*$ . But its corresponding secondary counterfactual is not true: “If Susan had not hit the window with the rock, she would have called a locksmith”. So, the contrastive causal claim in question should be false, according to Steglich-Petersen’s argument, and contrary to what we would say, considering  $K^*$ .

The assumption, in 2.6, that Susan hesitates before smashing the window might be misleading. Are we really considering the context of the ascriber? Or is it the context of the situation in which Susan is involved? Or is it what Susan thinks about the situation? As said earlier, the notion of context we assume refers to the context of the ascriber. (Of course, Susan could be the ascriber.) Now, under this assumption, what matters is not the situation itself (whatever that may be), but the information available

to us about the situation, including the information we have about Susan's thoughts, doubts, interests and desires. Suppose that we heard the story directly from Susan. Should we believe her or not? It will depend on our context of evaluation. And, crucially, a context in this sense is not only about information; it may involve thoughts, doubts, interests and desires of the ascriber. Thus, it has intentional and normative aspects. This is an important point to which we will come back later. (See also above on the notion of ascriber.)

Of course, there are facts about Susan. For example, either she struggled with an irrational impulse or not. Such facts might be considered as part of the context of the ascriber, only if the ascriber knows them. But if the ascriber does not know a certain proposition considered in the case, for instance, if she does not know whether Susan struggled with an irrational impulse or not, then the proposition is just one among the possibilities. It might be assigned a high degree of belief, but if it is not known, then it should not be considered as a fact. Anyhow, the ascriber might be wrong about the facts and thus also wrong in their assessment of a causal claim.

These examples support the thesis of causal contextualism (2.1 and, in particular, 2.2). A single binary causal claim ( $C$  causes  $E$ ) can be true according to one context but false according to another. Now, causal contextualism is perfectly compatible with both causal contrastivism and a version of binarism inspired in Steglich-Petersen's account. Note how the explanation just given for the binary claim is based on a secondary counterfactual: If Susan had not hit the window with the ornamental rock, she would have managed to struggle with her irrational impulse. So, it is true that Susan hitting the window car with the rock caused the window to shatter. But what about Susan hitting the window with the rock rather than calling a locksmith? It may be true according to causal contextualism and to causal contrastivism, but false according to Steglich-Petersen's account. Considering contrastivism, we may discuss, from a given context of ascription, whether Susan calling the locksmith is the appropriate contrast or not. One could argue that the appropriate question should be whether Susan hitting the window with the rock rather than dealing with her impulse caused the window to shatter. That would be another story, i.e. another context. What we argue is that, instead of supporting a binary account of contrastive causation, it is better to endorse a contextualist account on causal statements in general, including contrastive and binary statements. We think that this is how causal contrastivism should be defended.

We have just briefly seen in which manner it is possible to assess binary causal statements from a contextualist perspective. Now, regarding contrastive causal statements, we can not only assess them based on given contexts, but also generate them. Take again, for example, cases 2.5 and 2.6. The following causal claim can be relevantly produced for those contexts:

**2.7** Susan hitting the window with the ornamental rock rather than calling the locksmith caused her to arrive on time rather than late.

The corresponding secondary counterfactual is this:

**2.8** If Susan had not hit the window with a rock, she would have called the locksmith.

Proposition 2.7 is true in context 2.5 (car keys) and in context 2.6 (impulse case) as well. In both cases, if Susan had called the locksmith, the window would not have



shattered. Now, focusing on the possibility of calling the locksmith (i.e. the contrast), there is an important difference between these two scenarios: While in case 2.6, calling the locksmith seems a quite relevant possibility, in case 2.5 it is not. After all, according to the story told in 2.6, she is considering the possibility of calling one. In scenario 2.5, she does not have time at all to call a locksmith. So, it may seem odd to think of what would have occurred if she had called the locksmith. We agree, it may seem odd, irrelevant perhaps, but it is still true that the window would not have shattered if she had called a locksmith. By contrast, in 2.6, it does not sound odd to think of what would have occurred if she had called a locksmith. And it is also true that the window would not have shattered if she had called a locksmith.

Now, the main point here is that 2.5 and 2.6 do not differ with regard to how we should assess the truth value of the secondary counterfactual 2.8 according to those cases. It is false for both of them. Instead, the cases differ with regard to how relevant or appropriate it is to ask the following, considering those cases, whether 2.8 is true or not: Would Susan have called a car locksmith if she had not hit the window with the ornamental rock? Regarding case 2.5 the question seems less appropriate than regarding case 2.6, since, in case 2.5, Susan does not have time to call the locksmith, while in case 2.6 she is seriously considering the possibility of calling one. If one accepts this difference, one must also accept that there is a crucial difference between Steglich-Petersen's binary account of causation and our contextualist proposal. According to our view, secondary counterfactuals may serve as marks of relevance for certain alternatives. When a secondary counterfactual is not true, we can take this as a sign that the possibility involved in its consequent is not so relevant, given the assumptions of the case under investigation<sup>11</sup>.

Consider now the following causal claim:

**2.9** Susan hitting the window with the ornamental rock rather than with her phone caused the window to shatter.

According to causal contextualism, this is also true in both scenarios, 2.5 and 2.6. If Susan had hit the car window with her phone, the window would not have shattered. However, 2.9 also sounds odd or conversationally inappropriate for both cases. The contexts of evaluation shifted. Since Susan's phone was mentioned in neither of these stories, why should we think of what would have happened if she had used it rather than the rock? The main point is to distinguish between the truth assessment of causal claims—more rigorously, of causal propositions—and the appropriateness assessment of causal claims.

We have already defined truth conditions for contrastive causal claims and binary causal claims in a contextualist fashion. In short, there is causation between *C* and *E*, according to a context *K*, just in case there is causal dependence between *C* and *E*, according *K*. Contexts can fix contrast classes (among other parameters), which means that binary causal claims may be reformulated as contrastive causal claims,

<sup>11</sup> But, of course, there are other marks of relevance, such as anything that tells us something about interests, norms or standards of evaluation. For instance, an ascriber may ask about the truth of 5.8 because she could be interested in the efficiency of car locksmiths or in whether Susan trusts them. And she could as this even having scenario 2.5 in mind, where calling a locksmith was not a possibility for Susan. It might be a relevant possibility for the ascriber, though. In which sense can normativity be a key aspect of epistemic contexts will be the topic of the next section.

with the help of a context. In those cases, some form of causal dependence is still the main truth condition for causal claims. Nothing like secondary counterfactuals is needed.

Conversational correctness conditions are something else. When, according to a context  $K$ , a given contrast  $C^*$  is explicitly present in a contrastive causal claim of the form  $(C, C^*) R (E)$ , this does not mean that  $C^*$  is the only possible alternative to  $C$ . It means that  $C^*$  is one relevant alternative according to the parameters of assessment fixed by  $K$ . And, among the whole set of relevant alternatives, according to  $K$ ,  $C^*$  might not even be the most relevant, i.e. the most appropriate, given the conversational or assessment conditions determined by  $K$ . So,  $(C, C^*) R (E)$  might be true in  $K$  but irrelevant or conversationally inappropriate. This explains why claims like 2.9 sound odd. Well, they are just that, odd, and not inconsistent with the background stories to which they belong.

Steglich-Petersen's binary account of causal claims does not assume this distinction between truth and appropriateness of causal claims. And this implies differences in our views about how the truth value of contrastive causal claims should be evaluated. According to his account, proposition 2.9 should be considered to be false for both cases, 2.5 and 2.6. Let us recall that, according to his proposal, if a statement of the form " $C$  rather than  $C^*$  causes  $E$  rather than  $E^*$ " is true, then both the primary and the secondary counterfactuals are true. For both scenarios, the primary counterfactual of 2.9 is true, but its secondary counterfactual is false. In case 2.5, it is not true that Susan would have used her phone if she had not used the closest ornamental rock. Since she was in a hurry and there were no other sufficiently massive objects around, she would have used another ornamental rock. Also, considering case 2.6, she would not have used her phone if she had not used the rock to smash the car window. Since she was hesitating a lot, it is quite probable that she would not have smashed the window at all if she had not hit it with the rock. Thus, 2.9 turns out to be false according to Steglich-Petersen's account. The secondary counterfactual is not true, i.e. it is not true that Susan would have hit the window car with her phone if she had not hit it with the ornamental rock. However, according to our proposal and given suited contexts of ascription, it could be true for both 2.5 and 2.6.

### 3 Normativity within contexts and a case from genetics

Until now, we have just seen cases of context variance implying variance in the descriptions of the circumstances, which involve variance of the relevant contrasts. So, one may object the following: If the descriptions of the cases are different, that is, if the cases are different for each context, then the difference in verdicts is not surprising but is something one should expect. If context variance is understood as case variance, causal contextualism turns out to be trivial, just meaning that a causal claim may have different truth values if assessed assuming different background, factual circumstances. But, of course, this is not what we want to argue for. By context variance we mean variance of *epistemic* background. Consider again the car keys case, as described in 2.5. Note that one of the assumptions says that the nearest stations of public transport are too far away. This is not put as a fact of the matter. It is rather a

normative assumption regarding which distances are near enough and which are not. A coherent interpretation of the story will associate this normative assumption with what Susan may think is too far away and what is not. But, as ascribers, we may share that normative assumption or not. Suppose that, according to a more detailed description of the case, we get to know that the nearest bus station is only 500 m away. Depending on whether we judge that distance as too far away or not, we may argue that calling a locksmith is a serious alternative or not. So what is a relevant contrast or not is a normative question.

Let  $K$  and  $K'$  be two contexts describing the car keys case in great detail. They are descriptively identical, i.e. they say exactly the same about times, spaces, number of rocks, physical properties of the glass, and so on. The only difference between  $K$  and  $K'$  is the following: While, according to  $K$ , the nearest bus station is too far away, according to  $K'$ , it is not too far away; one can walk there fast, leave the car window intact and get to the meeting on time. The fundamental difference between both contexts is not a physical matter, but a normative matter, i.e. a matter of standards about what counts as too far away and what does not. Of course, there might be contexts that are similar to  $K$  and  $K'$  but more informative, such that they involve physical stories that could play the role of the relevant mental standards about distance considered in  $K$  and  $K'$ . However, as the example goes,  $K$  and  $K'$  do not have that level of detail.  $K$  and  $K'$  are different epistemic contexts, different contexts of ascription, but they do not represent different cases, in a strict, descriptive sense<sup>12</sup>. So, context variance does not necessarily mean case variance, as one may object.

Now, consider the following causal claim:

**3.1** Susan hitting the car window with the ornamental rock rather than taking the bus to work caused the window to shatter.

Adopting Steglich-Petersen's binary account, that claim is false on the basis of  $K$  but it may be true on the basis of  $K'$ . According to  $K$ , the secondary counterfactual is false, while, according to  $K'$ , it may be true:

**3.2** If she had not hit the car with the rock, she would have taken the bus.

This is true according to  $K'$ , mainly because, according to its normative standards, the bus station was not that far away. And it is false, according to  $K$ , because it is normatively different from  $K'$  with regard to that issue. And, again, both  $K$  and  $K'$  may be equal regarding their descriptive claims. Fix the case, vary the context of ascription and you may have different truth values for the same causal claim. Of course, in this particular case, we do not claim, as Steglich-Petersen would, that the causal claim in question is false according to  $K$  but true according to  $K'$ . We say that it is true according to both contexts. However, we agree that it may sound weird or inappropriate according to  $K$ , having in mind the assumption that the bus station is too far away. According to  $K$ , the possibility of taking the bus seems less relevant than according to  $K'$ . And this explains the weirdness of 3.2 in  $K$ . So, as our argument goes, that a sec-

<sup>12</sup> Causal invariantists may still want to claim that  $K$  and  $K'$  involve different circumstances. At some point, as contextualists, we may agree with them. Anyway, our case needs the distinction between descriptions of the factual circumstances and other epistemic functions, such as norms or standards. Blurring the divide between them may lead to further problems that we cannot tackle here.

ondary counterfactual turns out to be false does not mean that the contrastive causal claim in question is false. It may only mean that it is absurd, for a given context.

Note that this case implies not just claiming that in one scenario Susan judges that the nearest station is too far away while in the other she judges that it is not too far. This would mean that we are simply considering two different cases and contextualism would seem trivial. Instead, we argue that, whatever Susan may think about the station's distance, two ascribers could differ in their verdicts on the same causal claim (3.1). This occurs because, besides descriptions, contexts also involve normative items, such as standards about what is too far and what not, for example<sup>13</sup>. Again, if contexts were only descriptive, variation of context could be simply understood as variation of scenario. Causal contextualism would seem trivial.

Note also that our argument is compatible with the following proposition:

**3.3** According to  $K$ , 3.1 is true but inappropriate.

So, on the basis of  $K$ , we could say “Fine, it's true that Susan hitting the car window rather than taking the bus caused the window to shatter. After all, if she had taken the bus instead, the window would not be broken now. However, this sounds weird. We know that she would not have done that, because the next bus station is too far from her house.” Secondary counterfactuals are relevant, but not for avoiding contradiction. They are still relevant in a sense, because they express whether a given contrast class is accepted as important or not within a given context of assessment.

As mentioned earlier, by “context” we mean the “context of the ascriber”. Thus, if we are considering a particular causal claim from the perspective of causal contextualism, its truth value might vary between  $K$  and  $K'$ , if  $K$  and  $K'$  are two different contexts of assessment, i.e. if they represent different epistemic contexts from which that claim is being evaluated.

In the last part of this section we would like to deploy, very briefly, an argument showing that a simple binary account of causation fails in a case where causal contrastivism does not. It is based on a case considered by Erik Weber and Inge de Bal (2015) in their application of contrastive causation to genetics. The case is focused on the genotypic determination of the fur color phenotype in guinea pigs. The determination pattern is the following, considering pairs formed by genes  $B$  and  $b$ :

**3.4** *Guinea pig fur color:*

**3.4.1**  $BB$  animals are black

**3.4.2** All  $bb$  animals are black

**3.4.3** All  $bb$  animals are white

Since having black fur is overdetermined<sup>14</sup>, this binary causal claim about Sam, the guinea pig, is ambiguous:

**3.5** Sam's having genotype  $BB$  is a cause of him having black fur.

Its truth value is not well determined. As expected, a solution lies in considering the appropriate contrast, constructing the following quaternary contrastive claim:

<sup>13</sup> We can distinguish three different issues here: the normativity of contexts, the secondary counterfactuals, and the appropriateness conditions. Contextual normativity may determine the truth of secondary counterfactuals, but just when they come up as relevant. Many times, it might not be appropriate to consider them in the evaluation of a causal claim.

<sup>14</sup> Interestingly, cases of overdetermination and redundancy in general have served as paradigmatic counterexamples against the simple, binary counterfactual account of causation.

**3.6** Sam's having genotype  $BB$  rather than genotype  $bb$  is a cause of him having black fur rather than white fur.

This is clearly true, given that Sam's fur would be white if he had genotype  $bb$ . It is another case supporting the thesis that causal contrastivism offers an appropriate treatment of cases in which a simple binary account does not. "If Sam were to have  $bb$ , then he would have white fur" is the corresponding true primary counterfactual and "If Sam were not to have  $BB$  he would have  $bb$ " is the false secondary counterfactual.

Now, some questions might still be asked. How can we find out which is the relevant contrast for a given causal claim? On which basis can we assume that pattern 3.4 is relevant? Answers to these questions should be sought by looking at the particular epistemic context according to which we evaluate the claim in question. This may include different assumptions proper to genetics, knowledge about optics, experimental rules, scientific interests and even commercial interests associated to the pet market.

Suppose that, as a matter of fact, from a context focused on microphysical and molecular descriptions, we can establish that the closest possibility to having a  $BB$  genotype is having a  $Bb$  genotype. According to this context, it might be irrelevant or even inappropriate to claim that Sam's having genotype  $BB$  rather than genotype  $bb$  is a cause of him having black fur rather than white fur. Even if the complete causal claim, according to molecular genetics, would be more complex and elaborated, it would not be necessary to mention genotype  $bb$ . The secondary counterfactual would not be true: It would not be true that if Sam lacked genotype  $BB$ , it would have genotype  $bb$ . Nevertheless, it would still be true that Sam's having genotype  $BB$  rather than genotype  $bb$  is a cause of him having black fur rather than white fur.

So, the case based on 3.4 is a case that supports (a contextualist) causal contrastivism. However, a perhaps more interesting aspect of this kind of examples is that it also refutes the secondary counterfactuals thesis. As just shown, claim 3.6 is true. But its truth does not depend on the secondary counterfactual that we may generate from it. For some relevant epistemic contexts, we might suppose, it is plausibly false that Sam's would have had genotype  $bb$  if he did not have genotype  $BB$ . He could have had genotype  $Bb$ . If Sam had had  $bb$ , then he would have white fur (true primary counterfactual). And the secondary counterfactual "If Sam did not have  $BB$ , he would have had  $bb$ " turns out to be false for those contexts.

## 4 Conclusions

We have argued that a contextualist view on causation offers a plausible way to tackle differences between causal contrastivism and causal binarism. As shown, the truth value of a causal claim may vary from context to context. We understand an epistemic context as the context from which someone ascribes a truth value to some causal claim. Epistemic contexts are not just sets of factual descriptions about a given causal scenario, but they can also involve normative and other intentional parameters, such as interests or standards of relevance. According to our proposal, contexts select relevant contrast classes according to which contrastive causal claims can be

constructed from the basis of binary causal claims. Thus, we do not support the idea that there is a unique set of contrasts for each binary causal claim. Also, once a contrastive claim is formulated according to a certain context, only its primary counterfactual has to hold to determine its truth.

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