A Defense of Causal Invariantism

Abstract

Causal contextualism holds that sentences of the form 'c causes e' have context-sensitive truth-conditions. We consider four arguments invoked by Jonathan Schaffer in favor of this view. First, he argues that his brand of contextualism helps solve puzzles about transitivity. Second, he contends that how one describes the relata of the causal relation sometimes affects the truth of one's claim. Third, Schaffer invokes the phenomenon of contrastive focus to conclude that causal statements implicitly designate salient alternatives to the cause and effect. Fourth, he claims that the appropriateness of a causal statement depends on what is contextually taken for granted or made salient. We show that causal invariantism can explain these linguistic data at least as well as contextualism. We then argue that *pace* Schaffer, some causal sentences are always correct and can never be plausibly denied, regardless of the context.

Keywords: causation; contextualism; contrastivism; invariantism

1. Introduction

Causal contextualism holds that the truth-conditions of causal sentences of the form 'c causes e'

('c is a cause of e') and 'c does not cause e' ('c is not a cause of e') vary according to the context

in which they are uttered—even when neither 'c' nor 'e' are themselves context-sensitive

expressions. This means that keeping circumstances fixed, the same causal sentence can bear

different truth-values in different contexts of utterance. According to causal invariantism, causal

sentences such as 'c causes e' possess context-independent, or invariant, truth-conditions. We

will argue that the data invoked by Jonathan Schaffer in support of contextualism can be

explained within an invariantist framework that is supplemented by an appropriate pragmatic

account. We will also argue that contextualism faces problems that invariantism avoids.

2. Contrastivism, Contextualism, and Invariantism

The term 'contrastivism' is sometimes used to refer to a version of contextualism.[1] But we find it useful to reserve the term for a general conception of causation according to which causation is a matter of contrast, or difference making. David Lewis provides us with an informal characterization of this idea:

> We think of a cause as something that makes a difference, and the difference it makes must be a difference from what would have happened without it. Had it been absent, its effects—some of them, at least, and usually all—would have been absent as well (1986, 160 – 161).

A contrastivist account of causation must incorporate contrast classes. But this leaves us with at least two options. One can hold, like the invariantist does, that the contrast classes are fixed solely by the way the world is, and in particular by the circumstances surrounding cause c and effect e. Or one can follow the contextualist and let the conversational context determine the contrast classes.

The debate we will engage in concerns mostly issues in the philosophy of language, since it is about the semantics of causal sentences. But this debate has direct metaphysical implications concerning the nature of causation. Schaffer argues that causation is a *quaternary* relation. According to him, there is no such thing as c causing e, *simpliciter*. Keeping all the facts the same, it may be that c rather than c_1 causes e rather than e_1, but that c rather than c_2 does not cause e rather than e_2. We defend the orthodoxy and hold that causation is *binary*. In other words, we think that the question 'Does c cause e?' can receive an answer independently of a conversational context. And this is because (modulo borderline cases) there is a fact of the matter about whether the binary causal relation obtains between c and e.

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[1] See (Schaffer 2005, 2013) and (Northcott 2008).

Various forms of contextualism have been defended in the literature.[2] Since we do not have the space to examine all of them, we cannot offer a full defense of causal invariantism here. Instead, we will confine our attention to Jonathan Schaffer's (2005, 2013) brand of contextualism. According to Schaffer, sentences of the form 'c causes e' semantically express different propositions in different contexts. What shifts from one context to another are contrasts, where contrasts are salient alternatives to the cause and to the effect. More specifically, Schaffer defends the view he calls *Double-Contrasts*, according to which a claim of the form 'c causes e' expresses the proposition that c rather than c* causes e rather than e*.[3] This proposition is true iff (roughly) if c* had occurred then e* would have occurred (Schaffer 2005, 329). The contrasts c* and e* are unactualized events, and what contrasts an utterance of a causal sentence expresses depends on the questions structuring the causal inquiry and the alternatives explicitly or implicitly evoked by the conversational participants. When one says, 'c causes e,' one speaks elliptically and relies on context to supply the two implicit relata c* and e*.

We disagree and hold that utterances of the form 'c causes e' invoke no such implicit references to contrasts. Our brand of invariantism is inspired by Lewis's (2004a) latest counterfactual theory according to which causation is defined in terms of chains of stepwise influence, and James Woodward's (2003) interventionist theory where causes are understood as handles or devices for manipulating their effects. Both theories are contrastive: c is a cause of e just in case changes in c are correlated with changes in e, given that appropriate other factors are

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[2] See (Menzies 2004, 2007), (Hall 2007), (Halpern and Pearl 2005) and (Hitchcock 2007) for forms of contextualism according to which causation is relative to a model. See (Northcott 2008) and (Maslen 2004) for versions of contextualism similar to Schaffer's (2005, 2013).
[3] Schaffer appeals to a set *C** of contrasts for the cause and a set *E** of contrasts for the effect, but we will ignore this complication. Schaffer is also open to *Total-Contrasts*, which "adds to *Double-Contrasts* a further relativity to contrasts for events under consideration other than cause or effect" (2013, 47).

held fixed.[4] A more specific yet still approximate statement of our view is as follows: where c and e are distinct[5] events, 'c causes e' is true iff (roughly) (i) both c and e occur and (ii) $(\exists c^*)(\exists e^*)$(c* is a relevant alteration of c & if c* had occurred, e* would have occurred & e* $\napprox$ e).[6] These approximate truth-conditions deserve some comments.

According to the first conjunct in (ii), c* must be a *relevant alteration* of the putative cause c. The *alterations* of an event are non-actual possible alternatives to that event. What Schaffer calls a 'contrast' we call an 'alteration.' We make this terminological choice for two reasons. First, in many respects, our view follows Lewis's (2004a). But our notion of alteration does not exactly match his. For Lewis, an alteration of event E is "either a very fragile version of E or else a very fragile alternative event which may be similar to E, but is numerically different from E" (2004a, 88). But as we shall use the term, there is no implication that an alteration is modally fragile, that is, that it could not occur in a different manner or at a different time from its actual manner and time of occurrence. Moreover, while Lewis allows some alterations to be actual events, we stipulate that an alteration is non-actual. Second, our terminological choice also signals our disagreement with Schaffer. According to his contextualist framework, contrasts are fixed by the *conversational context*. But on our view, which alterations are relevant does not vary from context to context.

But, more specifically, what makes an alteration of a putative cause relevant? We take this question to be equivalent to Woodward's (2003, 86 – 91) question about what counts as a

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[4] See (Hitchcock 2001, 369) for a similar view.

[5] See (Lewis 1986, 255 – 258) on the requirement of distinctness.

[6] We construe 'c causes e' broadly and take it to be equivalent to locutions such as 'c is a cause of e,' 'c is among the causes of e,' and 'c caused e.' However, the latter oftentimes suggests a discriminatory causal notion that is also expressed by the locution 'c is *the* cause of e.' Except when we quote others, we will avoid 'c caused e.' These truth-conditions would need to be revised to accommodate cases of overdetermination, preemption, and trumping. Fortunately, it will not be necessary to do so here, since Schaffer's arguments do not rest on such cases.

serious possibility.[7] We will tackle this complex issue in two steps. First, we hold that the complete elimination of an event is always a relevant alteration of that event. Furthermore, all alterations "in between" the occurrence of an event and its non-occurrence are also relevant. For example, relevant alterations of the event consisting in the lacing of Victim's coffee with 10 mg of poison include: the lacing of Victim's coffee with 9 mg of poison, the lacing of Victim's coffee with 8 mg of poison, etc., as well as the non-poisoning of Victim's coffee.[8] Relevant alterations also include events that occur at slightly different times or manners than the actual event.[9]

But for reasons that will become clear when we discuss cases of causation by omission, the set of relevant alterations includes *more* than what we have just mentioned. In Section 7, we will present the second part of our account of what a relevant alteration is. Following a number of authors,[10] we will argue that relevance also depends on *norms*, including statistical, functional, as well as social, moral and prudential norms. Hence, what makes an alteration relevant depends not only on the objective features of the circumstances surrounding c and e, but also on human-dependent considerations such as our expectations about what is normal. However, the fact that relevance depends on human interests does not make relevance context sensitive. Our contention is that the interests in question are general, context-independent human interests, as they apply to the actual circumstances surrounding c and e, rather than the particular interests of the

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[7] Technically, Woodward's notion of a serious possibility serves as a criterion for including or excluding specific variables in a causal model. However, since a variable in a causal model is standardly understood to represent the occurrence or non-occurrence of an event, depending on its value, our idea of a relevant alteration connects in a natural way with Woodward's notion of serious possibility.

[8] Note that this condition does not always apply: there may not be any alteration in between flipping a switch and not flipping it, for example.

[9] This first part of our account of relevance is very similar to what Lewis (2004a, 90 – 91) proposes, except that Lewis does not hold that the complete elimination of an event is always relevant.

[10] Here, we split company with (Lewis 2004a) and instead get our inspiration from (Halpern and Hitchcock forthcoming), (McGrath 2005) and (Woodward 2003).

conversational participants discussing those circumstances. The best way to evaluate this contention is to see how it fares with respect to the various cases invoked by contextualists. This is what we propose to do in this paper, focusing on the cases discussed by Schaffer.

The truth-conditions of 'c causes e' are satisfied only when at least one relevant alteration of c counterfactually entails a *significantly different* alteration of e. This is captured by the conjunct 'e* $\not\approx$ e,' where '$\not\approx$' should be interpreted as 'is significantly different from.'[11] The requirement that e* be significantly different from e is meant to avoid so-called *spurious* causes. Suppose Suzy throws a rock at an empty bottle and it shatters. As Lewis (2004a) points out, by the law of gravitation, a distant planet affects very slightly the trajectory of the rock and thus makes a minute difference in the shattering of the bottle. However, like Lewis, we hold that this influence is not significant enough to make the planet's gravitational field a cause of the shattering of the bottle.

To illustrate our truth-conditions, consider a paradigmatic case of causation. Assassin puts a sufficient amount of lethal poison into Victim's coffee. Victim drinks it and dies.

(1) Assassin's poisoning of the coffee causes Victim's death.

The circumstances surrounding Assassin's poisoning of the coffee and Victim's death fix the class of relevant alterations. One relevant alteration of Assassin's poisoning of the coffee, for example, is his refraining from doing so, and Victim's surviving is a significantly different alteration of his dying. On our proposed truth-conditions, (1) is true because had Assassin refrained from poisoning the coffee, Victim would have survived. Here, it is understood that when we evaluate this counterfactual, factors such as the proper functioning of Victim's digestive system are held fixed. In other words, worlds in which relevant alterations of the cause

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[11] There is no need to include the conjunct 'c* $\not\approx$ c' in the truth conditions: the only condition on c* is that c* be a relevant alteration of c.

occur are worlds in which the functioning of Victim's digestive system is the same as it is in the actual world. The antecedent of the counterfactual 'if c* had occurred, e* would have occurred' thus describes a possible world in which no outside factor is independently altered.[12]

3. Circumstance vs. Context

Some discussions of contextualism tend to confuse the *circumstances* surrounding the cause and effect and the *conversational context* of the speakers discussing those circumstances. We will give two examples of this confusion in this Section. Consider first the "two assassins puzzle," imagined by Christopher Hitchcock: "Two assassins, Captain and Assistant, are on a mission to kill Victim. Upon spotting Victim, Captain yells 'fire!', and Assistant fires. Overhearing the order, victim ducks and survives unscathed" (2003, 10). As Hitchcock points out, there is no clear intuition about the truth-value of

(2) Captain's yelling of 'Fire!' is a cause of Victim's survival.

Robert Northcott (2008) argues that by adding details to the scenario, our intuition about (2) can be sharpened. He considers two ways to do so. In the first case, Captain and Assistant are stalking Victim in a congested marketplace. Victim is being carried away by the crowd. If Captain and Assistant do not act quickly, Victim will be out of range and survive. Unfortunately, Captain and Assistant become separated and lose visual contact. Captain is forced to yell 'Fire!' in order to have any chance of killing Victim. The yell alerts Victim, who ducks and survives. Northcott writes that (2) is intuitively false in this case, since "even if Captain had not yelled still Victim would have got away in any case" (2008, 113). In the second case, there is no crowd carrying Victim away. Captain and Assistant have plenty of time to set up for the kill as they are on a balcony overlooking Victim in the marketplace. According to their plan, when Captain

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[12] Woodward's (2003, 74 – 86) discussion of what he calls *actual causation* is especially clear on this point.

silently lifts his finger, Assistant is to fire on Victim. However, just before he lifts his finger, Captain impulsively yells 'Fire!'. This alerts Victim, who then ducks and survives. Northcott holds that (2) is intuitively true in this case, since "this time the yell made all the difference" (2008, 113).

We do not dispute Northcott's intuition about the two cases. However, contrary to what he contends, the cases offer no support for contextualism. As Asbjørn Steglich-Petersen points out, "The details added to the two assassins case […] do not provide us with clear causal intuitions by virtue of 'subtle contextual cues' […] but simply by virtue of providing details about the scenario that are relevant to whether [2] is true" (2012, 134). Northcott elicits different intuitions about (2) by varying the *circumstances* surrounding the alleged cause and effect. But invariantism is perfectly compatible with the fact that a causal sentence such as (2) may be true in some circumstances and false in others. A good argument for causal contextualism should appeal to variations in intuitive truth-values that are affected solely by variations in the conversational context. The circumstances under discussion in the different contexts should be kept the same.

The second contextualist argument concerns the transitivity of causation. Upon learning that c caused d and d caused e, should we infer that c caused e? That depends, Schaffer (2005) remarks. Schaffer endorses what he calls *differential transitivity*: if c rather than c* causes d rather than d*, and d rather than d* causes e rather than e*, then c rather than c* causes e rather than e*. Alleged counterexamples to transitivity actually involve shifts in the middle contrast d*. There are *no* counterexamples to differential transitivity, Schaffer insists: given *fixed* contrasts, the conditional 'If c causes d and d causes e, then c causes e' is always true. However, the

conditional may not be accepted when contrasts shift *within the utterance*. Note that these contrast shifts are contextual shifts: *within a given context*, the conditional is always true.

Let us illustrate Schaffer's position with the *dog-bite* case: "Terrorist is about to detonate a bomb with his right forefinger, when Dog runs by and bites off that finger. Dog's biting causes Terrorist to press with his left forefinger, and Terrorist's pressing with his left forefinger causes the explosion, but intuitively Dog's biting does not cause the explosion." (Schaffer 2005, 339).[13] We tend to see this case as involving a failure of transitivity, Schaffer (ibid., 341) writes, because we interpret the three causal claims as follows: (i) Dog's biting off Terrorist's right forefinger rather than barking causes Terrorist's pressing with his left forefinger rather than his right forefinger; (ii) Terrorist's pressing with his left forefinger rather than walking away causes the bomb to explode rather than remain intact; (iii) Dog's biting off Terrorist's right forefinger rather than barking does not cause the bomb to explode rather than remain intact. But note that the middle contrast goes from 'Terrorist's pressing with his right forefinger' to 'Terrorist's walking away.' Hence, the dog-bite case does not constitute a counterexample to differential transitivity.

However, if the first two causal claims were true *and the middle contrast stayed the same*, then the third causal claim would have to be true, Schaffer holds.

> For instance, one could consider a case in which Dog was supposed to chomp off Terrorist's head and not just nip off one of his fingers. Now Dog's nipping off Terrorist's right forefinger rather than chomping off Terrorist's head […] does cause Terrorist's pressing with his left forefinger rather than dying […], and Terrorist's pressing with his left forefinger rather than dying does cause the bomb's exploding rather than remaining intact […]. But just as clearly, Dog's nipping off Terrorist's right forefinger rather than chomping off Terrorist's head causes the bomb's exploding rather than remaining intact (ibid., 356, n. 21).

Has Schaffer shown that variations in the truth-value of claims of the form 'If c causes d and d causes e, then c causes e' are due to *contextual* shifts? No. Schaffer makes the same

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[13] This example is from (McDermott 1995, 531).

mistake as Northcott. He elicits a different intuition about the dog-bite case by adding a crucial detail regarding the *circumstances* surrounding the dog bite and the explosion. In his second version of the case, there is a *nearby* possibility in which Dog chomps off Terrorist's head, since, we are told, "Dog was supposed to chomp off Terrorist's head," and presumably was able to do so but failed. Our view holds that 'Dog's bite causes the explosion' is true in this case, because there is a relevant alteration of Dog's biting off Terrorist's right forefinger, namely Dog's chomping off Terrorist's head, that counterfactually entails the bomb's remaining intact. But the possibility of Dog's chomping off Terrorist's head is not mentioned in the first version. The inclination to reject 'Dog's bite causes the explosion' may be explained by the fact that one would, quite reasonably, take this possibility to be very remote. Hence, the variation in the intuitive truth-value of 'Dog's bite causes the explosion' is explained by a variation in the circumstances of the case rather than by a variation in the conversational context.

At any rate, we do not think that the intuition of transitivity ought to be respected. We take the first version of the dog-bite case to be a genuine counterexample—on the assumption that Dog's chomping off Terrorist's head is a remote possibility, given Dog's size, aggressiveness, etc. The intuition of transitivity, we would suggest, is based on the view that causation is *productive*. On this view, causation involves a "flow" or "transfer" of some conserved quantity from cause to effect. Productive causation *is* transitive.[14] But we favor a difference-making account of causation, and difference-making causation is not transitive in general. Now, difference-making is *sometimes* accompanied by a productive relation. We can thus hold that transitivity is preserved by a specific subset of causal relations, namely those that involve productive processes.

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[14] See, for instance, (Hall 2000).

Schaffer remarks that another reason to preserve transitivity is that it "links causation to the notion of a causal history" (ibid., 339). A given effect has causes, which in turn have causes, and so on. Without transitivity, Schaffer writes, "nothing links causal histories. There is no chaining" (ibid., 339). But consider the first version of the dog-bite case again. Transitivity fails here; yet, there is clearly a chain of events linked by causation. The explosion is caused by Terrorist's pressing with his left forefinger, and Terrorist's pressing with his left forefinger is caused by Dog's biting off Terrorist's right forefinger. The fact that Dog's bite does not cause the explosion does not prevent us from describing it as part of the causal history of the explosion. Hence, transitivity is not required to make sense of causal histories. It is thus far from clear that the rejection of transitivity bears any cost.

4. Event Descriptions

In preparation to serve the ball, McEnroe suddenly becomes tense.[15] His serve turns out to be awkward. Consider:

(3) McEnroe's tension caused him to serve awkwardly.

(4) McEnroe's tension caused him to serve.

(3) is acceptable but (4) is not. But if the nominals in (3) and (4) name the same events, then how are we to explain the variation in acceptability?

The contextualist answer is that even though the event nominals denote the same effect, the propositions (3) and (4) express are different. This is because, Schaffer (2005, 338; 2013, 50-51) contends, the different descriptions of the effect invite different contrasts: while 'to serve awkwardly' invites a contrast such as 'to serve gracefully,' 'to serve' invites a contrast such as 'to stand still.' Thus, (3) expresses the proposition:

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[15] This example is from (McDermott 1995, 540).

(3a) McEnroe's being tense rather than calm caused him to serve awkwardly rather than gracefully.

(4), on the other hand, should be interpreted as:

(4a) McEnroe's being tense rather than calm caused him to serve rather than stand still.

The fact that (3a) is true explains our positive reaction to (3), while the falsity of (4a) accounts for our negative response to (4).

One immediate problem with this case is that the infinitive clauses in (3) and (4) are *imperfect* nominals. The verb 'to serve' can be modified by tenses or modalities, it can have a direct object, and it should be modified by an adverb rather than an adjective. As Zeno Vendler (1967) and Jonathan Bennett (1988, 2002) argue, imperfect nominals such as (3) and (4) denote facts rather than events. Since our focus is on event causation, the putative effects of McEnroe's tension should be described by *perfect* nominals, as in:

(5) McEnroe's tension causes his awkward serve.

(6) McEnroe's tension causes his serve.

It is worth noting that the intuition that (5) and (6) have different truth-values is clearly weaker than the intuition that the truth-values of (3) and (4) differ. Schaffer's proposed interpretations become:

(5a) McEnroe's tension rather than his calm causes his awkward serve rather than his graceful serve.

(6a) McEnroe's tension rather than calm causes his serve rather than his standing still.

But one wonders why (5) should be interpreted as (5a) instead of:

(5b) McEnroe's tension rather than his calm causes his awkward serve rather than his graceful standing still (or some graceful activity other than a serve).

In other words, in specifying the contrast to the effect, should we replace only the noun, as in (6a), only the adjective if there is one, as in (5a), or both the adjective and the noun, as in (5b). This question matters, because (5a) and (5b) do not have the same truth-conditions on Schaffer's account. (5a) is true just in case McEnroe would have served gracefully had he been calm. And (5b) is true just in case McEnroe would have gracefully stood still (or gracefully done something other than serve) if he had been calm.

Because he takes (5) to be intuitively true, Schaffer wants (5a) to be the correct interpretation of (5). But why is that? Schaffer may insist that only the adjective—when a nominal contains one—should be modified in specifying the contrast. But this suggestion has unfortunate consequences. Consider:

(7) Assassin's poisoning of the coffee causes Victim's painful death.

Assuming that Victim's death was indeed painful, (7) seems true. But on the current proposal, (7) would express the false proposition:

(7a) Assassin's poisoning of the coffee rather than his sweetening of the coffee (or some act other than poisoning) causes Victim's painful death rather than his painless death.

We do not see any reason to hold that (5a) is the "natural" interpretation of (5), while denying that (7a) is the "natural" interpretation of (7): the locution 'painful death' invites the contrast 'painless death' just as much as the locution 'awkward serve' invites the contrast 'graceful serve.' It is thus far from clear that there is a non-arbitrary way for Schaffer to yield the right truth-conditions in cases such as (5) and (7).

Schaffer's treatment of the case may suggest that the interpretations of (5) and (6) are fixed by how the causes and effects are described. But this cannot be the whole story. As a contextualist, he is committed to holding that (5) and (6) have context-sensitive interpretations,

depending on which contrasts are contextually salient. In a context in which McEnroe's calm and graceful serve are the salient alternatives to his tension and awkward serve respectively, (5) expresses the true proposition (5a). But in a context in which the salient alternatives are McEnroe's calm and his graceful standing still, (5) expresses the false proposition (5b). (6) should be treated similarly. In a context in which the salient alternatives to McEnroe's tension and his serve are McEnroe's calm and his standing still, (6) expresses the false proposition (6a). But if the salient alternatives were McEnroe's heart attack and his quitting the match, (6) would express the true proposition:

(6b) McEnroe's tension rather than his heart attack causes his serve rather than his quitting the match.

This point matters: although (5) seems more appropriate than (6), Schaffer must grant that there are contexts in which (5) may be truly denied, and contexts in which (6) may be truly denied. This does not necessarily mean that Schaffer lacks the resources to explain the difference in intuitions between (5) and (6): he may contend that (5) sounds better than (6), because in *typical* contexts, (5) and (6) are interpreted as expressing (5a) and (6a) respectively. But our previous point is worth reiterating: Schaffer needs to explain why a sentence such as (7), which is structurally similar to (5), is not also typically interpreted as expressing (7a). Schaffer's account of the data is thus at best incomplete.

Like Schaffer, we hold that (5) and (6) have context-sensitive truth-values, but for very different reasons. Let us start with (6). McEnroe's tension clearly affects his serve, but does it affect it enough to count as a cause? Eliminating his tension would not eliminate his serve; it would only make it less awkward and more graceful. McEnroe's tension can thus be said to contribute to the *manner* of the serve. Perhaps this is enough to make (6) true, but we are not

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sure. In fact, we are inclined to hold that (6) has an indeterminate truth-value, because McEnroe's tension is a borderline cause of his serve. In other words, it is indeterminate whether any of the alterations of McEnroe's serve counterfactually entailed by the relevant alterations of McEnroe's tension are 'significantly different.' Since, for reasons we will present shortly, we favor a coarse-grained individuation of events, we must hold that (5) also has an indeterminate truth-value due to vagueness. Now, like Lewis and many others, we favor a brand of contextualism about vagueness.[16] This means that causal statements, like all other statements involving vague terms, give rise to a kind of context sensitivity: when the sentence 'c causes e' has an indeterminate truth-value due to vagueness, that is, when c is a borderline cause of e, one can truly utter that sentence, or truly deny it, without contravening its conventional meaning. As Lewis puts it, we are "within our linguistic rights to go either way" (2004a, 89, 102-3). But clearly, as Schaffer (2013, 60, n. 4) acknowledges, this context sensitivity is due solely to vagueness, and has nothing to do with causal sentences as such. Our view can thus do justice to speakers' inclination to accept (5), since (5) can be truly uttered in some contexts. We can also respect speakers' rejection of (6), since (6) can be truly denied in some contexts.

One may object that this is too quick, for surely, we can truly utter (5) and deny (6), *in the very same context*. Can we? An utterance of 'McEnroe's tension causes his awkward serve, but it does not cause his serve' sounds odd to us Hence, one who is prepared to utter (5) should be prepared to utter (6) as well. There are thus contexts in which (6) can be truly uttered.

Like Schaffer, then, we hold that the truth-values of (5) and (6) vary according to the context. Our views are thus very close in this respect.[17] But we saw that Schaffer might have the

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[16] See (Fara 2000), (Raffman 1994), (Shapiro 2006) and (Soames 1999), among others. For reasons of space, we cannot offer a full defense of this controversial view and will simply take it for granted here.
[17] We say 'very close' rather than 'identical,' since we disagree about the source of context sensitivity and the contextual factors that affect truth-values.

resources to explain why (5) seems more acceptable than (6). On our view, we will now explain, this difference is a pragmatic effect. Causal claims are typically associated with propositions about causal relevance. The following case illustrates this point:

> A gun goes off, a shot is fired, and it kills someone. The loud noise is the shot. Thus, if the victim is killed by the shot, it's the loud noise that kills the victim … Yes, in a certain sense the victim is killed by the loud noise; not by the loud noise as a loud noise, however, but only by the loud noise as a shot, or the like … Besides, the loudness of the shot has no causal relevance to the death of the victim: had the gun been equipped with a silencer, the shot would have killed the victim just the same (Sosa 1984, 277-278).[18]

Like us, Sosa holds that token-level causal claims are extensional. Hence, since the loud noise is the gun shot, 'The loud noise caused Victim's death' is true. But this claim sounds odd. Why? Because it suggests that the loudness of the shot is causally relevant to Victim's death.[19] This suggestion concerns the *properties* picked out by the descriptions of the events. Clearly, the loudness of the noise is not causally relevant to Victim's death, for it does not pass the counterfactual test proposed by Sosa: Victim would have died even if the shot had been silent.

Generally speaking, we contend, a causal claim of the form 'The F caused the G' is pragmatically associated with the proposition that the cause's being F is causally relevant to the effect's being G. Furthermore, we hold that causal relevance can be analyzed in part in terms of counterfactual dependence: c's being F is causally relevant to e's being G only if e would not have been G if c had not been F.[20]

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[18] See (Dretske 1989) for a very similar case.

[19] See, among others, (Bennett 1988, 111-112), (Davidson 1967) and (Woodward 2003, § 5.8). There are several but roughly equivalent ways to express what the claim suggests: Victim died because of the loudness of the noise; the noise caused Victim's death in virtue of its loudness; the loudness of the noise made a difference to Victim's fate.

[20] See, among others, (Lepore and Loewer 1987) and (Horgan 1989). Three clarifications are in order. First, this necessary condition would have to be amended to accommodate cases of overdetermination, preemption and the like. Second, the counterfactual should be given an *elimination* rather than a *replacement* reading. Suppose that Killer gave himself two options: if he had not used his gun to kill

Let us return to (5) and (6). These two claims have the same truth-value, because token-level causal claims are extensional. An utterance of (5) is pragmatically associated with the true proposition that McEnroe's being tensed is causally relevant to the awkwardness of his serve: without the tension, the serve would not have been awkward. By contrast, an utterance of (6) suggests that McEnroe's being tensed is causally relevant to his serving. This suggestion is false: had McEnroe not been tensed, he would still have served. This pragmatic association with a false proposition, we contend, makes speakers reluctant to utter (6).

What is the nature of this pragmatic *association*? We think that it is an instance of *pragmatic presupposition*. A pragmatic presupposition associated with a sentence is a condition that someone uttering the sentence would typically assume to hold.[21] A sentence of the form 'S doesn't know that P,' for example, is associated with the pragmatic presupposition that P is true (when S is someone other than the speaker). If Paula were to say, 'Felipe doesn't know the meeting starts at 3pm,' she would be understood as presupposing that the meeting starts at 3pm. But this presupposition is not a condition on the truth of her claim, for that claim would be true if the meeting did not start at 3pm. Now, a true sentence associated with a false presupposition may sound unacceptable. Consider:

(8) Homer does not know that the earth is flat.

Victim, he would have used his knife. Hence, in a nearby world in which the cause does not have the property of being a gun shot, it has the property of being a stabbing, and Victim still dies. But this is *not* how counterfactual dependence should be understood here: the relevant nearby world is one in which the property of being a gun shot is simply eliminated rather than replaced by another property. Finally, on some views, events are modally fragile. On these views, 'e' and 'c' in the counterfactual should be read as 'an alteration of e' and 'an alteration of c' respectively.

[21] See, among others, (Stalnaker 1973). Why not hold that the causal generalization is an *implicature* instead? An implicature is part of what a speaker means, that is, what the speaker intends to communicate. By contrast, speakers do not (typically) intend to communicate what is presupposed by their utterances. Now, it does not seem that a person who utters 'The gun shot caused Victim's death' would typically intend to communicate that the shot's being from a gun is causally relevant to Victim's death; she merely would take that for granted.

Although (8) is clearly true (no one can know something that is false!), it sounds terrible. We believe that the unacceptability of (6) can be explained similarly. Although one may make a true utterance of (6), such an utterance seems unacceptable, because it pragmatically presupposes something false, namely that McEnroe's being tensed is causally relevant to his serving.

We conclude that the issues raised by variations in events descriptions do not favor Schaffer's contextualism over our brand of invariantism. Before we move on to Schaffer's next argument, an alternative invariantist response is worth considering. Our treatment of the McEnroe case involves a number of complex and, we concede, controversial moves. One might point out that none of these moves would be needed if we simply endorsed a *fine-grained* account of events. Such an account would allow us to hold that (5) and (6) have different truth-values, because McEnroe's awkward serve and his serve are different events. So it is worth explaining why we do not favor such a view. Consider:

(9) McEnroe's serve causes the crowd's disappointment.

(10) McEnroe's awkward serve causes the crowd's disappointment.

Both (9) and (10) are intuitively true. And on our coarse-grained view, they are both true (and not indeterminate). McEnroe's graceful serve is in both cases a relevant alteration of the cause,[22] the occurrence of which counterfactually entails an event significantly different than the crowd's disappointment. How would the fine-grained theorist approach this case? She may insist that contrary to intuition, (9) is false. Since the crowd would not have been disappointed by a non-awkward serve, it is the awkward serve rather than the serve that causes the crowd's disappointment. But suppose that McEnroe's awkward serve was only *moderately* awkward; if it had been *extremely* awkward, the crowd would have been amused rather than disappointed. This

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[22] This is because it is statistically normal for McEnroe to serve gracefully. As we will explain in Section 7, statistical normality is one of a number of additional factors that determines what alterations are relevant.

means that according to the fine-grained theorist's response, it is the moderately awkward serve, rather than the awkward serve, that causes the crowd's disappointment. So (10) is also false. But the problem does not stop here. Suppose further that if McEnroe, a left-handed player, had decided to serve with his right hand, his serve would also have been awkward; however, it would have caused puzzlement rather than disappointment. Hence, it is really the moderately awkward left-handed serve that causes the crowd's disappointment. But it is far from clear that we have identified what causes the crowd's disappointment, since there are plausibly many other features of the serve that were crucial to the crowd's reaction. Hence, on a fine-grained view of events, most of our ordinary causal statements are false, because we fail to identify what specifically causes an event.[23] As a matter of fact, it is in many cases practically impossible to identify causes, since we are rarely in a position to figure out the specific features of a cause that are responsible for the effect. For these reasons, we are disinclined to adopt a fine-grained individuation of events.

5. Contrastive Focus

Another example discussed by Schaffer (2005, 337-338; 2013, 40, 49) concerns what Dretske (1972) calls *contrastive focus*. Socrates willingly drinks the hemlock at noon, and soon dies. Consider:

(11) Socrates's *drinking of the hemlock* at noon caused his death.

(12) Socrates's drinking of the hemlock *at noon* caused his death.[24]

On a coarse-grained view, the nominals 'Socrates's *drinking of the hemlock* at noon' and 'Socrates's drinking of the hemlock *at noon*' denote the same event. But then, what explains the variation in our judgments of acceptability between (11) and (12)? According to contextualism,

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[23] See (Dowe 2010) for a similar point.
[24] The example is from (Achinstein 1975).

different contrasts are selected, depending on where the focus is placed in the utterance. Schaffer (2013, 49) writes that (11) expresses:

(11a) Socrates's drinking of the hemlock rather than wine (or some other salient alternative to his drinking of the hemlock) at noon caused his death,

while (12) expresses:

(12a) Socrates's drinking of the hemlock at noon rather than dusk (or some other salient time) caused his death.

Hence, we judge (11) acceptable because a speaker who utters it asserts that the substance that Socrates drank made a difference to whether he died. (12) is deemed unacceptable, because in uttering it one asserts that the time at which Socrates drank made a difference to whether he died.

Focus effects are quite diverse,[25] and it is highly unlikely that a single account can explain them all. The phenomenon Schaffer invokes here is usually called 'association with focus.'[26] In cases of association with focus, the placement of focus in the sentence has *truth-conditional effects*: keeping the circumstances fixed, (11) and (12) *seem* to have different truth conditions. Because of that, many have expressed doubts that association with focus is a purely pragmatic effect. Although we do not hold that *all* instances of association with focus can be explained pragmatically, we think that *some* can. It is highly plausible that each of sentences (13) – (15) expresses a complete proposition, independently of the context. However, with judicious placement of focus, each can give rise to similar truth-conditional effects as (11) and (12).

(13) Torturing an innocent person at noon is immoral.[27]

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[25] See (Glanzberg 2005) for a useful overview.
[26] See, for instance, (Jackendoff 1972) and (Rooth 1985).
[27] Some authors (Harman 1996; Unger 1995) hold that moral judgments involve tacit references to moral standards or theories. For this reason, they would argue, (13) fails to express a complete proposition. However, on this view, a sentence such as 'According to commonsense morality, torturing an innocent

(13a) Torturing an *innocent person* at noon is immoral.

(13b) Torturing an innocent person *at noon* is immoral.

(14) In the UK, driving on the right at noon is illegal.

(14a) In the UK, driving *on the right* at noon is illegal.

(14b) In the UK, driving on the right *at noon* is illegal.

(15) A nugget of gold extracted at noon has atomic number 79.

(15a) A nugget of *gold* extracted at noon has atomic number 79.

(15b) A nugget of gold extracted *at noon* has atomic number 79.

Now, it is extremely plausible that the truth-conditional effects in (13) – (15)—i.e., the differences in intuitive truth-values between the a- and b-statements—are merely pragmatic. And since the effects in (11) and (12) are very similar, they are also plausibly pragmatic rather than semantic. In each case, we would argue, the impression of falsehood resulting from stressing 'at noon' can be explained by the generation of a false, pragmatically conveyed content.[28] (13b), for example, pragmatically conveys that there are times other than noon at which torturing an innocent person is not immoral. The causal invariantist can explain the intuition that (12) is false in the same way.[29] (11) and (12) *semantically* express the same proposition, namely that Socrates's drinking of the hemlock at noon caused his death. This proposition is true, because there is a relevant alteration of the cause, namely, Socrates's abstaining from drinking anything, that counterfactually entails survival. However, an utterance of (12) pragmatically conveys that there are times other than noon at which Socrates's drinking of the hemlock would not have

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person at noon is immoral' would possess context-independent truth conditions. And such a sentence would exhibit the same kind of truth-conditional effects as those displayed in (13a) and (13b).

[28] As we will explain shortly, this pragmatically conveyed content should be construed as an expansion, or free enrichment, of the semantically expressed proposition rather than as an implicature.

[29] Unlike Steglich-Petersen (2012, 127-128), who also defends causal invariantism, we do not hold that focus makes (11) and (12) semantically incomplete.

caused his death. It is worth noting that this pragmatically conveyed content is cancellable. To an utterance of (12), one can add, 'But of course, his drinking hemlock at any other time would still have killed him,' without contradiction.[30]

What is the pragmatic process involved in (12) and (13b) – (15b)? It is tempting to hold that these utterances generate false *implicatures*. Speakers sometimes mistake the falsity of a sentence with the falsity of the implicature generated by the utterance of that sentence. Appealing to implicatures can thus be a successful way to explain why an utterance of a *true* sentence appears *false*. However, appeal to implicatures cannot explain cases where the denial of a *true* sentence seems *true*. If all students passed the test, an utterance of

(16) Some students passed the test

may seem false. This is because an utterance of (16) generates the implicature that not all students passed the test. However, in this case, it would clearly be incorrect to deny (16), that is, to utter 'No student passed the test.' This reinforces the view that 'Not all students passed the test' is implicated rather than semantically entailed by (16). Hence, in cases where the generation of a false implicature explains why an utterance of a true sentence appears to be false, that same sentence cannot be truly denied.[31]

Now, the problem with explaining the apparent falsehood of (12) and (13b) – (15b) in terms of implicatures is that (12) and (13b) – (15b) can be appropriately denied. For example, an

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[30] We do not hold that cancellability favors our account over the contextualist's, though. Sentences of the form 'S is tall' are commonly taken to have context-sensitive truth conditions, because they require the provision of a comparison class in order to express a complete proposition. However, in a context in which the class of professional basketball players is salient, one can say, without contradiction, 'Malik is tall. Of course, he's shorter than a typical professional basketball player. However, he's significantly taller than the average American.' Similarly, the causal contextualist should admit that speakers can cancel the inclusion of some salient events as contrasts in their causal statements.

[31] As DeRose puts it, it seems "problematic to claim that an assertion that seems true is in fact false by means of a claim that, though the assertion itself is false, it generates a true implicature and is therefore a warranted assertion" (2002, 192).

utterance of 'It's not that in the UK, driving on the right *at noon* is illegal; it's driving on the right that's illegal!' sounds fine. And so does 'It's not his drinking of the hemlock *at noon* that caused Socrates's death; it's his drinking of the hemlock!'.

Fortunately, there is another pragmatic process that can help explain why a denial of (12) appears true. Consider:

(17) Roger is not going to die.

In a typical context, (17) would be used to convey something different than what it literally means, that is, an *expansion*, or conceptually enriched version, of the proposition determined by the conventional meaning of (17).[32] In uttering (17), a speaker may mean that Roger is not going to die *from his scraped knee*.[33] Here are some other examples, with possible expansions within brackets:

(18) She went to the gym [to work out].

(19) He took out his key and [then] opened the door [with the key].

(20) The [customer who ordered the] ham sandwich is getting impatient.

As Kent Bach (1994, 140) points out, expansions are cancellable. Furthermore, appealing to expansion can not only explain why an utterance of a true sentence appears to be false, but it can also explain why a true sentence can be appropriately denied. The sentence 'Roger is going to die' is true—Roger is mortal. However, in a context in which the speakers' attention is on Roger's scraped knee, an utterance of that true sentence would be deemed false, since it would be understood to convey that Roger is going to die from his scraped knee. Moreover, an utterance of 'Roger is not going to die' in the same context would appear true.

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[32] The term 'expansion' is Bach's (1994, 2001). Carston (2002) and Recanati (2004) call this process *free enrichment*.

[33] Some may hold that the sentence (17) contains a hidden indexical for time (and maybe another for cause). We find this position implausible, but a proper treatment of this complex issue would be beyond the scope of this paper.

Let us now examine how this applies to (12).[34] Such an utterance pragmatically conveys that

(12b) Socrates's drinking of the hemlock at noon as opposed to some other time caused his death.

The intuitive truth-conditions of (12b) can be captured in terms of the truth-conditions of binary causal sentences: (12b) is true just in case Socrates's drinking of the hemlock at noon caused his death and there is some other time at which Socrates's drinking of the hemlock would not have caused his death. Because the second conjunct is false, (12b) is false. Furthermore, a denial of (12) would pragmatically convey:

(12c) It is not the case that Socrates's drinking of the hemlock at noon as opposed to some other relevant time caused his death.

(12c) is true if and only if it is not the case that Socrates's drinking of the hemlock at noon caused his death while there is some other time at which Socrates's drinking of the hemlock would not have caused his death. (12c) is thus true. There is thus an adequate pragmatic account of the intuitive truth conditions of (12), as well as its denial, that does not force us to give up our invariantist semantics.

6. Selection and Alternatives

A lightning storm is followed by a forest fire. Nevertheless, given that fire cannot occur without oxygen, it seems to follow that

(21) The presence of oxygen caused there to be a forest fire.[35]

But imagine a group of forest rangers primarily concerned with figuring out what caused the forest fire. These forest rangers would find an utterance of (21) unacceptable. However, things

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[34] We leave it as an exercise for the reader to figure out how a similar treatment of (10b)-(12b) would look.
[35] See (Schaffer 2013, 37).

would be different from the point of view of Hilary Putnam's Venusians: "Imagine that Venusians land on earth and observe a forest fire. One of them says, 'I know what caused that—the atmosphere of the darned planet is saturated with oxygen'" (1982, 150). The acceptability of an utterance of (21) thus depends on the context.

As Schaffer (2013, 41) acknowledges, there is a straightforward invariantist explanation for the unacceptability of an utterance of (21) in the first context: the forest rangers are *presupposing* that oxygen is present, and wondering about *how the fire started*. So citing the presence of oxygen as a cause fails to speak to the question under discussion, and thus violates the maxim of relation ('Be relevant'). Furthermore, an utterance of (21) is arguably inappropriate because it is uninformative, given that the forest rangers already know that oxygen is needed for fire. There is nothing unusual or *ad hoc* about these explanations. As Lewis points out, "There are ever so many reasons why it might be inappropriate to say something true. It might be irrelevant to the conversation, it might convey a false hint, it might be known already to all concerned, and so on" (2004a, 101). Hence, the fact that an utterance of (21) may, in some contexts, be frowned upon by one's interlocutors does not entail that it is false.[36]

There are two other sources of discomfort regarding (21). First, we are assuming that the forest rangers are looking for "the" cause of the fire. As we noted earlier,[37] the locution 'c caused e' is sometimes used to convey something equivalent to 'c was *the* cause of e.' But it is well known that what counts as "the" cause of an event depends on many context-sensitive factors:

> We sometimes single out one among all the causes of some event and call it 'the' cause, as if there were no others. Or we single out a few as the 'causes', calling the rest mere 'causal factors' or 'causal conditions'… We may select the

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[36] See also (Swanson 2010) for interesting remarks about why some true causal sentences may not be appropriately uttered in some contexts.
[37] See footnote 6.

abnormal or extraordinary causes, or those under human control, or those we deem good or bad, or just those we want to talk about (Lewis 1986, 162).[38]

But this context sensitivity is irrelevant here: our dispute with contextualists concerns sentences of the form 'c causes e' (or 'c is a cause of e') rather than sentences of the form 'c is the cause of e.' Like Lewis, we are "concerned with the prior question of what it is to be one of the causes" (ibid., 162). And the rangers would (very likely) not find fault with the sentence 'The presence of the oxygen was a cause of the forest fire.' Again, given their purpose, they would find it pointless to utter such a sentence; however, we seriously doubt they would deem the sentence false. The second source of discomfort about (21) has to do with the fact that ordinary speakers are typically reluctant to describe a standing or background condition such as the presence of oxygen as the cause of an event, or even what caused an event. But from this we should not conclude that a standing cause is not *a* cause.

Let us now examine how Schaffer proposes to account for the context sensitivity of the acceptability of (21). He writes:

> The question is why the Venusians naturally promote the presence of oxygen to the status of a cause while the forest rangers naturally demote the presence of oxygen to the status of a mere background condition. A natural first thought is that, for the Venusians, there is a salient alternative to the presence of oxygen: *the absence of oxygen*. But for the forest rangers no alternative to the presence of oxygen is salient. For the forest rangers the presence of oxygen is simply presupposed (2013, 52).

Hence, in the conversation among Venusians, an utterance of (21) expresses the *true* proposition:

(21a) The presence rather than the absence of oxygen caused there to be a forest fire rather than no fire.

The absence of oxygen is part of the proposition expressed by (21), because it is a salient contrast. However, an utterance of (21) by a forest ranger would not express (21a), because the

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[38] See also (Bennett 1995, 133) and (Mackie 1974, 35).

forest rangers recognize no salient contrast to the presence of oxygen. Hence, according to Schaffer, such an utterance expresses a false proposition. What proposition? As Schaffer (2013, 52) admits, there is no obvious answer to this question. His view also entails that the denial of (21) would be true, if made by the forest rangers, but Schaffer concedes that he is not in a position to offer any interpretation for such a denial. Our own view, as we stated above, is that a denial of (21) would be false, and an utterance of (21) true, regardless of the context. This is because there is a relevant alteration of the presence of oxygen, namely the absence of oxygen, and were that alteration to occur, no forest fire would occur.

We think there are further reasons to prefer our explanation to Schaffer's. We will present them in the next Section. We would now like to examine another pair of cases discussed by Schaffer (2013, 38-40, 50-51). Suppose there are three switches on a train track. If the switch is set to *broken* the train will take the leftmost track and suffer a derailing. If the switch is set to *local* the train will take the middle track and arrive slowly at the station. Finally, if the switch is set to *express* the train will take the rightmost track and arrive quickly at the station. Now consider:

(22) The switch's getting set to *local* caused the passengers to arrive at the station.

Schaffer (2013, 38) claims that the truth of (22) depends on the contrasts speakers have in mind. He writes,

> We can imagine a conversation in which the background assumption is that the switch is set to *broken*, and we are wondering why disaster was averted. In such a context, [22] would be acceptable […] After all, if we were expecting the train to derail, learning that the switch got set to *local* should help us understand why things went otherwise. Yet, if we imagine a context in which the background assumption is that the switch should be set to *express* (and leaving it on *broken* is not under consideration), then an utterance of [22] should be unacceptable. After all, in such a context we were already expecting the passengers to arrive at the station. The switch's getting set to local makes no difference (2013, 39).

Schaffer's descriptions suggest that the *circumstances surrounding the switch and the train* change from the first case to the second. The fact that speakers are expecting the train to derail in the first case, while in the second case they are expecting the passengers to arrive at the station, suggests that the facts being discussed change from one case to the other.[39] If this is so, then Schaffer's pair of cases is problematic in the same way that Northcott's assassin cases, discussed in Section 3, are. The fact that the intuitive truth-value of 'c causes e' changes when the circumstances surrounding c and e change does not entail that 'c causes e' has context-sensitive truth-conditions.

Alternatively, it could be that the circumstances in the two cases are identical, but that the speakers' understanding of those circumstances (based on their assumptions and expectations) is not the same in the two conversational contexts. But this would not support contextualism either, since it would merely show that how speakers perceive a given situation affects what causal sentences they hold true, a trivial point that invariantists can accept. According to contextualism, speakers in different contexts assess the same sentence differently, not because they believe different things about the situation described by the sentence, but because they do not interpret the sentence in the same way.

We thus need to assume not only that the facts are kept the same from one case to the other, but that the speakers in the two contexts do not misapprehend those facts. Now, it is not entirely clear what the facts are. According to Schaffer's description of the first case, the switch is initially set to *broken*, and then gets set to *local*. We find it hard to see how anyone would deny (22) if these are the facts. Clearly, the switch's getting set to *local* made a difference: if the move from *broken* to *local* had not been performed, the train would not have arrived at the

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[39] This is how Steglich-Petersen (2012, 131-132) construes the two cases.

station.[40] We do not think that the intuition of truth would be diminished in a conversational context in which it is pointed out that the train would also have arrived at the station if the switch had been set to *express*, or that it would have been a better idea to set the switch to *express*, since in such a case the train would have reached the station more quickly.

But there are other possible construals of the facts. Schaffer's description of the second case suggests that (for some unspecified reason) the only two admissible settings of the switch are *local* and *express*: the switch was not initially set to *broken*, and setting the switch to *broken* is not "under consideration." If these are the facts, then (22) is arguably false. Our verdict is tentative here, since we are not clear on what the fact that a setting of the switch to *broken* is not "under consideration" amounts to. But if this means that the switch's getting set to *broken* is a very remote possibility, then our view can straightforwardly explain why (22) seems false in this case, for the switch's getting set to *broken* would not be a relevant alteration of the switch's being set to *local*. We realize that this interpretation contradicts what we just said about the first case in the previous paragraph. But this means either that (i) the different intuitions about the truth-value of (22) are elicited by varying the facts about the situation under discussion, in which case no support for contextualism is offered, or that (ii) the facts under discussion are kept the same and fit either the current interpretation or the one proposed in previous paragraph, in which case no difference in intuitive truth-value is generated between the two contexts.

7. Salient vs. Relevant Contrast

Schaffer's mistake, in our view, is to let contextual salience determine the contrasts. We think there are good reasons to resist this determination. First, there is the problem, acknowledged by Schaffer, that in many contexts there just do not seem to be any salient contrasts. He writes:

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[40] On our view, the switch's being set to *broken* is a relevant alteration of the switch's getting set to *local*, since the former is what results from an elimination of the latter.

For instance, imagine that the king has eaten soup and died, and that the question under discussion is whether there is any connection between these events. In such a context, the occurrences of both the candidate cause and effect events are presupposed. It seems as if alternatives are not being queried as to what the king ate, or what fate he suffered. The alternatives being queried are of the wrong sort entirely to provide either of the contrasts needed (2013, 56).

In this example, it seems that an utterance of

(23) The king's eating of the soup caused his death

would automatically have to be deemed false, simply because it is taken for granted that both cause and effect occurred. One might respond that some alternatives to the king's eating of the soup, such as the king's not eating the soup, would naturally come to the minds of conversational participants. And since the king's not eating the soup counterfactually entails something other than death, the intuitive truth of (23) can be respected. But this move is not available to Schaffer, given what he says about the forest fire case discussed in the previous Section. According to Schaffer, a forest ranger cannot truly utter (21) ('The presence of oxygen caused there to be a forest fire') because "no alternative to the presence of oxygen is salient. For the forest rangers the presence of oxygen is simply presupposed" (2013, 52). Schaffer cannot coherently make this point and contend that (23) is true despite the fact that "no alternative to the king's eating of the soup is salient."[41] This raises serious doubts about Schaffer's claim concerning the role of salient contrasts.

We now propose to explore these problems further by considering first some causal claims that seem unacceptable, regardless of the context. Like Schaffer, we think that causal sentences involving negative nominals, such as

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[41] Another problem with the proposed alternative is that some natural contrasts to the king's eating of the soup, such as the king's drinking/nibbling/devouring of the soup, do not counterfactually entail something other than death. It is also far from obvious that "natural" contrasts are really context sensitive. Our contention would be that "natural" contrasts are really what we call relevant alterations. We recognize that we are not in a position to prove this contention, but none of the cases we have looked at here has threatened it.

(24) The gardener's not watering my flowers is a cause of the wilting of my flowers,

can be true. Causal claims involving negative event nominals have sometimes been thought to undermine the position that causation is always a relation between *events* (Lewis 2004b; Beebee 2004). Some even argue that such claims show that causation is a relation between facts rather than events (Mellor 2004). However, following Schaffer (2005), we hold that negative event nominals denote actual events. Hence, the nominal 'the gardener's not watering my flowers' denotes whatever activity the gardener was performing—say, his binge-watching some TV show—instead of watering my flowers. On our contrastive account, the truth of (24) does not commit us to the existence of a physical process connecting an omission to the wilting of flowers. (24) is true because the gardener's watering of my flowers is a relevant alteration of his watching TV, and had that alteration occurred, my flowers would not have wilted.

Now, consider:

(25) The Queen of England's not watering my flowers is a cause of the wilting of my flowers.

Unlike (24), (25) seems false. To respect this intuition, we need to hold that her watering my flowers is not a relevant alteration of whatever the Queen was doing while my flowers were wilting, say, her reigning on her throne. We thus need to supplement the account of relevant alterations we have relied on so far.

To account for cases of causation by omission, Sarah McGrath (2005) appeals to the notion of the *normal*.[42] What is normal, she writes, depends on standards that govern what things are "supposed to do." As McGrath emphasizes, standards form a very diverse, heterogeneous category. Laws of nature and statistical generalizations are standards governing the natural and social world. One can truly say, 'The absence of rain in June caused the grass to turn yellow,' if rain in June is statistically normal. Artifacts and biological systems are also governed by norms

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[42] See also (Halpern and Hitchcock forthcoming) for a similar proposal.

of proper functioning. One may truly say, 'Kathy's alarm clock's not ringing caused her late arrival,' because when they function properly, alarm clocks ring at the set time (McGrath ibid., 138). For the same kind of reason, one may correctly say, 'The heart failure caused the patient's death.' Finally, what is normal may be fixed by social, moral or prudential norms. This is the sense of normal that affects the truth-values of (24) and (25). (24) is true, because my gardener has a contractual obligation to water my flowers. By contrast, the Queen's watering of my flowers is not a relevant alteration, for there is no standard by which she is supposed to water my flowers. This is why (25) is false.

Generally speaking, an alteration is relevant if it would obtain in virtue of some norm or other. And the norm in question may be statistical, functional, social, moral or prudential. It is worth saying a little more about social, moral and prudential norms. The normative relations at work here are better understood as *reasons* rather than *obligations* or *requirements*. Unlike obligations, reasons are *pro tanto*, that is, they can be outweighed by other considerations. Hence, one may have a reason to perform an action without having an obligation to do so, if one has a stronger reason to do something else instead. The fact that I enjoy my flowers gives me a (prudential) reason to water them. But this reason may be outweighed by other considerations. Suppose I learn that my mother, who lives in another town, just fell sick and is in need of my help. In such a case, my reason to leave home and take care of my mother is stronger than my reason to stay home and water my flowers. Yet, the following claim seems true in this case:

(26) My not watering my flowers is a cause of the wilting of my flowers.

In our view, (26) is true because I have a reason (but certainly no obligation) to water my flowers. (25), on the other hand, is false because the Queen has no reason to water my flowers.

This example allows us to address a potential concern. A given situation typically involves many different kinds of norms. One might suggest that when these norms conflict, the conversational context determines which one is operative.[43] But this suggestion is implausible. The intuition that (26) is true remains strong even in contexts in which the focus is on the reasons I have for taking care of my mother rather than my flowers. To repeat, on our view, an alteration is relevant if it would obtain in virtue of *some norm or other*.[44] Hence, our appeal to norms does not invite a context-sensitive account of causation.

Let us now examine Schaffer's explanation for the unacceptability of (25). In a context in which the Queen's watering of my flowers is a salient contrast, an utterance of (25) would express the true proposition

> (25a) The Queen of England's not watering my flowers rather than watering them is a cause
>
> of the wilting of my flowers rather than their blossoming.[45]

Schaffer proposes to explain the unacceptability of (25) *pragmatically*: we resist taking the unrealistic supposition that the Queen would deign to water my flowers as a contrast. Schaffer's view seems to be that in some contexts, an utterance of (25) would be strictly speaking true; however, we would reject it because we would take the contrast it expresses as too far-fetched. We find this account doubtful, given how robust the intuition of falsehood is.[46] But a simpler and

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[43] See (Halpern and Hitchcock forthcoming) for such a suggestion, which is criticized by Blanchard and Schaffer (forthcoming). For the latter, what is taken to be normal is relevant not to the facts of actual causation, but to our background biases of cognitive performance.

[44] McGrath (2005, 140) makes the same point.

[45] Schaffer's (2005, 332) interpretation is a little different, because he treats negative nominals as denoting actual events. Assuming that the Queen was reigning on her throne while my flowers wilted, an utterance of (25) would express the true proposition:

> (25b) The Queen of England's reigning on her throne rather than watering my flowers is a cause of their wilting rather than blossoming.

[46] Steglich-Petersen gives other examples of highly dubious causal claims that Schaffer seems committed to accepting: "Susan scratching her nose rather than spontaneously vaporizing caused her arrest, as long as Susan wouldn't have been arrested if she had spontaneously vaporized, even if the actual nose scratching had nothing to do with her arrest" (2012, 122).

more appealing contextualist response is worth considering. A contextualist could hold that relevance operates as a constraint on the admissibility of a salient contrast. More specifically, if a contrast is not relevant (according to our invariantist account of relevance), then it cannot enter into the proposition expressed by a causal sentence, even if that contrast is salient. Hence, all salience would do is select, among the relevant contrasts, which ones are involved in the proposition expressed by a causal sentence. According to this response, no utterance of (25) would be true, because the Queen's watering of my flowers is not a relevant contrast and can thus not be part of the proposition expressed by an utterance of (25).

Unfortunately, this response does not address all the counterintuitive consequences of the contextualist account. Some causal sentences are such that denying them is unacceptable, regardless of the context. This is a problem for Schaffer's contextualism, because on his view any (binary) causal sentence is such that it can be truly denied in some appropriately constructed context. We will consider two types of cases: cases in which the occurrence of c is presupposed and there are thus no salient contrasts for c; and cases in which the salient contrasts for c do not make any difference with respect to e. In both cases, contextualism entails that the claim 'c is not a cause of e' should be accepted.

Consider again the conversational context involving Putnam's Venusians. They find an utterance of (21) ('The presence of oxygen caused there to be a forest fire') acceptable, because it informs them of a feature of the earth's atmosphere that is causally responsible for the occurrence of fire. However, as Schaffer puts it, the Venusians are "presupposing that lightning strikes are present" (2013, 52). Hence, no alternatives to lightning strikes are salient. We agree with Schaffer that it would be pointless for the Venusians to utter:

(27) A lightning strike was a cause of the fire.

But surely, they would not regard (27) as false. Or to put it differently, the Venusians would not be tempted to *deny* (27). Not recognizing any salient alternative to the lightning strike would lead them to investigate, what else, *other than lightning*, was a cause of the fire; but it would not lead them to deny that a lightning strike was a cause of the fire. However, Schaffer's view implausibly entails that this is what the Venusians would do.[47] Such examples are easily multiplied. Recall our example (in Section 2) of Suzy throwing a rock that shatters a bottle. According to Schaffer's contextualism, there should be contexts in which the salient contrasts are such that the sentence 'Suzy's rock throw is not a cause of the shattering of the bottle' can be truly uttered. But this is highly dubious.

Let us now examine a case where the salient contrasts for the causal event do not make any difference with respect to the effect. Consider again the poisoning example discussed in Section 2, and suppose that we focus on the fact that for a while Assassin considered putting a "double dose" of poison, that is, 10 mg, in Victim's coffee instead of the "single," 5 mg, dose he actually used. This is the only salient contrast for the cause. But we all know that both options would have killed Victim. Suppose further that one of us remarks that it would be nice if Victim were still with us. So Victim's surviving is the salient contrast for the effect. However, in such a context, we would not in the least be tempted to utter

(28) Assassin's putting 5 mg of poison into Victim's coffee is not a cause of Victim's death.

This spells trouble for Schaffer, for his view entails that an utterance of (28), made in the context we just described, would express the true proposition

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[47] Recall that according to Schaffer (2013, 43), the forest rangers would go so far as to deny 'The presence of oxygen caused the forest fire,' because they are presupposing that oxygen is present, and no alternatives to the presence of oxygen are in play. Parity of reasoning requires him to hold that Venusians would deny (27).

(28a) Assassin's putting 5 mg of poison into Victim's coffee rather than 10 mg is not a cause of Victim's death rather than survival.

We have examined two types of counterintuitive causal denials. In one, the occurrence of c is taken for granted, and no alternative to c is considered. In the other, the only salient alternatives c* to c are such that their occurrence would make no difference with respect to e. In both cases, an utterance of 'c is a cause of e' is highly plausible, and it is highly implausible to utter 'c is not a cause of e.' The problem is that contextualists such as Schaffer are forced to reject these intuitions. It is thus wrong to hold, like Schaffer does, that non-salient alternatives are irrelevant to the evaluation of causal sentences.

8. Conclusion

We have examined four arguments invoked by Schaffer in support of his brand of contextualism. He argues that puzzles about transitivity can be solved by appealing to contextualism. In our view, invariantism can offer as good a treatment of these puzzles as Schaffer's contextualism. Second, Schaffer contends that the descriptions of the causal relata one chooses affect the plausibility of one's causal claim. But as we saw, this argument appeals to the wrong kind of causal sentences, that is, sentences involving imperfect nominals. When the causal relata are denoted by perfect nominals instead, the data actually does not favor contextualism over invariantism. Third, Schaffer invokes the phenomenon of contrastive focus to argue that all causal statements implicitly designate salient alternatives to the cause and effect. We showed how this phenomenon can be offered a pragmatic explanation compatible with an invariantist semantics. Finally, we looked into Schaffer's claim that the appropriateness of some causal statements vary from context to context, depending on what the speakers take for granted or make salient. We indicated four sources of inappropriateness invariantists can invoke. We then

argued that contrary to what Schaffer's contextualism entails, there are causal sentences that are always correct and can never be plausibly denied, regardless of the context. We conclude that invariantism offers a better semantics of causal sentences than Schaffer's contextualism does.

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