

## CONTEXT, CONDITIONALS, FATALISM, TIME TRAVEL AND FREEDOM

In this paper, building on the work of Robert Stalnaker and David Lewis, I sketch a theory describing the context-dependence of certain modal sentences, including counterfactual sentences. Then, I reveal its potential by briefly considering its application to a familiar argument for fatalism and a recent exchange about time-traveler freedom between Kadri Vihvelin and Ted Sider. My discussion provides a new take on the flaws and the seductiveness of both the Fatalist Argument and the Freedom Paradox, a take that may even have application to arguments for incompatibilism advanced by Carl Ginet and Peter van Inwagen.

### 1. Stalnaker on Context/Lewis on Boundary

According to Stalnaker, context includes information presumed to be shared by the participants in the conversation. He proposes representing this information, *the common ground*, by a set of possible worlds, *the context set*. Intuitively, the presumed-to-be-shared information is what is true in all the members of the context set. Stalnaker takes this information to be what is presupposed. He also takes the common ground to play an important role regarding assertion. If I utter ‘The king of France is bald’, then, in order for me to assert that the king of France is bald, the common ground must include the presupposition of that sentence, the proposition that there is presently one and only one king of France. So, for Stalnaker, the context set must include only worlds in which there is just one such king. It is not required that the king of France be bald in these worlds. Indeed, that would undermine the point of the assertion. “Assertions ... are proposals to change the context by adding the

information that is their content” (Stalnaker 1999, 111).

I will adopt Stalnaker’s account of context as just presented with two minor modifications. First, instead of representing the common ground by a set of possible worlds, I will represent it as a set of propositions. Hence, content is added to the common ground by adding a proposition rather than by eliminating possible worlds. This avoids the consequence that every proposition entailed by a presupposition is thereby a presupposition. Second, in the representation of the common ground, it will be useful to keep track of which of the propositions are *suppositions* and which are *presuppositions*. Both presuppositions and suppositions can be bits of presumed-to-be-shared information, but, as I see it, presupposing P includes a commitment to the truth of P that supposing P does not. As a result, and as I will illustrate below, important features of modal utterances are sensitive to the falsity of a presupposition in a manner that they are not sensitive to the falsity of a supposition. Just so, it will be helpful that I not represent the common ground (as Stalnaker does) in one uniform presuppositional lump.

In “Scorekeeping in a Language Game”, Lewis suggests that, for an utterance of a sentence with modal terms, context determines the sentence’s truth conditions.

The boundary between the relevant possibilities and the ignored ones ... is a component of conversational score, which enters into the truth conditions of sentences with ‘can’ or ‘must’ or other modal verbs (Lewis 1983, 246).

My favorite illustration of this idea is from “The Paradoxes of Time Travel”:

To say that something can happen means that its happening is compossible with certain facts. *Which* facts? That is determined, but sometimes not determined well enough, by context. An ape can't speak a human language—say, Finnish—but I can. Facts about the anatomy and operation of the ape's larynx and nervous system are not compossible with his speaking Finnish. The corresponding facts about my larynx and nervous system are compossible with my speaking Finnish. But don't take me along to Helsinki as your interpreter: I can't speak Finnish. My speaking Finnish is compossible with the facts considered so far, but not with further facts about my lack of training (Lewis 1986, 77).

Lewis uses this idea to resolve the Grandfather Paradox. Suppose Tim's grandfather died of natural causes in 1957. Still, Tim wishes that he had killed Grandfather. Tim hops into a time machine and emerges in 1920. After careful planning and training, Tim is well prepared to murder his grandfather in 1921.

Tim's killing Grandfather that day in 1921 is compossible with a fairly rich set of facts: the facts about his rifle, his skill and training, the unobstructed line of fire, the locked door and the absence of any chaperone to defend the past, and so on. Indeed it is compossible with all the facts of the sorts we would ordinarily count as relevant in saying what someone can do. ...Relative to these facts, Tim can kill Grandfather. But his killing Grandfather is not compossible with another, more inclusive set of facts. There is the simple fact that Grandfather was not killed. Also there are the

various other facts about Grandfather's doings after 1921 and their effects ... Relative to these facts, Tim cannot kill Grandfather (Lewis 1986, 77).

I find Lewis's case for context setting a boundary between the relevant possibilities and the ignored ones convincing. I hope you will go along with me on the need for the boundary as part of the conversational score.

Here is my suggestion on how to make the boundary part of the score: The boundary between the relevant possibilities and the ignored ones is the common ground—the suppositions and presuppositions—of the context for evaluation. To see how my suggestion is supposed to work, notice that it is when we suppose that Grandfather was not killed in 1921 that it seems so natural to say, 'Tim can't kill Grandfather'. It is when we don't suppose that, and only suppose or presuppose matters local to Tim's stalking Grandfather, that we are inclined to say, 'Tim can kill Grandfather'. What I offer here is a hypothesis as to the set of facts with which a proposition needs to be compossible for that proposition to correctly be asserted to be possible. Thus, ' $\diamond P$ ' is true in C if and only if the content of 'P' is compossible with the common ground of C.<sup>1</sup> The corresponding account for necessity sentences is: ' $\square P$ ' is true in C if and only if the content of 'P' is entailed by the common ground of C.<sup>2</sup>

This account of the truth conditions of modal sentences may need to be qualified to sidestep a messy matter stemming from the possibility of false presuppositions. Suppose Smith utters, 'Jones can't get polio', and it is presupposed that Jones has had a polio vaccination. Suppose also that, unbeknownst to all the participants of the conversation, Jones has not been vaccinated and so is at risk. Then it seems very clear that Smith has not made a true assertion when he says 'Jones can't get

polio’, despite the fact that the content of ‘Jones gets polio’ is not compossible with the common ground at the time the utterance was made.

My take<sup>3</sup> on cases like this is that the built-in context-dependence of modal sentences generates an interesting but familiar phenomenon in a new guise. Because of this context-dependence, a false presupposition of *the context* can have effects parallel to the effects of a false sentential presupposition, a presupposition of *a sentence*. Since the elements of the common ground are already being taken for granted, they are no part of the information the speaker intends to convey by the utterance of the modal sentence, but his commitment to the truth of the conveyed information may still be sensitive to what is being taken for granted. So, for example, should Smith find out that Jones wasn’t vaccinated, he would surely want to retract his utterance. It would be like saying ‘The king of France is bald’ with a common ground that includes the presupposition that there is a unique king of France, only to find out later that there is no such king. When we do recognize cases like the vaccination case as involving something akin to sentential presupposition failure, familiar hard questions arise. It certainly seems that no true assertion is made in the vaccination case, but are we prepared to say that a false assertion was made, or is it that the presupposition failure undercuts there being any assertion at all? Rather than pretending to settle this and other hard issues about presupposition failure,<sup>4</sup> I will take a safer path, sidestepping them thus: Take my account of the truth conditions of modal sentences to apply only in cases where all the presuppositions of the common ground are true.

The possibility of false suppositions is not as troublesome as the possibility of false presuppositions. If we are supposing that there is a monster in the next room, then an utterance of ‘It must be scary in there’ should clearly be counted as making an assertion and as true even though

there is (presumably) no monster in there. No restriction of my account is needed to sidestep potential worries about false suppositions.

## 2. The Subjunctive Conditional

Consider a simple analysis of the subjunctive conditional (' $P > Q$ ' abbreviates 'If P were the case, then Q would be the case'):

$P > Q$  if and only if  $\Box(P \supset Q)$ ,

with a contextualist twist developed by Ken Warmbrød (1981) and Kai von Fintel (2001). Very roughly, as Warmbrød describes it, context will supply what he calls auxiliary assumptions or auxiliary "suppositions", which together with P, must entail Q in order for it to be true that if P were the case Q would be the case. The auxiliary assumptions function something like the cotenable propositions and laws of nature do in Nelson Goodman's work (1983; 8-9, 15) or like what Roderick Chisholm calls "presuppositions" in his work (1955, 102-103).

There is a straightforward way to incorporate this approach to subjunctive conditionals into my contextualist framework, because the simple analysis basically tells us that subjunctive conditionals are a kind of modal sentence already discussed. Thus, if the presuppositions of the common ground of the context for evaluation are true and this common ground entails that the antecedent implies the consequent, then the assertion made by the utterance of the subjunctive

conditional sentence is true. If the presuppositions of the common ground are true and the common ground doesn't entail that the antecedent implies the consequent, then the sentence is false. Support: In standard philosophical discussions of time travel, why do we often say, 'If Tim were to try to kill Grandfather, he would fail'? Obviously, for the same sorts of reasons that we say in these contexts, 'He can't kill Grandfather'. We are supposing that he didn't. So, it *must* be true that, *if he tries, then he fails*.

This is not the place to try to give a full defense of my approach to subjunctive conditionals. I should, however, at least address one standard example of a criticism that has been thought to undermine this idea:

1. If the match were struck, then it would light.

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∴ 2. If the match were struck and wet, then it would light.

It seems that the premise is true, but, in conjunction with the proposed analysis, the premise also seems to entail an obvious falsehood. Surely, the objection goes, it might be true that, if the match were struck, it would light even though, if it were struck and wet, then it would not light. Strengthening the antecedent is a valid form of inference for strict conditionals. But, because of examples like the match example, it is not generally regarded as a valid form of inference for subjunctive conditionals.

Fortunately, the match example is fallacious. The premise's being true and the conclusion's being false depend on there being a change of context. Though utterances of the premise sentence

are true in many contexts, the conclusion sentence will usually be defective for those contexts. In a typical context in which the premise sentence is uttered, the common ground will include that the match is dry. In those contexts, the common ground contradicts the antecedent of the conclusion and so an utterance of the conclusion sentence would have little point; on the proposed analysis, the conditional would be trivially true.<sup>5</sup> For just this reason, these are not natural contexts for evaluation of the conclusion sentence; when we consider the conclusion sentence, we tend to bring into play a different kind of context, one where the common ground is consistent with the antecedent. These contexts will not have as part of the common ground that the match is dry. These contexts do not present any problem either. Given the analysis, it is hard to see how the premise sentence could be true in any of these contexts precisely because it is not part of the common ground that the match is dry.

### 3. Fatalism

As a first illustration, I want to show how my contextualist framework reorients a certain familiar reply to a famous fatalist argument. I take Gilbert Ryle's "It Was to Be" as my source for the statement of the argument:

At a certain moment yesterday evening I coughed and at a certain moment yesterday I went to bed. It was therefore true on Saturday that on Sunday I would cough at the one moment and go to bed at the other. ... But if it was true beforehand ... that I was

to cough and go to bed at those two moments on Sunday, 25 January 1953, then it was impossible for me not to do so (1954, 15).

Leaving out the coughing, and substituting ‘necessarily’ for ‘impossible not’, fairly enough, the argument can be put in premise/conclusion form as follows:

The Fatalist Argument

1. Ryle went to bed on 1/25/53.
  2. If Ryle went to bed on 1/25/53, then it was true on 1/24/53 that Ryle would go to bed on 1/25/53.
  3. If it was true on 1/24/53 that Ryle would go to bed on 1/25/53, then necessarily Ryle went to bed on 1/25/53.
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4. Necessarily, Ryle went to bed on 1/25/53.

The argument generalizes. There doesn’t seem to be anything special about Ryle’s going to bed or the dates selected.

One standard reply to this style of argument (advanced, for example, in Thomas 1970) is that the statement of Premise 3 is ambiguous between a wide-scope reading and a narrow-scope reading. We are told that we should distinguish:

Necessarily (if it was true on 1/24/53 that Ryle would go to bed on 1/25/53, then Ryle went

to bed on 1/25/53)

from

If it was true on 1/24/53 that Ryle would go to bed on 1/25/53, then (necessarily, Ryle went to bed on 1/25/53).

The wide-scope reading is true, indeed obvious. In every possible world in which it was true on 1/24/53 that Ryle would go to bed on 1/25/53, it is also true that Ryle would go to bed on 1/25/53. The narrow-scope reading is false; it is not the case that Ryle went to bed on 1/25/53 in every possible world. This appears to give us a nice and neat account both of why the Fatalist Argument is seductive and how it is flawed. It is flawed because on neither of these readings of the Premise-3 sentence does it turn out that the argument is sound. On the wide-scope reading, the Premise-3 sentence is true but then the argument is invalid. On the narrow-scope reading, the argument is valid but then the Premise-3 sentence is false. The argument is seductive because it can seem sound if we take the narrow-scope reading when considering the validity of the argument and take the wide-scope reading when considering if all the premises are true.

My contextualist framework suggests that something different is going on with the Fatalist Argument. Consider the first premise. It is a claim about Ryle's action of going to bed on a particular day over fifty years ago. I don't know about you, but that is not something I have good information about. It is a pretty common activity, and we do have Ryle's report that he went to bed that day, but we also know that philosophers are prone not to let the truth get in the way of a good example. Still,

it seems like it would be a little silly for us to worry too much about whether Ryle did go to bed that day, because, as I said, the argument generalizes; we could run a parallel argument about John Wilkes Booth's shooting Abraham Lincoln or about some action that we all might have witnessed first hand. Just so, in considering Ryle's argument, we normally just suppose that the first premise is true and then get on with the philosophy. This supposition matters given my contextualist framework. For a context that includes the supposition that Ryle went to bed on 1/25/53, the Premise-1 sentence is true. The consequent of the Premise-3 sentence is also true—that Ryle went to bed is entailed by the common ground of the context—and, so, the entire Premise-3 sentence is true. (In order to keep things simple, I am assuming the Premise-3 sentence is a material conditional sentence.) The Premise-2 sentence is a necessary truth (and is so quite independent of the context). Prima facie, the argument is valid. Therefore, with Premise 1 as a supposition in the common ground of the context, the argument is sound!

Have I just endorsed fatalism? No. I have claimed that there is at least one sort of context relative to which the premise sentences and the conclusion sentence of the Fatalist Argument constitute a sound argument. So, I have also claimed that, in this sort of context, the conclusion sentence, 'Necessarily, Ryle went to bed on 1/25/53', is true. But, insofar as that is anything like an endorsement of fatalism, it is not a terribly worrisome one. My contextualist framework also includes an account of the truth conditions of this sentence that makes it clear that we have not been given any reason to think that Ryle was somehow fated to go to bed on that date; 'Necessarily, Ryle went to bed on 1/25/53' is true in a context with a common ground that includes the supposition that Ryle went to bed on 1/25/53 simply because that Ryle went to bed on 1/25/53 entails that Ryle went to bed on 1/25/53! Furthermore, notice that, for the argument to be sound and for the conclusion

sentence to be true, it is crucial that the context include a supposition or a presupposition to the effect that Ryle went to bed on that date. (If the common ground does not entail that Ryle went to bed on 1/25/53, then my contextualist framework says that the Premise-3 sentence has a false consequent. So, then, in order for the Premise-3 sentence to be true, the Premise-1 sentence must be false.) There are lots of ordinary contexts that don't include such a common ground; relative to these contexts, 'Ryle could have not gone to bed' is true.<sup>6</sup>

What of the narrow-scope/wide-scope ambiguity? My suspicion is that there is no such ambiguity, because there is no natural language transformation of, say, 'If Ben is a bachelor, then Ben is necessarily unmarried' that reveals the so-called ambiguity (cf., Stalnaker (1999, 42) on definite descriptions and scope distinctions); we have to resort to a formal language or some context-shifting or at least slip in parentheses and then do some coaxing. All of this is to be expected on my account. If the content of 'P' is in the common ground of C, then ' $\Box(P \supset Q)$ ' will be true in C if and only if ' $P \supset \Box Q$ ' is true in C.<sup>7</sup> I think that is why we sometimes move freely back and forth between 'Necessarily, if P, then Q' and 'If P, then necessarily Q' in certain situations. There are other situations where those same English constructions don't exhibit this equivalence, but there isn't anything here to support the idea that there is a single English construction with two meanings.

#### 4. Time-Traveler Freedom

For a second application of my contextualist framework, I will consider the Freedom Paradox. Though neither author considers the paradox in precisely the form I will, my formulation owes much

to Kadri Vihvelin's (1996) "What Time Travelers Cannot Do?" and Ted Sider's (2002) "Time Travel, Coincidences and Counterfactuals". The paradox is a nice, concise and still tempting, rendering of the common concern that the real threat to the possibility of one-dimensional backwards time travel is not that we could change the past, but that there would be surprising and inexplicable constraints on what a time traveler can do.

Suppose again that Tim's grandfather died of natural causes in 1957, that Tim hops into a time machine emerging in 1920, et cetera. Then consider:

#### The Freedom Paradox

1. Tim can kill Grandfather.
2. If S can A, then, if S were to try to A, S would (or at least might) succeed.
3. If Tim were to try to kill Grandfather, then he would not succeed.

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4. Tim can't kill Grandfather.

The first premise is motivated the same way that it is motivated in the Grandfather Paradox; Tim has what it takes, nothing stands in his way. The second premise, a principle from Vihvelin, is doing most of the real work here, but it is a principle with intuitive appeal. If I say I can make the eight-foot putt before me and it's true that I would fail to make it if I tried, then what I said was wrong. (Following Sider, I will refer to Premise 2 as *Vihvelin's principle*.) The third premise is supposed to be obvious given the time-travel story we are supposing is true of Tim: We all know that Grandfather didn't die at the earlier time; in order for no inconsistency to arise, it must be the case that if Tim were to try

kill Grandfather, he would fail. Prima facie, the only escape from contradiction is to abandon the possibility of time travel or admit that Premise 1 is false, thereby welcoming “strange shackles” (Sider 2002, 122) on what a time traveler can do.

Speaking in favor of the possibility of time travel, Sider in effect begins a response to the Freedom Paradox that argues that Vihvelin’s principle is false in certain contexts. Consider:

(\*) If Ben were a permanent bachelor and tried to get married, then he would not succeed,

where ‘permanent bachelor’ is a phrase of art meaning someone who never marries. Intuitively, (\*) is true. In fact, it doesn’t matter how often or how hard Ben tries; if he were a permanent bachelor, it is not true that he would or even that he might marry. The evident truth of (\*) in and of itself is no threat to Vihvelin’s principle; the counterfactual that is relevant to whether Ben can get married and Vihvelin’s principle is not (\*). It is (\$):

(\$) If Ben were to try to marry, then he would not succeed.

Sider’s clever move, however, is to point out that the truth of (\*) indicates that there will at least be some contexts in which (\$) is true:

Constraints on the similarity metric for the counterfactual conditional can accomplish what is accomplished by the explicit inclusion of a predicate inside the antecedent of

such a conditional. Imagine a similarity metric that holds constant a person's status with respect to permanent bachelorhood, and therefore counts possible worlds in which an actual permanent bachelor gets married as being very distant from the actual world (2002, 130).

Working within the framework of Lewis's account of counterfactuals, the idea is that (\$) will turn out true if the context selects a similarity metric on possible worlds such that worlds in which Ben is a permanent bachelor are all closer to the actual world than worlds in which Ben is not a permanent bachelor. Though I would tell this story a little differently than Sider, doing it in terms of what is in the common ground rather than in terms of a contextually selected similarity metric, I think Sider is essentially correct about (\*) and (\$) and that this is the key insight for understanding what is going on in the Freedom Paradox.

Now, Sider thinks that the truth of (\$) in such contexts spells trouble for Vihvelin's principle. Just following my previous quote from Sider, he goes on to say,

In that case (\$) is true, nevertheless, actual permanent bachelors are free to marry. The truth of (\$) is due to the same sort of selective attention as results in the truth of (\*), only now the selective attention is accomplished by the similarity metric rather than the presence of the predicate "permanent bachelor" inside the scope of the counterfactual. The moral is that Vihvelin's principle fails if the similarity metric for the counterfactual conditional accomplishes this sort of selective attention (2002, 130).

I will disagree with Sider on just this point, but, before doing so, let me complete Sider's solution to the Freedom Paradox, which is merely a matter of reapplying what has been said about (\$). In certain contexts, where the similarity metric is such that the worlds closest to the actual world are ones where Tim is a time traveler and Grandfather lived a long life, Premise 2 of the Freedom Paradox, Vihvelin's principle, is false. In such a context, 'If Tim were to try to kill Grandfather, he would not succeed', the Premise-3 sentence, is true and, yet, Tim still has the ability to kill Grandfather. There are other contexts where those facts don't hold in all the closest worlds. So, some of the closest worlds would be worlds where Tim is not a time-traveler and it is not true that Grandfather lived a long life. In some of these worlds, Tim tries to kill Grandfather and succeeds. So, in these contexts, the Premise-3 sentence will be false. The idea is that there are no contexts in which the Freedom Paradox is sound. In every context, either the Premise-2 sentence or the Premise-3 sentence will be false.<sup>9</sup>

Sider makes a minor mistake. Though there will be contexts where (\$) is true, this doesn't show that Vihvelin's principle is false. We should expect 'is free to', 'is able to', and 'can' to be context dependent in the same manner that counterfactuals are. In contexts selecting a similarity metric that has Ben being a permanent bachelor in the nearby worlds, not only is (\$) true, but so is 'Ben is not able to marry' and 'Ben can't marry', otherwise we are stuck with abominable conjunctions like 'If Ben were to try to marry, he would fail, though Ben can marry'. One can't undermine Vihvelin's principle by showing that its consequent sentence is false in certain contexts and then showing that its antecedent sentence is true in another context. That would be a kind of equivocation.

If I am right, then I need a different way out of the Freedom Paradox. I am not prepared to challenge Vihvelin's principle, and I agree with Sider that there are contexts in which the Premise-3

sentence is true. So, it looks like I must accept that there are contexts where the Premise-1 sentence is false. But, the negation of Premise 1 looks like trouble. It says that Tim can't kill Grandfather. The strange shackles seem to be back in place. What am I to say?

Having been exposed to my contextualist framework and its application to the Fatalist Argument, perhaps you already see what I should say. Yes, there are contexts in which we suppose that Tim is a time traveler and that Grandfather didn't die at a young age. These are common in discussions of the Grandfather Paradox; that's how philosophical discussions of the case all begin. In these contexts, the Premise-3 sentence is true, the Premise-1 sentence is false, and I see no reason to question Vihvelin's principle; that Tim is a time traveler and that Grandfather didn't die at a young age are suppositions in the common ground for these contexts, and so sentences like 'Tim can't kill Grandfather' and 'If Tim were to try, then he would not succeed' are true. But so what? According to my contextualist framework, the falsehood of the Premise-1 sentence in these contexts merely amounts to Tim's not killing Grandfather in 1921 being entailed by the supposition that Grandfather didn't die until 1957. That truth maker does not begin to suggest that there are shackles of any kind preventing Tim from taking out Gramps. Furthermore, there are plenty of other contexts with nothing about Grandfather's death in 1957 or any of his post-1921 doings in the common ground for which 'Tim can kill Grandfather' is true. The failure of Premise 1 in contexts that often arise in philosophical discussions is no more worrisome than the fact that the conclusion sentence of the Fatalist Argument is true in such contexts.

## 5. Freedom from Consequence

My contextualist framework has applications to other philosophical issues besides fatalism and time-traveler freedom. For example, in a recent article (2005), I apply my conclusions about modal sentences to issues about explanation and knowledge. There is more to be done. Here is a concluding and (I hope) enticing gesture in the direction of some of the work that remains.

What is generally regarded as one of the most serious metaphysical issues about human freedom is the issue of the compatibility of free will and determinism. Consequence arguments of the sort made famous by Peter van Inwagen (e.g., 1983) and Carl Ginet (e.g., 1983) are the leading arguments in favor of incompatibilism. Very roughly, these arguments start by asking us to suppose that determinism is true, that there is some accurate specification of the state of the world at some distant past time, H, that in conjunction with an accurate specification of the laws of nature, L, entails that some agent, S, will perform some action, A, one that S indeed will perform. Then, we are given two premise sentences that it is natural to think are true, something like ‘S can’t prevent H’ and ‘S can’t prevent L’. We are asked to conclude that S can’t prevent A on the strength of the fact that the conjunction of H and L entails that S performs A. There is certainly something compelling about these arguments. It can also seem that there is something disappointing and implausible about their conclusion. Seeing this as a threat to our attributions of moral responsibility, many uphold incompatibilism and search for some account of free will on which free will is compatible with indeterminism.

Given my contextualism, the search for such account is an overreaction to the arguments: Insofar as the context for evaluation includes in its common ground the suppositions that H, that L and that the conjunction of H and L entail that S performs A, which it quite naturally will given that these propositions are more or less precisely what we are asked to suppose, the premise sentences

and the conclusion sentence will all be true. But, there is no great cause for concern. The conclusion sentence, ‘S can’t prevent A’ turns out true in such contexts for a straightforward reason—namely, that the content of ‘S does not perform A’ is not compossible with the suppositions about H, L, and S’s performing A. There are, of course, plenty of other, much more ordinary contexts with nothing about the laws of nature or states of the universe in the common ground; in these contexts, ‘S can perform A’ may be true.<sup>10</sup>

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1. My approach is similar to the approach of Chierchia and McConnell-Ginet (1990, 235-237), though in their discussion of presupposition they do not go so far as to identify any relationship between the common ground and what they call the modal base. See their discussion of the common ground *vs.* the modal base (pp. 290-291). Their modal base is Lewis's "certain facts", but they think that it should not be identified with the common ground.
2. My statement of the truth conditions of necessity sentences uses the verb 'entails'. It is tempting to take this modal term *not* to be context-sensitive, perhaps as expressing some formal notion of logical consequence. That is fine for the purposes of this early sketch of my framework. It does keep matters conveniently simple. Nevertheless, I am tempted to think that 'entails' as used in the text should not be treated in any exceptional way. Parallel points apply to my statement of the truth conditions of possibility sentences and its use of the phrase 'is compossible'.
3. My first temptation (see Carroll 2005) when faced with an example like this was to change my specification of the boundary to require that the boundary only include the suppositions and the *true* presuppositions of the common ground. My thought was that Smith had actually made a false assertion. But, now, I don't think that this is the way to go. Suppose again that Jones wasn't vaccinated but this time suppose that he is genetically immune to the disease, and so doesn't have the normal susceptibility to the disease. If Smith made a false assertion in the original case, then he made a true assertion in this variation of that case, even though Jones's getting polio is compossible with the true presuppositions and the suppositions. Thank you to Marc Lange for raising both versions of the vaccination example.
4. See von Stechow (2004) and Yablo (2004) for a taste of the complications concerning sentential presupposition failure.
5. von Stechow (2001, 134-135) reports that Irene Heim made the proposal that, roughly, subjunctive conditionals presuppose that their antecedent is possible. von Stechow adopts Heim's proposal. It is in line with my contention that an utterance of the conclusion sentence in a context that includes that the match is dry would be defective.
6. One other point about the Fatalist Argument: I have suggested that we normally just *suppose* that Ryle went to bed on the date reported. We don't *presuppose* that because we don't have much reason to think that it is true. So, the truth of the conclusion sentence in these contexts depends on a supposition that we don't have much reason to think is true. That's one more reason not to be troubled by the fact that 'Necessarily, Ryle went to bed on 1/25/53' will be true in such a context. We might all suppose that pigs fly, and so 'Pigs fly' would be true, but that doesn't mean we should worry about hitting one on our next airline flight. Of course, *some* events can be plugged into the argument for which participants of a conversation will be prepared to presuppose the first premise. My point is just that this won't work for every event. In particular, it won't work for a wide range of future events, the ones we don't have reason to think will occur.
7. Proof: Assume the content of 'P' is in the common ground of C. If ' $\Box(P \supset Q)$ ' is true in C, then the common ground of C entails the content of ' $P \supset Q$ '. But, since the content of 'P' is in the

common ground of C, it also follows that the common ground of C entails the content of 'Q'. So, ' $\Box Q$ ' and ' $P \supset \Box Q$ ' are true in C. That's one direction. If ' $P \supset \Box Q$ ' is true in C, then, since the content of 'P' is in the common ground of C, ' $\Box Q$ ' must be true in C. If ' $\Box Q$ ' is true in C, then the common ground of C entails the content of 'Q'. But, since anything that entails the content of 'Q' entails the content of ' $P \supset Q$ ', the common ground of C entails the content of ' $P \supset Q$ '. So, ' $\Box(P \supset Q)$ ' is true in C.

8. I am putting words in Sider's mouth. He actually says what I have quoted here not about (\$) and (\*), but about two analogous but more complicated sentences he labels (PB1') and (PB1).

9. Here's where Sider makes essentially this point:

(KV) If Killer had attempted to kill Victim, Killer would have or at least might have succeeded.

Vihvelin's principle says that Killer is free to kill Victim only if (KV) is true. (KV) may well be false under a similarity metric that gives weight to what occurs after the confrontation of Victim by Killer. Such a metric might require Killer and Victim to be temporal parts of the same time-traveling continuant in nearby worlds, and in such worlds Killer's murderous attempt fails. But under such interpretations of counterfactuals, Vihvelin's principle is false. On the only interpretation of counterfactuals that vindicates Vihvelin's principle, what occurs after the confrontation does not affect the similarity of worlds, and therefore whether worlds match the actual world with respect to whether Killer and Victim are temporal parts of the same continuant is irrelevant. ... (KV) is therefore true, under this similarity metric. Vihvelin's principle is no obstacle to the temporal part, Killer, being free to kill the temporal part, Victim (2002, 131).

10. Thanks to an anonymous referee, David Auerbach, David Austin, Joe Keim Campbell, Stephen Crowley, Wayne Davis, Mylan Engel, Marc Lange, Ram Neta, Alistair Norcross, Duncan Pritchard, John Roberts, Jonathan Schaffer, Jason Turner, Kadri Vihvelin and especially Mark Heller and Michael Pendlebury for terrific conversations about context.