Scorekeeping

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Abstract

An influential suggestion from David Lewis is that we should think of assertions in terms of how they affect the conversational score. This note outlines a way to model conversational scores in such a way that two assertoric effects are brought together: that to assert is to propose to add information to the common ground, and that to assert is to undertake commitments. Rather than being seen as rivals, they should be viewed as complementary descriptions of our practises of making assertions.

Keywords Assertion - Scorekeeping - Deontic score - Common ground

An influential suggestion from David Lewis is that we should think of assertions in terms of how they affect the 'conversational score' (Lewis, 1979). The focus should not be on the attitudes we express, or the norms for when to do so, but on the changes we bring about. So, what makes a speech act a case of assertion is to be explained in terms of its characteristic effect. This idea has been developed in two different directions: one normative and one informational.

(A) To assert is to undertake commitments.

(B) To assert is to propose to add information to the common ground.

While (A) and (B) are not mutually exclusive, they are often seen as rivals. The most sophisticated versions of the first direction is due to Brandom (1983, 1994, 2008) and MacFarlane (2003, 2005, 2011). For Brandom a conversational score is a a collection of normative statuses, encapsulated in their *deontic score*. When we make assertions we alter the deontic score by adding further commitments. In this way, (A) focuses on the personal aspect of communication. Taking off in the other direction, this account has been pioneered by Stalnaker (1978, 1998, 2002). For him a conversational score is a set of propositions mutually accepted among the speakers, the so-called *common ground*. The way an assertion affects the common ground is that, when successful, it adds further information to the shared pool. As such, (B) focuses on the interpersonal aspect of communication.

In this note, I propose a strategy for bringing the two directions together. (A) and (B) should not not be seen as rivals, but as complementary. The motivation

is that both accounts can legitimately claim to capture an important aspect of our practises of making assertions. A conversational score is a specification of the state of the conversation at some time. On the dual effect view of assertion that I propose, then, this specification will include both individual deontic scores and a shared common ground.

The main part of the paper is devoted to (A), outlining a formal account of deontic scores and how they are updated. If you think that (A) and (B) should not be run together, you can consider the merits of this part on its own. Following Stalnaker's (2002) description of conversations as growing bodies of mutually accepted propositions, I go on to define the common ground as the set of possible worlds induced by the individual speakers' mutual commitments. Although (A) is given explanatory priority, this results in a way to accommodate (B) as a natural extension of undertaking commitments and proposing that others do the same.

'Alexander the Great was poisoned', Bernard says assertively. Bianca doesn't believe him for a second. As Bianca refuses to go along with his conspiracy theories Bernard fails to update the common ground. Now, if we only focused on (B) we would have missed out on an important aspect of how the overall conversational score has changed. Bianca may not have endorsed Bernard's claim, but she sure is going to hold him responsible for having made it. Later on she might bring it up. Should Bernard at some subsequent stage say that Alexander the Great died of a broken heart, she'll remind him that this is incompatible with something he has already committed himself to. Bernard's assertion has succeeded in bringing about the characteristic effect expressed by (A), even if he failed in his proposal that 'Alexander the Great was poisoned' be added to the common ground.

A central notion in this story is *incompatibility*. The reason I want to direct our attention to it is that incompatibility has the relevant pragmatic import. When two sentences are incompatible, asserting the one precludes you from an entitlement to assert the other (Brandom, 1994, 188), (2008, 120). Once Bernard has asserted 'Alexander the Great was poisoned' the option of asserting 'Alexander the Great died of a broken heart' is off the table. In the same way, he would be precluded from an entitlement to assert $\sim \phi$ if he had previously asserted $\phi \vee \psi$ and $\sim \psi$. The reason conversations are affected in this manner is that making assertions characteristically involves undertaking commitments. So, to account for this part of our linguistic behaviour we need to invoke something like (A).

To be clear, this is all deontic talk. No invisible hand grabs Bernard by the throat preventing him from doing what he is not entitled to. As it happens, making unentitled claims might be an annoying habit of his. A hypothetical scorekeeper would, however, mark Bernard down as occupying an illegitimate position. His interlocutor, Bianca, would then be entitled to sanction him should he decide not to retract one of his previous claims. Although this is an idealisation it is not misleading. Should someone blatantly disregard what they are entitled and committed to we would eventually stop regarding them as conversational participants. If you bullshit enough you'll find yourself no longer

treated as someone who makes genuine assertions (Frankfurt, 2005).

It seems obvious enough that (A) picks out a genuine phenomenon. Now we need to spell it out more precisely. Let' suppose Bernard and Bianca share a propositional language with a standard logical vocabulary and grammar. This language constitutes the sentences they trade between themselves in terms of commitments. We also assume that these sentences stand in various incompatibility relations, represented as a property in the intended model. In general, an intended model for a language $\mathcal{L}$ is a function from sets of sentences to sets of sets of sentences $v : \mathcal{P}(\mathcal{L}) \mapsto \mathcal{P}(\mathcal{P}(\mathcal{L}))$, such that:

- $v(A) = \{x \mid x \text{ is incompatible with } A\}$;

- If $A \subseteq B$ and $A \in v(C)$ then $B \in v(C)$;

- $A \in v(\{\sim \phi\})$ iff $v(\{\phi\}) \subseteq v(A)$; and

- $A \in v(\{\phi \ \& \ \psi\})$ iff $A \in v(\{\phi, \psi\})$.

So, '$v(\{\text{'Alexander the Great was poisoned'}\})$' denotes the set of sets of sentences that together are incompatible with 'Alexander the Great was poisoned'. The second constraint ensures that incompatibility is a hereditary property, in the sense that if a set of sentences is incompatible with 'Alexander the Great was poisoned' so is every extension of that set. Complementing the third and fourth, other connectives are defined through abbreviations in the usual way.

Where one commitment goes others tend to follow. Over time they start to accumulate exponentially. The more commitments we undertake the more expansive becomes the set of collateral commitments riding along. We can capture an aspect of such normative inferential connections by introducing a special entailment relation: a set of sentence A entails a set of sentences B just in case everything incompatible with everything in B is also incompatible with A (Brandom, 1994, 115), (2008, 121).

Entailment

A entails $\{\phi_1, \ldots \phi_n\}$ iff $v(\{\phi_1\}) \cap \ldots \cap v(\{\phi_n\}) \subseteq v(A)$.

This entailment relation is multi-conclusional, material and normative. It is multi-conclusional because both premises and conclusions are sets of sentences. It is material because whether or not two sets are incompatible depends on the non-formal properties of their members. And, thirdly, it is normative because commitments and preservation of such are deontic notions. We are entertaining the fantasy that conversations take place in an idealised setting supervised by an impartial scorekeeper who keeps track of the conversational score. So, commitments can come about independently of a speaker's acknowledgement. In particular, if you are committed to A and A entails B then ipso facto you are committed to B. What your actual commitments are is not settled by you, but the arbitration of the scorekeeper.

We need one more ancillary resource, namely sets of worlds. For our purposes a world is a maximal compatible set of sentences. As incompatibility is

represented as a property over a set of sentences, the set of worlds in play is relative to the shared language.

Set of worlds

$W = \{w \subseteq \mathcal{L} \mid w \notin v(w), \text{ and for all } \phi \in \mathcal{L}, \{\phi\} \in v(w) \text{ or } w \text{ entails } \{\phi\}\}.$

Since we've defined worlds in terms of incompatibility they can be used to represent deontic scores. That requires a little bit of elaboration. Think of a conversation as taking place between a group of speakers $s_1, \ldots, s_n$ proceeding through a series of stages $t_1 \leq \ldots \leq t_n$. In our toy model conversations advance from one stage to the next as speakers make assertions and retractions. Once the conversation has entered a new stage the scorekeeper updates the deontic scores. At every stage each speaker has a (possibly empty) set of sentences they have committed themselves to. A deontic score for a speaker, then, is the set of all the worlds that entail all the relevant commitments. If someone is committed to ϕ, their deontic score will only include worlds that entail $\{\phi\}$. If they are committed to both ϕ and ψ, their deontic score will only include worlds that entail $\{\phi, \psi\}$. Deontic scores are represented by a function $\mathcal{D}$ from speakers and stages to sets of worlds such that:

Deontic scores

$\mathcal{D}_{(s,t)} = \{w \in W \mid \text{for all } \phi \text{ s.t. } s \text{ is committed to } \phi, w \text{ entails } \{\phi\}\}.$

So, the deontic score of a speaker s at a stage t is the set of worlds that entails all the commitments s has undertaken at t. It contains the information the scorekeeper needs in order to keep track of the speaker's normative status. By looking at the incompatibility relations, the scorekeeper can mark down what moves are permissible and impermissible. Asserting ϕ is impermissible for any speaker who has committed themselves to something incompatible with ϕ. A single world represents the deontic score of someone who is, for every ϕ, either committed to ϕ or committed to something incompatible with ϕ. In other words, a world is an open possibility at the end of the road in a conversation.

As I am fleshing out (A), alterations of the deontic score come as a result of closing down previously open paths. When we go on making assertions we continuously narrow down the number of worlds in our deontic scores. The result of updating such scores can be defined over logical form, giving us a kind of dynamic pragmatic framework. Where '$\mathcal{D}_{(s,t)}[\![\phi]\!]$' denotes the result of updating $\mathcal{D}_{(s,t)}$ with ϕ:

- If ϕ is atomic, $\mathcal{D}_{(s,t)}[\![\phi]\!] = \{w \in \mathcal{D}_{(s,t)} \mid w \text{ entails } \{\phi\}\}$;

- $\mathcal{D}_{(s,t)}[\![\sim \phi]\!] = \mathcal{D}_{(s,t)} \backslash \mathcal{D}_{(s,t)}[\![\phi]\!]$;

- $\mathcal{D}_{(s,t)}[\![\phi \ \& \ \psi]\!] = \mathcal{D}_{(s,t)}[\![\phi]\!][\![\psi]\!]$;

- $\mathcal{D}_{(s,t)}[\![\phi \vee \psi]\!] = \mathcal{D}_{(s,t)} \backslash \mathcal{D}_{(s,t)}[\![\sim \phi]\!][\![\sim \psi]\!]$;

- $\mathcal{D}_{(s,t)}[\![\phi \rightarrow \psi]\!] = \mathcal{D}_{(s,t)} \backslash \mathcal{D}_{(s,t)}[\![\phi]\!][\![\sim \psi]\!]$.

Asserting an atomic sentence ϕ at $\mathcal{D}_{(s,t)}$ results in an updated score $\mathcal{D}_{(s,t')}$ that contains only worlds in the old score that entail $\{\phi\}$. Adding commitments to negated sentences is set-subtraction. If s asserts $\sim \phi$ their deontic score is first updated with ϕ. All the worlds in this set is then removed from $\mathcal{D}_{(s,t)}$, resulting in the updated score $\mathcal{D}_{(s,t')}$. Sentences with conjunction, disjunction or conditional as their main connective are all instances of functional composition. In the case of $\phi \,\&\, \psi$, the set of worlds resulting from updating $\mathcal{D}_{(s,t)}$ with ϕ is used as input for the second update with ψ. The result of the second update is the new deontic score $\mathcal{D}_{(s,t')}$. When handling $\phi \vee \psi$ we first update $\mathcal{D}_{(s,t)}$ with $\sim \phi$. This is then used as input for an update with $\sim \psi$. Members in the new set of worlds is finally removed from the original deontic score to arrive at $\mathcal{D}_{(s,t')}$. The same happens for $\phi \rightarrow \psi$, except we use ϕ instead if its negation.

Let me make a brief digression. The framework I've outlined models deontic score change potentials. Although it is not my pursuit here, it can be implemented as a formal counterpart to Brandom's methodological pragmatism. On his view, the assertoric content of a sentence is to be explained in terms of a 'mapping that associates with one social deontic score. . . the set of scores for the conversational stage that results from the assertion' (Brandom, 1994, 190). The dynamic character of Brandom's remarks has been noted previously by Nickel (2013). He doesn't, however, provide a clear outline for what the semantics would look like. In fact, he argues that it's hard to see how there could be one. The underlying problem with Nickel's account is that he thinks of deontic scores (or contexts) as sets of *sentences* speakers have committed themselves to. Once we do that we are unable to make local contexts readily available for updates that require multiple steps. By moving to sets of worlds instead we overcome this worry.

I've modelled deontic scores as properties of individual speakers. This differs somewhat from Brandom or Lewis, who thinks of them as properties of conversations. Despite this initial difference the normative relations between speakers will be tracked similarly. The fundamental notion that I use to define deontic scores is incompatibility, which was selected for its pragmatic import. On my view, the scorekeeper signals to everyone that any speaker is precluded from an entitlement to assert ϕ when ϕ is incompatible with their previous commitments (that is, when $\mathcal{D}_{(s,t)}[\![\phi]\!] = \emptyset$). Like Brandom (1994, 178 - 80) I also think of commitments and entitlements as underwritten by sanctions. What makes one apt for sanctioning by other speakers is being committed to something one is not entitled to (that is, when $\mathcal{D}_{(s,t)} = \emptyset$). The difference is that where I rely on a hypothetical scorekeeper, Brandom assumes that each participant plays this role. Both ways to keep track of normative statuses involves an idealisation. In Brandom's scorekeeping model he ascribes to each speaker the ability to keep track of everyone's normative status. I, on the other hand, indulge in the idealisation that there is an impartial scorekeeper surveying the conversation. I've done so mainly for the simplicity it affords. If we wanted something closer to Brandom's view we could keep the definition of a deontic score as above, but relativize deontic score assignment to each speaker.

Back to Bernard and Bianca. Let's rewind to the stage where neither have

said anything. So we imagine both being free of any commitments, abstracting away from the fact that people usually start with many. In that case their deontic scores are the same, namely $D(\text{Bernard}, t) = D(\text{Bianca}, t) =$ the set of all worlds. By saying that Alexander the Great was poisoned, Bernard enters the next stage with an update deontic score that excludes all worlds from $D(\text{Bernard}, t)$ that do not entail 'Alexander the Great was poisoned'. This new set of worlds represents his current open possibilities. By not endorsing his claim, and so refusing to undertake any commitments, Bianca's deontic score remains the same. If we kept our attention solely on (A), however, we would lose sight of an important interpersonal dimension of communication. We do not merely make assertions to inform others of our own attitudes and to undertake personal commitments. We also endeavour to convince others to adopt similar attitudes and endorse our claims. A conversational score needs to include more information than a record of the speakers' deontic scores and how they are normatively related to one another. At this point (B) enters the story.

On Stalnaker's (2002) version, the common ground can be thought of as a set of mutually accepted propositions. The thing to register with this description is that it makes use of the non-factive attitude of *acceptance*. His reason for favouring this weak attitude (rather than belief or knowledge) is that having something in the common ground that is believed to be false presents no hindrance to the flow of conversation. Successful communication is not dependent on our claims or presuppositions being true or believed to be. They only need to be readily available assumptions mutually adopted for the purposes of discussion. This brings (A) and (B) together. By making an assertion, a speaker simultaneously undertakes commitments and proposes to add information to the common ground, by inviting the interlocutors to do the same.

Here's the main idea again. Assertion is a speech act with two characteristic effects, one described by (A) and the other by (B). First, asserting ϕ is a way by which we inform our interlocutors that we accept ϕ and undertake commitments to it as part of the process. Second, the same speech act is also used to make a proposal to the interlocutors that they also accept ϕ and so undertake commitments to ϕ themselves. Unless something frustrates the performance of the act, the speaker will succeed in bringing about the first effect. If the other speakers go along with the proposal, the second effect is brought about as well. With this picture in mind we can think of the common ground in terms of mutual commitments. The common ground is represented by a function $\mathcal{C}$ from pairs of sets of speakers and stages to sets worlds such that:

Common ground

$\mathcal{C}_{(s_1,\ldots,s_n,t)} = \{w \in W \mid$ for all ϕ s.t. every s_i is committed to ϕ, w entails $\{\phi\}\}$.

On this version of Lewis' suggestion, a conversational score is modelled as a pair $\langle\langle\mathcal{D}_{(s_1,t)},\ldots,\mathcal{D}_{(s_n,t)}\rangle,\mathcal{C}_{(s_1,\ldots,s_n,t)}\rangle$, where $\mathcal{D}_{(s_1,t)},\ldots,\mathcal{D}_{(s_n,t)}$ are the individual speakers' deontic scores and $\mathcal{C}_{(s_1,\ldots,s_n,t)}$ their common ground. By asserting 'Alexander the Great was poisoned' Bernard undertakes commitments, and his

deontic score gets updated. He simultaneously suggests to Bianca that she does so as well. She doesn't. As a result Bernard fails to update the common ground with 'Alexander the Great was poisoned'. Now it's Bianca's turn. She says that Alexander the Great exhibited symptoms of typhoid fever. Naturally, she undertakes commitments to her claim and a proposal is made to Bernard. He recognises that it is not incompatible with his current commitments, and after some brief reflection he accepts it. At the subsequent stage, then, both deontic scores have been updated by removing all the worlds that do not entail {'Alexander the Great exhibited symptoms of typhoid fever'}. As the common ground is a function of the individual commitments, Bianca will have succeeded in altering their common ground as well. If either (A) or (B) were neglected we would have missed out on a central ingredient of what it is to assert something.

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