A Solution To Karttunen’s Problem
Matthew Mandelkern, mandelk@mit.edu
Abstract for Sinn und Bedeutung 21

1 Overview

I present (1) a new empirical characterization of the difference in felicity conditions between an epistemic necessity claim of the form \( \text{Must } \phi \) versus a claim of non-modal \( \phi \) alone, and (2) a pragmatic explanation of this difference.

2 The Difference

The main claim in the literature\(^1\) is that a ‘must’-claim is licensed only when the speaker’s evidence for its prejacent is indirect, whereas its bare prejacent can be asserted whether the speaker’s evidence is direct or indirect. I endorse this constraint, which I call Indirectness, and which has been well motivated in the literature.

But is Indirectness the end of the story? Most of the literature suggests the answer is ‘yes’. I argue this is wrong. Following Stone (1994), I argue that a ‘must’-claim is only felicitous if an argument for its prejacent is salient, whereas its bare prejacent can be asserted whether or not there is a salient argument. Call this claim Support. To see the motivation for Support, consider the five variants of the following case, adapted from Murray (2014):

(1) On her way to a meeting in a windowless building, Sarah sees Jim come in with a wet umbrella. Sarah concludes it’s raining. When she goes into the meeting, Thomas, who didn’t see Jim carrying a wet umbrella, asks, ‘How’s the weather?’ Sarah responds:
   a. It must be raining out.
   b. It’s raining out.
   c. It must be raining out; I just saw Jim come in with a soaking wet umbrella.
   d. It’s raining out; I just saw Jim come in with a soaking wet umbrella.
   e. Apparently it’s raining out.

Now suppose Thomas replies: ‘Too bad. Ok, let’s talk about the agenda for this meeting.’ In this context, there is something odd about the ‘must’-claim alone, without an argument, as in (1-a). Sarah seems obligated to give reasons in support of the claim that it’s raining out before the conversation moves on. By contrast, a ‘must’-claim with an argument (as in (1-b)) or a non-modal claim with or without an argument (as in (1-c), (1-d)) are all fine. This confirms Support. An indirectness marker like ‘apparently’ (in (1-e)) is also fine without an argument, which brings out the distinctness of Support from Indirectness.

Intuitions here are not altogether clearcut. This is to be expected, though. First, judging whether speakers comply with Support is a matter of judging discourses as a whole, not

individual assertions. Second, in many cases an argument can be accommodated, so that Support is met even though nothing is said explicitly. Nonetheless, there is strong evidence in favor of Support. I present a wide variety of cases which elicit judgments confirming Support. I find similar judgments in a wide range of languages, suggesting cross-linguistic robustness. Finally, I present experimental results which confirm these judgments. 153 Amazon Turk subjects were given either example (1) or a similar case and asked to rate the first four variants (+/− ‘must’, +/- argument) for weirdness. We found an interaction (F(1,584) = 3.849, p = 0.05) between whether the statement included ‘must’ and whether there was an argument proffered. This interaction was primarily driven by the difference in perceived weirdness between ‘must’-claims with an argument (mean=1.926, SD=1.33) and those without one (mean=3.3423, SD=1.89; t(265.43) = 7.49, p<0.001, d = 0.868). These results thus provide further confirmation of Support.

3 Explaining Indirectness

The provenance of Indirectness has puzzled researchers. Much recent work follows von Fintel and Gillies (2010) in stipulating it lexically, but — as vF&G acknowledge — this does not provide a compelling explanation of the constraint, which is robust across modals with the meaning of ‘must’. I will argue instead that we can give an explanatorily and empirically compelling pragmatic derivation of Indirectness by way of Support.

There are two ingredients to this derivation. First, note that there is a general requirement that, when speakers give evidence for a claim, they give their strongest evidence (a familiar Gricean idea; see Faller (2012) for a careful exposition). Second, note that certain arguments strike us as redundant: in general, if \[ \varphi \] follows from \( \Gamma \) in a way mutually recognized to be obvious, then proposing to update the common ground with \[ \varphi \] on the basis of an argument \( \Gamma \) strikes us as redundant (see Stalnaker (1974) a.o. for this general idea).

It follows from Support that a speaker of \( \text{⌜Must } \varphi \text{⌝} \) must give evidence for \[ \varphi \]. It follows from the first observation just made that it must moreover be her strongest evidence for \[ \varphi \]. It follows from the second observation that \[ \varphi \] cannot follow from her strongest evidence in a way mutually recognized to be obvious. A speaker may thus assert \( \text{⌜Must } \varphi \text{⌝} \) only if \[ \varphi \] does not follow from her strongest evidence in a mutually obvious way.

This provides a derivation of Indirectness which is explanatorily more satisfying than a lexical approach. It is also empirically more satisfying. In particular, this approach predicts that intuitions about indirectness for ‘must’ and intuitions about redundancy track together. I argue that this prediction is borne out. Two cases illustrate this. First, reliable testimony for \[ \varphi \] is intuitively indirect evidence for \[ \varphi \], but does not generally count as indirect when it comes to Indirectness; thus (2-b) is marked:

(2) a. What time is the movie?
   b. ??Google says that it’s at 7:30, so it must be at 7:30.
Our approach, however, predicts this, since reliable testimony for \([\varphi]^c\) is a redundant argument for \([\varphi]^c\), as in (3-b):

\[\text{(3) a. What time is the movie?} \]
\[\text{b. ??Google says that it’s at 7:30, so it’s at 7:30.} \]

Second, we predict that whether an argument counts as indirect for the purpose of judging either redundancy or Indirectness depends on whether we are treating the inference in question as mutually obvious, a context sensitive affair. This prediction is again borne out: the following variants on (3) are fine, with or without the ‘must’, since in these cases we are not treating the inference from \(\neg\text{Google says } \varphi\) to \(\varphi\) as mutually obvious:

\[\text{(4) Google says that the movie is at 7:30. Websites listing movie times are generally unreliable. Google is reliable, though, so the movie [must be/is] indeed at 7:30.} \]

4 Explaining \textit{Support}

This explanation of \textit{Indirectness} reduces it to \textit{Support} plus general conversational considerations about sharing evidence and redundancy. What explains \textit{Support}? I criticize existing derivations from lexical stipulations (Stone 1994) or from an underlying premise semantics for modals (Kratzer (1981), Swanson (2015)) on the basis that these approaches predict that the dual of ‘must’ will likewise carry a \textit{Support} constraint. I show this is wrong: ‘might/can’ is fine without an argument. And giving up on the duality of ‘might/can’ and ‘must’ wouldn’t help, since \textit{Support does} arise for ‘can’t’, which we could not explain on that approach. Instead, I propose that \textit{Support} arises as a manner implicature, as follows. \(\neg\text{Must } \varphi\) and \(\varphi\) have the same basic update effect: adding \([\varphi]^c\) to the common ground. But \(\neg\text{Must } \varphi\) is structurally more complex than \(\varphi\), so the speaker must have good reason to use \(\neg\text{Must } \varphi\) rather than \(\varphi\) alone. Finally, I assume \(\neg\text{Must } \varphi\) means, roughly, \(\neg\varphi\) will be commonly accepted after this claim is made\(^\top\) (Stalnaker (2014), Mandelkern (2016)), and thus calls attention to the group’s doxastic relation to \([\varphi]^c\). The interlocutors therefore reason that, since she chose a more complex alternative that makes reference to the group’s doxastic relation, the speaker is proposing to update with \([\varphi]^c\) on the basis of a shared argument for \([\varphi]^c\), and thus she must ensure such an argument is salient.