Signal to act: game theory in pragmatics
Franke, M.

Citation for published version (APA):

General rights
It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations
If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: http://uba.uva.nl/en/contact, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.
“She was amazing. I never met a woman like this before. She showed me to the dressing room. She said: ‘If you need anything, I’m Jill.’ I was like: ‘Oh, my God! I never met a woman before with a conditional identity.’ [Laughter] ‘What if I don’t need anything? Who are you?’ — ‘If you don’t need anything, I’m Eugene.’ [More laughter]”

(Demetri Martin, These are jokes)

ME: [Commenting on the media reception of Paul Potts’ and Susan Boyle’s appearance on TV show ‘Britain’s got Talent’] Obviously, if a person doesn’t conform to excessive norms of physical attractiveness, doesn’t mean that he or she is untalented or stupid.

SHE: So you are basically saying that beauty doesn’t guarantee intelligence. — Wait! Are you trying to tell me I’m dumb?

ME: ?!? (my life)
Loosely speaking, some conditionals convey more of a conditional meaning than others. We see what is at stake when we compare the by-now classic examples (64) from Geis and Zwicky (1971) and (65) from Austin (1956).

\[(64)\]
\begin{enumerate}
  \item a. If you mow the lawn, I’ll give you five dollars.
  \item b. $\neg$ If you don’t mow the lawn, I will not give you five dollars.
  \item c. $\not\rightarrow$ I’ll give you five dollars.
\end{enumerate}

\[(65)\]
\begin{enumerate}
  \item a. There are biscuits on the sideboard if you want them.
  \item b. $\not\rightarrow$ If you don’t want them, there are no biscuits on the sideboard.
  \item c. $\neg$ There are biscuits on the sideboard.
\end{enumerate}

Whereas it is fairly natural to interpret a generic utterance of (64a) to convey also the obverse in (64b), the conditional in (65a) does not naturally convey (65b). Rather, (65a) seems to convey that its consequent (65c) is true unconditionally, while (64a) certainly does not convey (64c). So, in a superficial manner of speaking, we might say that under their standard readings (64a) expresses a stronger conditional meaning than (65a) does.

The pragmatic strengthening of a conditional like in (64) has been dubbed conditional perfection and will be the topic of section 5.2. The conditional in (65a) was eponymous for the class of biscuit conditionals that became prototypical examples for conditionals with what I will call unconditional readings. Section 5.3 deals with unconditional readings. On the face of it, conditional perfection readings and unconditional readings are very much mirror-image phenomena, and this section consequently aims to show how similar pragmatic mechanisms of contextual enrichment give rise to both of these.

More concretely, the main hypothesis of this chapter is that we can and should explain the bulk of conditional perfection and unconditional readings as ‘commonsense inferences’: I argue that the correct interpretation of a conditional sentence can often be derived by imposing additional commonsense constraints about the intuitive relatedness of antecedent and consequent on the models that we evaluate the conditional on; which constraints these are has to be defended against common sense on a case by case basis. Only for a few cases of conditional perfection do we need to refer back to genuine pragmatic reasoning about the topic of conversation.

5.1 Meaning and Use of Conditionals

It is not the intention of this chapter to assess or advance complicated semantic theories of conditionals. The following section 5.1.1 only surveys standard
possible-worlds semantics for conditionals, which I take to be, say, sufficiently true for the purposes of the present pragmatic investigation. Section 5.1.2 then introduces a very rough classification scheme of uses that English conditional sentences may have, to the extent that these distinctions are relevant to the subsequent discussion.

5.1.1 Semantics for Conditionals

Material Implication. According to a material implication analysis, the semantic meaning of a conditional $A \rightarrow C$ is captured by the truth conditions of material implication $\rightarrow$ of propositional logic, as in the following table:

<table>
<thead>
<tr>
<th>$A$</th>
<th>$C$</th>
<th>$A \rightarrow C$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

This analysis may seem too simple, because, among other things, it does not appeal very much to our intuitions about negated conditionals. The negation of a conditional as in (66a) intuitively rather means (66b), than (66c), as the negation of a material conditional would predict.

(66)  a. It’s not the case that if $A$, then $C$.
      b. If $A$, then it’s (at least) possible that $\overline{C}$.
      c. $A$ is true and $C$ is false.


2. The notation $A > C$ refers to a conditional sentence as an abstract linguistic form: in other words, the symbol $>$ is not part of any formal language, but is merely an abstract placeholder for different morpho-syntactic ways of conjoining two clauses $A$ and $C$ in a conditional construction. Most of the time, it suffices for our modest purposes here to assume that the clauses $A$ (for antecedent) and $C$ (for consequent) express simple propositions. Often these propositions are taken to denote simple sets of possible worlds, in which case the letters $A$ and $C$ may denote both a linguistic expression and a set of possible worlds. I will use notation $\overline{X}$, to denote the negation of proposition $X$, alongside the more common symbol $\neg$. 
Strict Implication. To deal with this issue, we could have recourse to a slightly more elaborate analysis in terms of strict implication. If $\sigma \subseteq W$ is a set of possible worlds, then we say that a conditional $A > C$ is supported on $\sigma$ if all worlds in $\sigma$ that make $A$ true also make $C$ true. For this analysis, the set $\sigma$ is a contextually given set of possible worlds that represents either the live options of the common ground, or the information state of a single agent, most often the speaker. Thus conceived, the set $\sigma$ will usually change dynamically during conversation or under belief update and revision.

To treat conditionals as strict implication suffices for a great number of applications but still there are good arguments for a more refined treatment. To see what is at stake consult your intuition on the pair of sentences in (67).

\begin{align*}
\text{(67) } & \quad \text{a. If you strike this match, it will light. } \quad A > C \\
& \quad \text{b. If you stand in a storm and strike this match, it will not light. } \quad (A \land R) > \overline{C}
\end{align*}

It seems defensible that both conditionals can in fact be true at the same time, for there is no inherent contradiction in either of the following statements:\footnote{Indeed, the order of presentation of the indicative conditionals in (68), as well as the counterfactuals in (69), matters in discourse (cf. Veltman 1985; von Fintel 2001b; de Jager 2009): a so-called Sobel sequence, as in (68a), sounds more felicitous than a so-called reverse Sobel sequence, as in (68b). But this is not important for our present concerns.}

\begin{align*}
\text{(68) } & \quad \text{a. If you strike this match, it will light, but if you stand in a storm and strike this match, it will not light. } \quad (A > C) \land ((A \land R) > \overline{C}) \\
& \quad \text{b. If you stand in a storm and strike this match, it will not light, but if you strike this match, it will light. } \quad ((A \land R) > C) \land (A > C)
\end{align*}

A similar argument applies to counterfactual conditionals: again, it is certainly possible for both of the sentences in (69) to be true simultaneously (cf. Goodman 1947; Lewis 1973).

\begin{align*}
\text{(69) } & \quad \text{a. If you had struck this match, it would have lit. } \quad A > C \\
& \quad \text{b. If you had been standing in a storm and struck this match, it would not have lit. } \quad (A \land R) > \overline{C}
\end{align*}

But then the problem for a strict implication analysis is that there is no information state $\sigma$ except the trivial absurd state $\sigma = \emptyset$ which supports both statements in (67), respectively (69).
5.1. Meaning and Use of Conditionals

Order-Sensitive Implication. The standard solution to this problem is to additionally include into the semantics a comparative notion on the set of possible worlds that conditionals are evaluated on. An order-sensitive implication analysis has a conditional $A > C$ evaluated as either true or false in a world $w$ with respect to a suitable modal structure $\langle R_w, \leq_w \rangle$, where $R_w \subseteq W$ is the set of worlds accessible from $w$ and $\leq_w$ is a well-founded ordering on $R_w$.\footnote{The order $\leq_w$ is well-founded on $R_w$ iff for all $X \subseteq R_w$ there is a $\leq_w$-minimal element in $X$. This limit assumption (Lewis 1973) is adopted here only for ease of formalization.} Using the ordering information in such a modal structure we say that a conditional $A > C$ is true in $w$ iff $C$ is true in all the $\leq_w$-minimal worlds in $R_w$ in which $A$ is true. Formally, define

$$
\text{Min}_w(A) = \{ v \in R_w \cap A \mid \neg \exists v' \in R_w \cap A : v' \prec_w v \}
$$

as the set of $\leq_w$-minimal $A$-worlds in $R_w$ and define:

$$
A > C \text{ is true in } w \iff \text{Min}_w(A) \subseteq C. \quad (5.1)
$$

This analysis indeed allows the pair in (67) to be true at the same time, due to the additional ordering of possible worlds: clearly, there are sets $R_w$ and orderings $\leq_w$ such that the minimal worlds in which the match is struck are worlds with good weather conditions for the match to light when struck; still, the minimal worlds where the match is struck and there is a storm may be worlds where the match does not light. Similarly, of course, for (69).

Notice that order-sensitive implication is basically an abstraction over several possible semantics for conditionals, as long as we are vague about the conceptual interpretation and the formal properties of $R_w$ and $\leq_w$. Indeed, different kinds of conditionals will require slightly different conceptual interpretations and also different formal properties (see section 5.1.2). If we adopt different specific assumptions, we obtain (close) equivalents of different semantics for conditionals (e.g. Stalnaker 1968; Lewis 1973; Veltman 1986; Kratzer 1991). Since this chapter is mainly about the pragmatics of conditionals, I will try to remain as uncommitted and general as possible here.

Conditionals and Modals. Conditionals are closely related to modals. Some authors have argued that the antecedents of conditionals should be analyzed as restricting the domain of quantification of a (possibly implicit) modal in the consequent (Lewis 1975; Kratzer 1991). Indeed, there is a clear distinction in meaning between the two conditionals in (67a) and (70).
(67a) If you strike this match, it will light.

(70) If you strike this match, it might light.

This difference is not visible when I write $A \supset C$ as a general stand-in for a conditional sentence. To make this distinction visible where it matters I will write $A \supseteq C$ for sentences like (67a) with a universal modal in the consequent, and $A \Leftrightarrow C$ for sentences like (70) with an existential modal in the consequent. The former should indeed be analyzed as in (5.1), the latter should be analyzed as follows:

$$A \Leftrightarrow C \text{ is true in } w \iff \text{Min}_w(A) \cap C \neq \emptyset. \quad (5.2)$$

Order-sensitive implication actually incorporates the idea of modal domain restriction by the antecedents of conditionals. Given a world $w$ with accessible worlds $R_w$ and an ordering $\preceq_w$ that capture the relevant modality, we say that a universal modal statement $\Box C$ is true in $w$ iff all $\preceq_w$-minimal worlds in $R_w$ make $C$ true. Define

$$\text{Min}_w = \{ v \in R_w \mid \neg \exists v' \in R_w : v' \prec_w v \}$$

as the set of $\preceq_w$-minimal worlds in $R_w$. With this define the truth of a universal modal statement as follows:

$$\Box C \text{ is true in } w \iff \text{Min}_w \subseteq C. \quad (5.3)$$

And, similarly, for existential modals:

$$\Diamond C \text{ is true in } w \iff \text{Min}_w \cap C \neq \emptyset. \quad (5.4)$$

Looking at things this way we find that if $\text{Min}_w \cap A \neq \emptyset$, then the semantics in terms of order-sensitive implication comes down to a semantics of the modals $\Box C$ and $\Diamond C$ after the domain of quantification $R_w$ for the modal has been restricted to worlds where the antecedent is true.

Belief Dynamics and Ramsey Test. If, on the other hand, $\text{Min}_w \cap A = \emptyset$, then the antecedent of a conditional may be said to shift the context of interpretation of the modalized consequent. This is related to another very prominent idea about the procedural interpretation of conditionals. Ramsey (1931) suggested in passing that conditionals are to be evaluated in a three-step procedure. In the words of Robert Stalnaker the so-called Ramsey test takes the following form:
We find the Ramsey test in our general semantics if we think of the modal structure \( \langle R_w, \preceq_w \rangle \) as an agent’s actual beliefs and her belief revision policies. Let the \( \preceq_w \)-minimal worlds in \( R_w \) be the set of worlds an agent actually holds possible. Moving to the \( \preceq_w \)-minimal worlds where \( A \) is true comes down to hypothetical belief change: hypothetically adopting the belief that \( A \) or dropping the belief \( \neg A \). In this hypothetical belief state, the agent then checks whether she believes that \( C \) is true, i.e., she checks whether \( \Box C \) holds, or, she checks whether she considers \( C \) possible, i.e., whether \( \Diamond C \) holds. In this sense, the order-sensitive implication analysis may implement the Ramsey test, as an evaluation procedure of conditionals in terms of belief revision policies, at least for certain interpretations of \( R_w \) and \( \preceq_w \).

Order-Sensitive Subsumes Strict Implication. If we interpret the modal structure \( \langle R_w, \preceq_w \rangle \) as specifying an agent’s beliefs and dispositions to revise these beliefs, then strict implication comes out as a special case of order-sensitive implication. We only need to equate \( \sigma \) with the set \( \text{Min}_w \). Using this fact, I will at times make use of a strict implication analysis where it eases illustration of an example, despite the fact that the main results are to be derived for the more encompassing notion of order-sensitive implication.

Non-Triviality Presupposition. Order-sensitive implication effectively is a quantification over the set \( \text{Min}_w(A) \). It is often desirable to exclude trivial truth of \( A \Box \rightarrow C \) and trivial falsity of \( A \Rightarrow C \) that arises just because this set is empty. I suggest to do so and speak of a NON-TRIVIALITY PRESUPOSITION here. Throughout this chapter I will follow common practice and assume that the minimal non-triviality presupposition \( R_w \cap A \neq \emptyset \) is always met. Similarly, wherever I resort to strict implication (for ease of explanation) I will make the slightly stronger yet equally common assumption that \( \sigma \cap A \neq \emptyset \).

5.1.2 Kinds of Conditionals

With respect to both meaning and use, conditionals are actually a heterogeneous class in which we might want to distinguish different kinds of conditionals. Over the years many classification schemes have been proposed in
the literature, all with diverging terminology, and all variously motivated by either mainly functional (Comrie 1986; Sweetser 1990; Dancygier 1998), syntactic (Haegeman 2003) or pragma-semantic concerns (Iatridou 1991; Bhatt and Pancheva 2006). For the purposes of the following discussion I would also like to make a few very rudimentary distinctions that influence the interpretation of our semantics—and possibly the formal properties of the modal structure $\langle R_w, \preceq_w \rangle$—and fix terminology.5

Epistemic Conditionals. Epistemic conditionals are conditionals like in (71) in which, roughly speaking, the speaker reports on her conditional beliefs concerning propositions that could in principle be known but whose truth the speaker is subjectively uncertain of.

\begin{enumerate}
\item If Oswald did not shoot Kennedy, someone else did.
\item If the butler hasn’t killed her, the gardener must have.
\item If you struck this match (while I wasn’t watching), it must have lit.
\end{enumerate}

The antecedents of epistemic conditionals could be analyzed as modifying, possibly implicitly, the epistemic modals must and might. Accordingly, for an analysis in terms of order-sensitive implication the set $R_w$ would contain worlds the speaker (or some other ‘supporting’ agent) cannot rule out on the basis of some true information or hard evidence. The ordering $\preceq_w$ would then encode doxastic prejudices, hidden assumptions and the like.

Predictive Conditionals. Predictive conditionals are conditionals like in (72) in which a prediction is expressed about future courses of events whose occurrence is objectively uncertain and therefore cannot in principle be known.

\begin{enumerate}
\item If you strike this match, it will light.
\item If Andrea arrives late, Clara will be upset.
\item If it rains tomorrow morning, the barbecue will be cancelled.
\end{enumerate}

The antecedents of predictive conditionals could be analyzed as modifying, possibly implicitly, the future modals will and might. The set $R_w$ on which a predictive conditional is to be evaluated should be (something like) the set of...

---

5. I don’t wish to spend much argument beyond appeal to naïve intuition on a justification of the proposed distinctions. I also do not mean to suggest that this classification is exhaustive and non-overlapping.
future developments of \( w \), and the ordering relation \( \preceq_w \) would encode objective and natural assumptions about causality and commonsense expectations about normal courses of events (cf. Morreau 1997; Kaufmann 2005a).

**Commissive Conditionals.** Commissive Conditionals are conditional promises as in (64a) and (73a), and conditional threats as in (73b) and (73c) with which the speaker tries to exert influence on the hearer’s decision making.

(64a) If you mow the lawn, I’ll give you five dollars.

(73)  
  a. I’ll lend you the book, if you lend me your bicycle tomorrow.
  
  b. If you don’t stay away from my girl, I’ll burn your record collection.
  
  c. If Martha finds out about this, our friendship is over.

Commissive conditionals have consequents that are desirable or undesirable to the addressee. Still more importantly, what sets commissive conditionals off from predictive conditionals is that in the former the consequents refer to actions or events that are under speaker control while their antecedents are usually events under hearer control. Here \( R_w \) would contain future developments of the world \( w \), as in predictive conditionals, but crucially the ordering \( \preceq_w \) should also capture our intuitions about commonsense social behavior, i.e., natural dispositions to act by and large rationally, in accordance with one’s intentions, aims and beliefs.

**Counterfactual Conditionals.** Counterfactual conditionals, or counterfactuals for short, are conditionals as in (69) or (74) in which the antecedent has a backward-shifted tense and the consequent is in the subjunctive, usually so as to express counterfactuality in the sense that \( A \) is not assumed to be true by the speaker (or only very unlikely, or not endorsed as possible or sufficiently likely at the present stage of the conversation etc.).

(74)  
  a. If kangaroos had no tails, they would topple over.  
     (Lewis 1973)
  
  b. If I were a carpenter and you were a lady, would you marry me anyway?  
     (Tim Hardin)

For an evaluation of counterfactual conditionals, we would interpret the set \( R_w \) as all conceivable worlds and \( \preceq_w \) as a measure of similarity to the actual world \( w \), in terms of facts and what we consider normal courses of events. Usually, it is assumed that \( w \in R_w \) and that \( \preceq_w \) either satisfies weak centering (see Lewis 1973)

\[
w \in \text{Min}_w
\]
or strong centering (see Stalnaker 1968):

\[
\text{Min}_w = \{w\}.
\]

### 5.2 Conditional Perfection

Although they were not the first in history to discuss the phenomenon, it was a short paper by Geis and Zwicky (1971) that subsequently fixed the community’s awareness on the interesting observation that conditional sentences such as (75a) are often understood to also convey the reverse direction of fit (75b) and thus to be taken as a biconditional (75c) (for overview see van der Auwera 1997b; Horn 2000).

(75)  

a. If John leans out of that window any further, he’ll fall. \( A > C \)

b. If John does not lean out of that window any further, he will not fall. \( \overline{A} > \overline{C} \)

c. If and only if John leans out of that window any further, he will fall. \( A \Leftrightarrow C \)

It is easy to see, however, that (75a) does not imply (75b) under any of the semantic analyses discussed in section 5.1.1 above (although, of course, the attested reading is compatible with all of the analyses considered). Geis and Zwicky consequently hypothesized that this tendency for conditional perfection (cp) had a pragmatic default character and formulated a principle that associated conditional surface form with what they called an invited inference to perfect conditionals, i.e., to understand them as biconditionals as in (75c).

Thus conceived cp is central to Gricean pragmatics, and I would like to investigate in this section what exactly the nature of the attested inference is, under which circumstances it arises and how it can be explained.

But what exactly is a cp-reading? What are we trying to explain? The literature on cp is far from unanimous about this, if the issue is raised at all. Geis and Zwicky (1971) seem to have regarded the strong biconditional readings in (75c) as the cp-reading of (75a). But strictly speaking, this could either be arrived at by an enrichment of (75a) with (75b) or by an enrichment with either of the “only if” conditionals in (76).

(76)  

a. Only if John leans out of that window any further, will he fall. \( \text{only if } A, C \)

b. Only if John does not lean out of that window any further, will he not fall. \( \text{only if } \overline{A}, \overline{C} \)
In a recent descriptive article, van Canegem-Ardijns and van Belle (2008) distinguish these three possibilities and argue that the ensuing $\text{cp}$-readings differ slightly in strength: a $\text{cp}$-reading as in (75b) is the baseline case and the readings in (76) are both counted as stronger than the baseline. Which reading obtains, van Canegem-Ardijns and van Belle argue, depends on the kind of conditional that is being perfected.\footnote{6}

In what follows I will focus on the most general and basic $\text{cp}$-reading which is arguably even weaker than (75b). Take, for instance, the example in (77).

\begin{enumerate}
\item[a.] If I bum around, I will miss my deadline. \hfill (A > C)
\item[b.] If I don’t, I will not miss my deadline. \hfill (\overline{A} > \overline{C})
\item[c.] If I don’t, I might not miss my deadline. \hfill (\overline{A} \leftrightarrow \overline{C})
\item[d.] If I don’t, I will miss my deadline. \hfill (\overline{A} > C)
\end{enumerate}

Whether the conditional (77a) has a conditional reading or not depends on whether $C$ is true if $A$ does not hold. Our semantics allows us to distinguish three basic cases here: (i) the strong $\text{cp}$-reading in (77b), (ii) the weak $\text{cp}$-reading in (77c), and (iii) the unconditional reading in (77d). Thus conceived, a minimal $\text{cp}$-reading as in (77c) is basically very weak, paraphrasable as saying

\begin{enumerate}
\item[(78)] $\overline{A}$ is not a sufficient condition for $C$. \hfill $\neg (\overline{A} \leftrightarrow C)$
\end{enumerate}

This reading then may or may not be strengthened to a reading that paraphrases as

\begin{enumerate}
\item[(79)] $\overline{A}$ is a sufficient condition for $\overline{C}$. \hfill $\overline{A} \leftrightarrow \overline{C}$
\end{enumerate}

Whenever I speak of a $\text{cp}$-reading in the following, I mean \textit{at least} a weak $\text{cp}$-reading. In other words, I take $\text{cp}$-readings to be just the exclusion of an unconditional reading as in (77d), and vice versa.

\footnote{6 More specifically, van Canegem-Ardijns and van Belle (2008) argue that whereas predicative conditionals do not generally give rise to the stronger $\text{cp}$-readings in (76), commissive conditionals do. In particular, a conditional promise of the form $A > C$ gives rise to the reading that “only if $A$, $C$”, whereas a conditional threat of the form $A > C$ gives rise to the reading that “only if $\overline{A}$, $\overline{C}$.” In other words, if $A > C$ is a conditional promise, we obtain the intuitive reading that $C$ is \textit{not} going to happen, but the hearer may bring it about by $A$; on the other hand, if $A > C$ is a conditional threat, we obtain the intuitive reading that $C$ \textit{is} going to happen, but the hearer may prevent it by $\overline{A}$.}
5.2.1 Approaching Perfection

Before heading into an analysis, it pays to briefly review previous proposals.

Perfection from Lexical Strengthening

Atlas and Levinson (1981), Horn (1984), Levinson (2000) and Horn (2000) treat \( \text{cp} \) as an I-implicature. The most thorough exposition of this idea is given by Horn (2000) who argues that \( \text{cp} \) is a case of *lexical strengthening*.\(^7\) The inference from *if* to *iff* should be thought of, Horn suggests, in parallel to other diachronic strengthenings of lexical meanings, such as, for instance, the case of the English *liquor*, specific now for alcoholic beverage, but derived from the more encompassing term *liquid*. In effect, \( \text{cp} \) is explained as conventionalized pragmatic narrowing of the semantic meaning of the connector *if* and related constructions.

The impression is strong that this is not much of an *interesting* explanation of an interesting phenomenon (see van der Auwera 1997\(a\), for similar criticism). In particular, conventionalized lexical strengthening alone cannot easily explain the context-dependence of \( \text{cp} \)-readings. But it is clear that \( \text{cp} \) does not arise for certain conditionals, such as (65a), and some conditionals may get a \( \text{cp} \)-reading in one context, but not in another: I will argue below that \( \text{cp} \)-readings systematically depend on the topic of conversation and therefore lend themselves to a more detailed and systematic derivation than an account in terms of conventionalized lexical strengthening permits.

Perfection as Scalar Implicature

A more attractive explanation ensues from treating \( \text{cp} \) as a scalar implicature. Ducrot (1969), Horn (1972), Boër and Lycan (1973), Matsumoto (1995) and van der Auwera (1997\(a\)), among others, have suggested such accounts. If we want to explain conditional perfection as a scalar implicature, the problem is of course which alternative forms to refer to.

Biconditional and Unconditional as Alternatives. If we assume that the alternatives to be compared are:

\[(8o) \quad \{A > C, \ A \leftrightarrow C\}\]

\(^7\) Most papers suggesting I-implicature accounts of \( \text{cp} \) do not explain or derive the attested inference explicitly, but merely list \( \text{cp} \) as *one* example under many for I-implicatures.
we run straight into the symmetry problem (see sections 2.3.1 and 3.1.2), and are unable to account for cp-readings. A different simple alternative set that promises to be more successful is (81) where we compare the target conditional with the expression “whether A or not, C.”

\[
(81) \{ A > C, \ “\text{whether } A \text{ or } \overline{A}, \ C” \}
\]

Rawlins (2008a,b) analyzes these latter expression, which he calls *uncondition-als*, as equivalent to the conjunction in (82).

\[
(82) \ A > C \ \land \ \overline{A} > C
\]

Under this analysis, it is plain to see that naïve scalar reasoning based on the alternatives in (81) derives cp: if \( A > C \) is true and the unconditional as analyzed in (82) is false, then \( \overline{A} > C \) must be false; this is equivalent to the weak cp-reading \( \overline{A} \Leftrightarrow \overline{C} \).

Although the set in (81) derives cp straightforwardly, the problem with this explanation is that it stands in need of justification that the set in (81) is a feasible set of alternatives for Gricean reasoning while the set in (80) is not. To wit, both sets fail all of the common constraints on scalar comparison suggested in the literature (see section 3.1.2). So, despite the fact that negating “whether A or not, C” might give us cp, it is not clear why this should be an alternative expression for scalar reasoning.

**Scales from Alternative Antecedents.** That, among other things, is why Matsumoto (1995) and van der Auwera (1997a) assume different sets of alternatives. The most explicitly spelled-out account is van der Auwera’s, who considers the set

\[
(83) \{ A > C, \\
\quad A > C \ \land \ B_1 > C, \\
\quad A > C \ \land \ B_1 > C \ \land \ B_2 > C, \\
\quad A > C \ \land \ B_1 > C \ \land \ B_2 > C \ \land \ B_3 > C, \\
\quad \ldots \ \\
\}
\]

where \( B_i \) are relevant alternative propositions for \( A \). With this, van der Auwera assumes, an utterance of \( A > C \) will implicate that \( (A \lor B_i) > C \) is false for all \( B_i \). This, together with the truth of \( A > C \), implies that \( B_i > C \) is false

\[\text{\footnote{According to van der Auwera (1997a), this analysis is due to Ducrot (1969).}}\]
for all $B_i$, so that we get (5.5) as an implicature:

\[
\bigwedge_{\{B_i\}} \neg (B_i > C) \tag{5.5}
\]

According to van der Auwera, this would then explain cp as a Q-implicature, because the given condition $A$ is the only one sufficient for $C$ from the set of alternatives, which yields the cp-reading in (76a).

Is this a convincing explanation of cp that we should adopt? I argue that it is not. First of all, a little nagging. The derivation of (5.5) is not entirely correct under an order-sensitive implication analysis. From a negation of all alternatives to $A > C$ from the set in (83) we can only derive that $B_1 > C$ is false. To arrive at the stronger conclusion in (5.5) we would, strictly speaking, need to assume a different alternative set, namely:

\[
\{ A > C, \\
A > C \land B_1 > C, \\
A > C \land B_2 > C, \\
A > C \land B_3 > C, \\
\ldots \}.
\tag{84}
\]

But this is, of course, not a major point of criticism.

Still, even with this alternative set problems continue. It is fairly obvious that the scalar inference in (5.5) does not necessarily entail a weak cp-reading of the kind I am after, at least not for arbitrary alternatives $B_i$. We need to place additional restrictions on the set $\{B_i\}$ in order to derive cp. One natural and formally sufficient condition is the condition

\[
\overline{A} = \bigcup_i B_i \tag{5.6}
\]

To assume (5.6) is to assume that $\overline{A}$ is exhausted by the possibilities $B_i$, and that the possibilities $B_i$ do not overlap with $A$. This is not an unnatural additional assumption for a set of alternatives to $A$, of course. Moreover it helps to formally derive a weak cp-reading as follows: if $\bigcup_i B_i = \overline{A}$ then there is a subset $B \subseteq \{B_i\}$ such that $\operatorname{Min}_w(\overline{A}) = \bigcup_{B_i \in B} \operatorname{Min}_w(B_i)$. But then $\operatorname{Min}_w(\overline{A})$ contains some worlds where $C$ is true, since every $\operatorname{Min}_w(B_i)$ does.

But if the condition in (5.6) is necessary for a weak cp-reading—necessary, in the sense that it is the most natural condition that is formally sufficient to derive the result—then any instantiation of the scale in (84) that satisfies (5.6) can be abbreviated to

\[
\{ A > C, \\
A > C \land B_1 > C, \\
A > C \land B_2 > C, \\
A > C \land B_3 > C, \\
\ldots \}.
\tag{84}
\]
Thus conceived, it transpires that under the most reasonable interpretation of the set of alternatives to $A$ that also works, the set in (84) is equivalent to the set in (81) which compared the conditional with the unconditional “whether $A$ or not, $C$.”

**Alternatives and Topics.** Does this mean that we have successfully reconstructed the behavior of the problematic set (81) by a different, more plausible, more defensible set (84)? Again, I remain doubtful. The question remains why we should build a set of alternative expressions to $A > C$ by looking at alternatives to the antecedent and not for the consequent (or both). In other words, why is (84) the correct set and not for instance the set in (86)?

(86) \{ A > C, \\
    A > C \land A > D_1, \\
    A > C \land A > D_2, \\
    A > C \land A > D_2, \\
    ... \}

Intuitively, the matter may seem obvious: in most standard contexts of utterance of $A > C$, we are rather interested in (an answer to the question after) sufficient conditions for $C$, rather than (an answer to the question after) the consequences of $A$. In other words, it seems to be an implicit contextual **topic requirement** that motivates the use of (something like) the scale in (84) in some contexts but not in others. But then we should not think of cp as run-of-the-mill scalar implicature to begin with.

I therefore argue that where cp-readings are to be derived by ‘something like’ scalar reasoning, the ‘something like’ is contextual interpretation of the conditional under a given topical question under discussion, and not reasoning about a fixed set of expression alternatives generally associated with a conditional by lexicon or grammar. Still, not all cases of cp require such pragmatic reasoning, but can much more naturally be accounted for by appeal to shared assumptions about natural relatedness of events. This is what I will argue for next.

### 5.2.2 Two Sources of Perfection

I claim that there are really two distinct sources of cp that also require distinct treatments: (i) cp-readings can arise from shared normality assumptions and
Chapter 5. The Pragmatics of Conditionals

world knowledge of a default kind; (ii) $\text{cp}$-readings can also arise by more tangible pragmatic reasoning about the topic of conversation.

_Perfection from Normality_

Winter in Amsterdam. Having lived in Amsterdam for a couple of years, I found it interesting to see how the city administration is prepared to deal with ice and snow in winter time. What surprised me could be expressed perspicuously by the following two conditional sentences:

(87) a. If the canals freeze, the city sends out icebreaker boats to drive through the major canals, but . . . 

b. . . . if it snows, the city does not send out snowplows to drive through the streets.

I am surprised about this, because my hometown has no canals but does have regular snowfall in wintertime. I therefore did not expect to see icebreaker boats on the frozen canals in Amsterdam, but I would have expected to see snowplows at work for traffic safety, since this is a normal occurrence in the town that I grew up in.

Both conditionals in (87) are relevant (to me, and, let us assume, also to the conversation) because they express my surprise, my failed expectations. But what’s more important here is that there is also an interesting contrast, as far as common expectations are concerned: I am sure we all do not expect the city to send out icebreaker boats or snowplows if it does not freeze or snow; more concretely, we all expect that the conditionals in (88) are true, as this is what common sense dictates.

(88) a. If the canals are not frozen, the city does not send out icebreaker boats.

b. If it does not snow, the city does not send out snowplows.

Yet if this is what we can commonly expect, the conditional in (87a) gets a $\text{cp}$-reading: roughly, the city sends out icebreakers if and only if the canals freeze. But the conditional in (87b) does not get a $\text{cp}$-reading.

So this is one simple example demonstrating the general point I would like to make. I do not believe that the fact that (87a) but not (87b) gets a $\text{cp}$-reading is due to general and genuine pragmatic reasoning, such as an I-implicature or a scalar implicature. An implicature-based approach would have to explain why it is that in the same context of utterance one conditional
is perfected while the other is not. I am not saying that such an explanation is inconceivable. I am rather saying that an explanation that appeals to intuitions about common normality expectations does explain the difference (as I find: naturally) and does not require lexical strengthening or scales.

**Normality Assumptions.** Consequently, I propose that at least some if not most cases of cp should be accounted for in terms of *shared normality assumptions*. To be precise, my suggestion is this: in a stereotypical context of utterance of the conditional in (75a) we come to understand that (75b) is true because of what we take to be *normal courses of events*, in essence, because we take (89) to be true.

(75a) If John leans out of that window any further, he’ll fall. \[ A > C \]
(75b) If John doesn’t, he will not fall. \[ \overline{A} > \overline{C} \]
(89) John will *normally* not just fall out of the window. “normally \( \overline{C} \)”

More concretely, I believe that a standard context of utterance for the predictive conditional (75a) *will* feature or readily accommodate (i) a shared presupposition (89) that *normally* John will not fall out of the window in the absence of unexpected intervening events, and (ii) a presupposition that *normally* —as if by definition— unexpected events will not occur. Together this will imply the truth of (75b), as it were, as a natural background assumption about the way the actual world is.

It needs to be stressed that if I say that in a normal context of utterance for (75a) the truth of (89) will already be ‘presupposed’, I mean that interlocutors can safely rely on (89) as shared implicit background information that forms the basis for interpretation. This is then *not*, of course, a presupposition of the utterance (75a) in the standard linguistic sense: it is an assumption about what is a normal causal development, that informs the interpretation of (75a); but it is not that (75a) would only be true or felicitous if this assumption was in place and that it would therefore trigger accommodation in a context where it was not mutually shared understanding that the world normally behaves in such ways.

**Deriving Perfection.** It then remains to be shown that, as I claim, (75a) and (89) together imply the cp-reading (75b). In general I need to show that \( A > C \) and “normally \( \overline{C} \)”, if given a feasible semantics, imply \( \overline{A} > \overline{C} \). For the predictive conditional in (75a), we may assume a modal structure \( \langle R_w, \leq_w \rangle \)
where \( R_w \) contains all the possible ways the actual world \( w \) might develop in the near, relevant future —thus abstracting away from temporal matters and the like— and where \( \leq_w \) represents an understanding of normal courses of events, in the sense that the actual world \( w \) is expected to develop into a world in the set \( \text{Min}_w \) if no unexpected events occur. The assumption that “normally \( \overline{C} \)” then is spelled out as \( \square \overline{C} \) which is true iff

\[
\text{Min}_w \subseteq [\overline{C}].
\]

Under these semantics, if \( \square \overline{C} \) is true, then there are no worlds in \( \text{Min}_w \) that make \( C \) true. But if \( A > C \) is true as well, then all worlds in \( \text{Min}_w \) must make \( \overline{A} \) true. But that means that \( \overline{A} > \overline{C} \) is true. In this sense, a shared background assumption that “normally \( \overline{C} \)” explains conditional perfection, given a suitable semantics of conditionals and normality assumptions.\(^9\)

In sum, I suggest that appeal to shared normality assumptions is the correct explanation for a great number of cases. This is most plausible for predictive conditionals, especially where they express or relate to a causal relation between events, and commissive conditionals with their strong appeal to a commonsense logic of social contract-making. This is also supported by empirical research investigating how readily subjects infer \( \text{cp} \)-readings: the studies of Newstead et al. (1997) show that where a “natural causal connection” exists between propositions \( A \) and \( C \), \( \text{cp} \)-readings are readily attested; the same holds of conditional promises and threats.

**Perfection from Topicality**

But even if a ‘normality-based’ account of \( \text{cp} \)-readings is correct for a vast number of cases, this cannot be the end of the story. In fact, as far as pragmatic theory is concerned, the most interesting observations are not yet covered by appeal to shared normality assumptions. The point is that there are cases of \( \text{cp} \) that cannot be readily explained in this way. Take for instance the question-answer pair in (90).

(90)  
\begin{align*}
\text{a. Bogart: Will you marry me?} & \quad ?C \\
\text{b. Lillie: If I have to.} & \quad A > C \\
\text{c. } & \neg \text{ If I don’t have to, I won’t marry you.} \quad \overline{A} > \overline{C} \\
\text{d. } & \neg \text{ If I don’t have to, I might not marry you.} \quad \overline{A} \leftrightarrow \overline{C}
\end{align*}

\(^9\) Notice that I did not make any further assumptions about the properties of \( \leq_w \).
It appears to be a piece of fairly robust linguistic intuition that in the context of the question \((90a)\), a conditional answer such as \((90b)\) gets a perfected reading as in \((90c)\) or as in \((90d)\) (see Groenendijk and Stokhof 1984). Still, there is no reason why a general, unbiased context should feature a standing normality assumption that Lillie will or will not marry Bogart unless something extraordinary intervenes. (Who are Lillie and Bogart anyway?) Of course, we could stipulate that the necessary normality assumption will be accommodated, but this line of explanation seems defeatist. It certainly does not account for the generalization that nearly all conditionals get a perfected reading if taken as an answer to a (possibly implicit) question after the truth of their consequences.

Appeal to accommodation of a normality assumption also does not directly explain the rest of the general pattern that can be observed, namely that whether a conditional \(A > C\) gets a perfected reading directly depends on the question under discussion. Compare the cases \((91)-(93)\).

\[(91)\]
\[
\begin{array}{ll}
\text{a. } & \text{Q: Is Cathy coming to the party? } \quad ?C \\
\text{b. } & \text{A: If Aron is. } \quad A > C
\end{array}
\]

\[(92)\]
\[
\begin{array}{ll}
\text{a. } & \text{Q: Is Cathy coming to the party if Aron is? } \quad ?(A > C) \\
\text{b. } & \text{A: Yes. If Aron is coming, Cathy is coming too. } \quad A > C
\end{array}
\]

\[(93)\]
\[
\begin{array}{ll}
\text{a. } & \text{Q: Is Aron coming to the party? } \quad ?A \\
\text{b. } & \text{A: If Aron is coming, Cathy is coming too. } \quad A > C
\end{array}
\]

Intuitively, a \(cp\)-reading of \(A > C\) arises in the context of \((91)\), but not in the context of questions \((92)\) and \((93)\) (see also von Fintel 2001a). This observation is not readily explained by means of any of the approaches considered so far, be it (i) lexical strengthening, (ii) scalar implicature or (iii) normality expectations. In conclusion, there appear to be cases where topic requirements force \(cp\)-readings while appeal to normality assumptions seems implausible. It is in particular this regular pattern of contextual enrichment in the light of a

10. Exceptions to this rule seem to exist:

\[(1)\]
\[
\begin{array}{ll}
\text{a. } & \text{John: Do you want to order pizza again tonight?} \\
\text{b. } & \text{Mary: If I may decide what to eat.}
\end{array}
\]

This example has a character similar to biscuit conditionals (see section 5.3): it is at least not inferred from the answer that Mary does not want to order pizza again tonight; rather she might want to do so irrespective of whether she may decide what to eat and what not. However, the generalization seems to hold, as far as I can see, for epistemic, predictive and commissive conditionals.
question under discussion that is interesting for a general theory of pragmatic interpretation. I would therefore like to enlarge on this issue in the following.

**Perfection from Exhaustivity**

As \( \text{cp} \)-readings vary with the topical question under discussion, an explanation in terms of exhaustive interpretation of answers suggests itself. A first very brief and informal statement of the idea to approach \( \text{cp} \) in this way was given by de Cornulier (1983), but it was Groenendijk and Stokhof (1984) who systematically spelled out exhaustive interpretation of answers in connection with their theory of questions. Groenendijk and Stokhof indeed also applied their theory to conditionals in order to explain \( \text{cp} \) (on a par with exclusive readings of disjunction, see Groenendijk and Stokhof 1984, pp. 320–328).\(^\text{11}\)

Exhaustification approaches to implicatures are basically similar in spirit to Q-implicature accounts, but differ from the latter in that they do not refer directly to alternative forms. Rather exhaustification emphasizes the role of the question under discussion (cf. van Kuppeveld 1996): for instance, in the light of a question (94a) the answer (94b) is interpreted exhaustively to convey (94c).

(94) a. Who (of John and Mary) came to the party?
   b. John did.
   c. Mary didn’t.

Exhaustive interpretation can be applied to constituent answers as well as to sentential answers. If applied to the latter, it gives a straightforward account for the \( \text{cp} \)-reading of a conditional as an answer to the question after the truth of its consequent as in (91). To see how this all works, let’s briefly review the basic principles of exhaustive interpretation à la Groenendijk and Stokhof.

**The Exhaustification Operator.** The main idea of the exhaustification approach is to minimize the extension of the question predicate given the truth of the answer. In general then, let’s consider a first-order logical language with a finite set of predicate symbols \( \mathcal{P} \) of different arities: zero-ary predicate symbols as proposition letters, unary predicate symbols as variables for

\(^{11}\) For overview: von Fintel (2001a) reconsiders Groenendijk and Stokhof’s account of conditional perfection in the context of more data, and Schulz and van Rooij (2006) spell out exhaustive interpretation in formal detail and apply it to a number of linguistic examples, but do not, as far as \( \text{cp} \) is concerned, modify or improve on Groenendijk and Stokhof’s original analysis.
properties of individuals and so on. Let \( W \) be the set of possible worlds, i.e., valuation functions for this language on a given domain \( D \). If \( w \in W \) is a possible world, let \( w(\varphi) \) be the extension assigned to the formula \( \varphi \). There are two cases we need to distinguish: (i) if \( \varphi \) contains \( n > 0 \) free variables, then the extension \( w(\varphi) \subseteq D^n \) is an \( n \)-placed relation between individuals from the domain; (ii) if \( \varphi \) is a closed formula without free variables, then \( w(\varphi) \) maps onto a truth value, true or false.

Exhaustive interpretation is interpretation that minimizes the extension of a question predicate: the question predicate is just a formula of our first-order language, which may either be open, in which case it models a \( \text{wh} \)-question, or closed, so as to model a polar question. I will write \( T \), mnemonic for “topic”, as a stand-in for an arbitrary question predicate. A pair of possible worlds \( v, w \in W \) is called \( T \)-comparable, \( v \equiv_T w \), if \( v(P) = w(P) \) for all \( P \in \mathcal{P} \setminus \{T\} \). A world \( v \) is called \( T \)-smaller or equal than \( w \), \( v \leq_T w \), if \( v \equiv_T w \) and \( v(T) \subseteq w(T) \). If the closed formula \( A \) with the semantic value \( [A] \subseteq W \) is an answer to question predicate \( T \), then the exhaustive interpretation of \( A \) given \( T \) is defined as:

\[
exh(A, T) = \{ w \in [A] : \neg \exists v \in [A] \quad v <_T w \}.
\]

**Example.** Consider a basic treatment of the question-answer pair in (94): we would assume that the question predicate \( T \) is the formula

\[
\text{Come}(x) \land (x = \text{John} \lor x = \text{Mary})
\]

with one free variable. We then basically only need to distinguish four types of possible worlds according to whether individuals John and Mary are in the extension of the predicate \( \text{Come}(x) \). These four types of worlds are then ordered according to the extension they assign to \( T \), as shown in figure 5.1. In this figure, an arrow from one type of world to another indicates a smaller extension of the question predicate. The semantic meaning of the answer in (94b) is indicated by a shaded area to include only worlds of type \( w_2 \) and \( w_4 \). Consequently, the \( T \)-smallest worlds where (94b) is true are worlds of type \( w_2 \), indicated in the figure by a thicker black circle. This is the intuitively correct prediction (that only John but not Mary came to the party), and it illustrates the basic workings of the exhaustivity operator.

\[\text{exh}(A, T) = \{ w \in [A] : \neg \exists v \in [A] \quad v <_T w \} \]
Perfection from Exhaustivity. Let us turn to Groenendijk and Stokhof’s exhaustification-based account of cp. We would like to derive a cp-reading of \( A > C \) for question predicate \(?C\) and we would like to derive no cp-reading under question predicates \(?{(A > C)}\) and \(?A\).\(^{13}\) Since these are all polar questions, the first thing to do is to specify the order \(<_T\) for closed formulas \(T\) (which we actually have not yet done). The order \(<_T\) should compare worlds with respect to the extension of \(T\). The extension of a closed formula is a truth value. The question is then when is a world \(T\)-smaller than another if we compare possible truth values of \(T\)? Groenendijk and Stokhof assume that the extension of a closed formula is given as:

\[
    w(T) = \begin{cases} 
        \{\emptyset\} & \text{if } T \text{ is true in } w \\
        \emptyset & \text{if } T \text{ is false in } w 
    \end{cases} \tag{5.8}
\]

and consequently receive that \(v <_T w\) just in case \(T\) is true in \(w\) and false in \(v\).

With this assumption in place we can check the predictions in individual cases. Let’s start with the case in (91) where a conditional \(A > C\) is an answer to question predicate \(C\). Since Groenendijk and Stokhof assume a material implication analysis of conditionals, we need to distinguish four types of worlds, as in figure 5.2, according to the truth value assigned to \(A\) and \(C\). These worlds are then ordered with respect to the extension of \(C\) as indicated

\(^{13}\) Here, we can save notation and assume that both \(A\) and \(C\) are zero-ary predicate symbols, i.e., proposition letters.
5.2. Conditional Perfection

Figure 5.2: C-minimal worlds for exhaustive interpretation of $A > C$, as in example (91)

by the arrows. In line with assumption (5.8), we get $v <_C w$ just in case $C$ is true in $w$ and false in $v$. The figure indicates the type of all those worlds in which conditional $A > C$ is true under a material implication analysis: \{w_1, w_2, w_4\}. The graphic makes it easy to see that exhaustive interpretation of $A > C$ thus excludes worlds of type $w_2$ and leaves only $w_1$ and $w_4$ as the exhaustive interpretation of the conditional. Groenendijk and Stokhof’s account effectively derives a material biconditional reading.

A similarly satisfactory result is obtained for the case in (92). As Groenendijk and Stokhof show, if $A > C$ is an answer to the question $?(A > C)$, the conditional will not be exhaustified and maintains its material implication meaning. This is a direct consequence of the general result that answers “yes” and “no” will not receive an exhaustive reading (see Groenendijk and Stokhof 1984, pp. 322-323).

So, thus far predictions are good. But unfortunately the predictions of the exhaustification operator for the case (93), where $A > C$ appears as an answer to the question $?A$, are incorrect. Following the same logic as before, we would minimize the truth-value of the question predicate $A$ in the interpretation of the conditional $A > C$. The operation is graphically depicted in figure 5.3 and shows that the approach predicts that the conditional is equivalent to a straight “no” answer in this case.

Error Analysis. Taking a small step back and reflecting on these predictions, it seems fair to say that the stipulation in (5.8) is actually doing most of the work in the derivation of $\text{cp}$ under topic $?C$: the definition in (5.8) aligns the exhaustification operator in (5.7), at least formally speaking, with
interpretation in ‘normal worlds’ where C is assumed not to hold, as given in section 5.2.2.

Seen in this light, we might actually start to doubt whether it is conceptually adequate to base the order $<_T$ for closed formulas $T$ on the stipulated extensions in (5.8). Admittedly, there is an intuitive rationale behind ordering worlds in terms of extensions if the question predicate $T$ is an open formula. But if $T$ is a closed formula things are not that intuitive: in what sense is a world that makes $T$ false more extension-minimal than one where $T$ is true?

I suspect that it is the somewhat stipulative character of an ordering based on (5.8) which is responsible for the erroneous prediction of case (93). Put in slightly provocative terms, perhaps exhaustive interpretation successfully derives cp-readings under topic $?C$ only accidentally, as a conceptually sound derivation under topic $?C$ would carry over flawlessly to the topic $?A$.

OUTLOOK. The next two sections offer an alternative account that aims to overcome exactly these problems. I will first spell out the proposal in generally accessible terms in section 5.2.3. This section basically appeals to commonsense intuitions and gives a plausibility account for the derivation, respectively non-derivation, of cp-readings. The following section 5.2.4 backs up the plausibility account with a concrete game theoretic model. This is however conceptually fairly involved and so some readers may happily content themselves with reading only section 5.2.3.
5.2.3 Rationalizing Indirectness

The main idea which is to be spelled out here and refined in the following section is very simple. Take a polar question \( ?T \) and think of \( T \) as a stand-in for either antecedent \( A \) or consequent \( C \) of a conditional. In the light of a question \( ?T \), I will treat the conditional \( A > C \) as an indirect answer which has to be rationalized against a direct answer: basically, the hearer asks himself why the speaker has not just said “yes” or “no” when he hears \( A > C \) as an answer to \( ?T \). Similar to scalar reasoning, the hearer then rules out all those worlds from the semantic interpretation of \( A > C \) where a direct answer is true. If \( [A > C] \) be the set of worlds where the conditional \( A > C \) is (non-trivially) true, then this idea spells out roughly as:

\[
\text{Intpr}(A > C, T) = \{ w \in [A > C] \mid \text{"yes" and "no" are not true in } w \} \tag{5.9}
\]

But, of course, the direct answers “yes” and “no” are different for different contextual questions \( ?T \in \{ ?A, ?C \} \). Effectively, different topical questions induce different contextual alternatives with which to compare \( A > C \). If we spell this out more carefully, we find that in the one case we derive cr-readings, while in the other we don’t. This is the whole idea in a nutshell.

*Direct Answers as Modal Statements*

If we want to make the operation in (5.9) precise, we need to pin down how to analyze the answers “yes” and “no” for comparison with the conditional. It turns out that a too naïve approach soon runs into a formal impasse. The problem is obvious. If \( T \) is a proposition that is either true or false, and if the direct answer “yes” (“no”) means that \( T \) is true (false), then this reasoning eliminates all worlds from \( [A > C] \):

\[
\text{Intpr}'(A > C, T) = \{ w \in [A > C] \mid T \text{ and } \overline{T} \text{ are not true in } w \}
\]

= \O

Instead, I suggest, direct answers “yes” and “no” should be interpreted also in the light of the conditional and should thus be susceptible to all modal distinctions the conditional introduces. That means that, roughly put, to interpret

\[\text{14. It is not crucial to agree with my choice of words calling “yes” and “no” the (only) ‘direct answers’ to a polar question. All that matters for the present concern is that a polar question (usually, normally) makes a simple “yes” and a simple “no” much more salient answers than a conditional } A > C. \text{ This is the crucial intuition, not the terms ‘direct’ and ‘indirect.’}\]
Chapter 5. The Pragmatics of Conditionals

A > C in the light of ?T is to rule out worlds from the semantic interpretation of A > C where the modalized expressions □T and □¬T are true:

\[
\text{Intpr}^\Box(A > C, T) = \{ w \in \llbracket A > C \rrbracket \mid □T and □¬T are not true in w \} \quad (5.10)
\]

It is exactly this move from contextual alternative T to □T, so to speak, that the following section will back up with an involved argument based on the dynamics of awareness. The point can, however, also be made in intuitive terms. Here is my argument based on epistemic conditionals.

If a question like (95a) is answered with a straightforward “yes” or “no” we usually do not take this to be information about the speaker’s epistemic state, but rather about the actual world.

(95)  
\begin{align*}
&\text{a. Q: Did Cathy come to the party?} \\
&\text{b. A: Yes.} \\
&\text{c. A: No.} \\
&\text{d. A: If Aron did.}
\end{align*}

But if we interpret the conditional answer in (95d), accommodating the epistemic dimension seems unavoidable. And once the interpreter is sensitized to these modal distinctions due to the conditional, looking back at answers “yes” and “no” from this point of view also means to interpret answers (95b) and (95c) as saying that the speaker knows that T is true, respectively that the speaker knows that T is false. Hence, although on their own (95b) and (95c) would be taken to refer directly to matters of truth and falsity of the actual world, if evaluated against an epistemic background setting—which the conditional introduces—the direct answers should also be interpreted in relation to the speaker’s epistemic state.

A similar argument applies to other kinds of conditionals which may introduce other kinds of modality. Generally speaking, if we assume that conditionals are evaluated on a modal structure \( \langle R_w, \preceq_w \rangle \), then the direct answers “yes” and “no” to topical question ?T should also be evaluated with respect to this modal structure as □T and □¬T respectively. We would then rule out all those worlds from \( \llbracket A > C \rrbracket \) where □T and □¬T are true, instead of those where T and ¬T are true.

\[15\] This works fine unless we explicitly restrict the class of modal structures \( \langle R_w, \preceq_w \rangle \) to include only orderings \( \preceq_w \) for which there is exactly one \( \preceq_w \)-minimal world. So, in particular, we would run into the same problem as before if we assumed that the ordering had to satisfy strong centering. However, this is not a problem as long as we deal with indicative conditionals for which such a restriction does not seem desirable to begin with.
5.2. Conditional Perfection

Deriving Perfection

It remains to be shown that the interpretation operation sketched in (5.10) really derives (weak) cr-readings under topic C and not under topic A, as we would like it to. I will content myself with presenting only abstract, formal results and invite the reader to check these against her favorite application of the assumed conditional semantics.

Topic C. Take a topical question ?C. We would like to show that the attested weak cr-reading (that it is not the case that $\overline{C}$ is true) must hold whenever $A \supset C$ is true, and $\square C$ and $\square \overline{C}$ are false. So suppose that in a world $w$ with modal structure $\langle R_w, \leq_w \rangle$ the conditional $A \supset C$ is true, and that it is also the case that $\overline{A} \supset\overline{C}$ is true. This implies that all worlds in $\text{Min}_w$ actually make $C$ true, which contradicts the assumption that $\square C$ is false. Hence, if $A \supset C$ is true and it is not the case that $\square C$ is true, then the weak cr-reading is derived as desired. It is moreover plain to see that the strong cr-reading in (79) is not ruled out by this reasoning. This derivation furthermore does not require non-triviality or any other special properties of the modal structure.

Topic A. For an argument why the same pragmatic reasoning is not strong enough to generally derive a cr-reading under ?A first notice that ruling out worlds where $\square A$ and $\square \overline{A}$ are false is equivalent to a strong non-triviality presupposition that $\Diamond A$ and $\Diamond \overline{A}$. But a world $w$ with $\text{Min}_w \cap A \neq \emptyset$ and $\text{Min}_w \cap \overline{A} \neq \emptyset$ may also have $\text{Min}_w \subseteq C$, thus making $A \succ C$, as well as $\overline{A} \succ C$ true. Consequently, the topic-dependent pragmatic strengthening will not yield cr-readings unless these are forced by something else, such as world knowledge or other contextual assumptions.

From Weak to Strong Perfection. So (5.10) properly derives weak cr-readings under topic C, but not under topic A. Still, often strong cr-readings spring more readily to mind than weak cr-readings if $A \succ C$ is an answer to ?C as in (90). I therefore suggest to think of the contrast between strong and weak cr-readings in parallel to expert and inexpert epistemic readings of scalar implicatures (see section 3.2). Here is my argument.

Suppose that the modal structure $\langle R_w, \leq_w \rangle$ captures plain epistemic modality, Hintikka-Kripke-style, such that $R_w$ is a set of doxastic alternatives and $\leq_w$ is just the total relation on $R_w$. With our non-triviality presupposition ($R_w \cap A \neq \emptyset$) in place, a conditional is non-trivially true in four different
kinds of such epistemic states, which we can represent using notation from lifted signaling games as follows (see section 3.2):

$$\llbracket A > C \rrbracket = \{ t_{[A,C]}, t_{[\emptyset,A,C]}, t_{[C,A,C]}, t_{[\emptyset,C,A,C]} \}. \quad (5.11)$$

A state $t_{[C,A,C]}$, for instance, is a state in which the speaker thinks it is possible that either only $C$ is true or that $A$ and $C$ are both true. The interpretation operator in (5.10) rules out two of these states and leaves us with:

$$\text{Intpr}^\square(A > C, C) = \{ w \in \llbracket A > C \rrbracket \mid \Box C \text{ and } \Box \neg C \text{ are not true in } w \}$$

and this amounts to a weak cp-reading because the state $t_{[\emptyset,C,A,C]}$ is included here. However, adopting our previous notion of speaker expertise, we say that the speaker is more of an expert in state $t_{[\emptyset,A,C]}$ than in $t_{[\emptyset,C,A,C]}$ because she entertains strictly fewer possibilities in the former than in the latter. It now seems defensible to assume that interpretation favors more ‘minimal states’ in this sense, as an assumption about speaker expertise or ‘simpler models’ in general. Hence, strong cp-readings spring more readily to mind.

**Summary.** To take stock, in this section I have argued that if we translate an (implicitly) assumed contextual question into an expectation of a direct answer, then we can use scalar-like reasoning to rule out certain parts of the meaning of a conditional, namely those states for which a direct answer would have been true. This accounts for the context-dependence of cp-readings on an intuitive basis, but the question remains what kind of account this scalar-like reasoning process actually is. The following section addresses this concern by giving a game theoretic rationale for the suggested reasoning process.

### 5.2.4 Forward Induction under Awareness Dynamics

I suggest that the kind of context-induced scalar reasoning I have spelled out in the last section is corroborated by the general principles of model construction _ex post_ that were given in section 3.1.2, if we take into account different conceptualizations of the context of utterance the interpreter has after hearing different messages. This latter aspect is modelled by ascribing different states of awareness to the receiver and incorporating such awareness dynamics into pragmatic reasoning.
The Game whether $T$. We should start with a general question: what does a signaling game look like that models a contextual question under discussion? As I have argued in section 3.1, signaling games actually model a question under discussion in the set of available interpretation actions and the structure of the payoffs. The most straightforward implementation of a contextual question $?T$, is the game $G_{?T}$ — read as ‘game whether $T’’ — in figure 5.4. There are two states $t_1$ and $t_2$ which capture all those distinctions that are relevant given that interlocutors are interested in whether the proposition $T$ is true. By the same token, the set of messages in this game is the set $M = \{m_1, m_2\}$, basically saying “yes” and “no” to the contextual question $?T$.

Games with Evolving Awareness. Suppose that this is the game that is played under a contextual question $?T$, and remember that we take $T \in \{A, C\}$ as a placeholder for either the antecedent or the consequent of a conditional whose interpretation we are interested in. Then, obviously, the conditional $A > C$, which we would like to have interpreted in the light of question $?T$, is not even in the set of available messages of the game $G_{?T}$. This is how it should be, I propose, in line with the intuition which I have argued for in the previous section already, namely that $A > C$ seems, in a sense, unexpected, or at least less expected as an answer to polar $?T$ than the answers “yes” and “no.”

The game model that I will endorse here to capture this situation is a dynamic game with unawareness (Feinberg 2004, 2005; Heifetz et al. 2009). I will assume that the receiver is initially unaware of the message $m_{A>C}$ and remains unaware of it if he observes a direct answer $m_1$ or $m_2$. In that latter case he will believe that the game to be played is $G_{?T}$ and that’s that. But the observation of message $m_{A>C}$ — or any other unexpected move by the sender — will make the receiver aware of this message and will make him accommodate his representation of the game, i.e., his conceptualization of the context of utterance. I will assume that if the receiver observes message $m_{A>C}$ he will come to believe that the signaling game is no longer the game

<table>
<thead>
<tr>
<th>$\Pr(t)$</th>
<th>$a_1$</th>
<th>$a_2$</th>
<th>$m_1$</th>
<th>$m_2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$t_1$</td>
<td>$\frac{1}{2}$</td>
<td>1,1</td>
<td>0,0</td>
<td>$\sqrt{\cdot}$</td>
</tr>
<tr>
<td>$t_2$</td>
<td>$\frac{1}{2}$</td>
<td>0,0</td>
<td>1,1</td>
<td>$\sqrt{\cdot}$</td>
</tr>
</tbody>
</table>

Figure 5.4: $G_{?T}$ – aka ‘game whether $T’’
$G?T$, but rather a game $G^+_?T$ which is derived from $G?T$ in such a way that it additionally includes at least the unexpected message $m_{A>C}$ together with any other necessary changes.

One such necessary change concerns the set of states that ought to be distinguished in $G^+_?T$. In the original game $G?T$ we only had two states $t_T$ and $t_?$, but clearly this is not the level of granularity against which the message $m_{A>B}$ should be evaluated: the conditional as such introduces additional distinctions in the set of states that have not been taken into account in $G?T$. Let us assume that $G^+_?T$ contains the alternative messages

$M^+ = \{m_T, m_?, m_{A>C}\}.$

Then our standard procedure for canonical model construction requires to consult four initially possible state distinctions:

<table>
<thead>
<tr>
<th></th>
<th>$m_T$</th>
<th>$m_?$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$t_1$</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>$t_2$</td>
<td>√</td>
<td>−</td>
</tr>
<tr>
<td>$t_3$</td>
<td>−</td>
<td>√</td>
</tr>
<tr>
<td>$t_4$</td>
<td>−</td>
<td>−</td>
</tr>
</tbody>
</table>

Recall that then $t_2$, for example, is the set of all worlds where $m_{A>C}$ and $m_T$ are true but where $m_?$ is false.

But now the question arises how to interpret the messages $m_T$ and $m_?$ in the game $G^+_?T$. If we take these messages to say that $T$ is true, respectively false, as such, then the only consistent states are $t_2$ and $t_3$. But this is not what we should do, and it is here that I can further motivate my previous suggestion to interpret messages $m_T$ and $m_?$ as modalized statements that are related to the same modal structure that an evaluation of $m_{A>C}$ requires. Here is the argument from ‘reasoning about foregone unawareness.’

**Reasoning with Unawareness.** To repeat for clarity, the idea of modelling reasoning about dynamic unawareness is this. Since we assume that the contextual question under discussion is $?T$, the receiver reasons about the game $G?T$ after hearing messages $m_T$ and $m_?$ and will not make any of the additional distinctions that some unexpected signal may force upon him. Yet, in the game $G^+_?T$, i.e., from a perspective of broader awareness and more fine-grained distinctions, the receiver can reason about his own (counterfactual) state of limited awareness in $G?T$. In general, there is a natural asymmetry
in the reasoning power of agents in games with dynamic awareness: from a state of awareness an agent can reason about his hypothetical beliefs, views and dispositions to act had he been unaware of certain contingencies, but in a state of unawareness an agent cannot—as if by definition—reason about the beliefs he would hold and the actions he would choose in case he had been aware of contingencies that he is in fact not aware of.

In order to implement the reasoning capabilities of agents with different awareness states into the IBR model, I will follow in particular the formalization of awareness dynamics in extensive games developed by Feinberg (2004; 2005). I will assume that each strategic receiver type comes in two versions: either he is aware of the conditional \( m_{A > C} \) and the game \( G_{IT}^{+} \), or he is not, depending on whether he observed the conditional or a direct answer. In effect, we can then apply the IBR model without modification to the trivial game \( G_{IT}^{-} \) with receiver types \( R_k \) as before. In the game \( G_{IT}^{+} \), on the other hand, we will have to assume receiver types \( R_k^{+} \) with extended awareness. Receiver types \( R_k^{+} \) not only believe that the context of utterance is modeled by \( G_{IT}^{+} \) but also know about their foregone state of unawareness and they can conceive of how they would have reasoned and acted had they been of the unaware type \( R_k \).

### Awareness Evolution Triggers Forward Induction.

The next question to be settled then is how to characterize the reasoning behavior of the aware receiver types \( R^+ \). Following in particular Heifetz et al. (2009), I argue that we should analyze the receiver as being surprised by the message \( m_{A > C} \): since from unawareness he had in a certain sense expected that a direct answer would be sent, any message that is not a direct answer to the question under discussion is a surprise message that needs to be rationalized \( ex \ post \). But that means that the message \( m_{A > C} \) should be a surprise message already for the first occurring receiver types, namely \( R_0^+ \) and \( R_1^+ \). As a result, unlike in the basic version of the model without dynamic awareness, already these receiver types need to rationalize the use of surprise message \( m_{A > C} \).

---

16. There are many more interesting subtleties in properly fitting reasoning about unawareness into the IBR model. It may seem natural, for instance, to rule that an aware receiver type should not reason (much) higher up the IBR sequence for the unaware game. Such complications, however, don’t interfere with the relatively simple application here.

17. It is not actually necessary to imagine the receiver to explicitly or implicitly believe that the game is \( G_{IT} \) before he observes \( A > C \) in order to be ‘surprised’ in this technical sense. The utterance \( A > C \) can be entirely out-of-the-blue and still the receiver can construct the context as about the question \( ?T \) in which the conditional is a ‘surprise.’
This implies that already the basic state distinctions in $G^+_{T}$ should be sensitive to the way $m_T$ and $m_{>C}$ would have been interpreted by an unaware receiver. An aware receiver type knows that an unaware type who observes $t_T$ ($t_{>C}$) comes to believe that the sender knows that $T$ is true (false). Hence it is these meaning differentiations that inform the construction of $G^+_{T}$. The states in this game should therefore to be conceived as follows:

$$
\begin{align*}
\text{Figure 5.5: } G^+_{T} \text{ – the ‘game whether } T' \text{ after accommodating } A > C
\end{align*}
$$

\begin{tabular}{|c|c|c|c|c|c|c|}
\hline
& Pr(t) & a_2 & a_3 & a_4 & m_T & m_{>C} \\
\hline
$T_2$ & $\frac{1}{3}$ & 1,1 & 0,0 & 0,0 & $\checkmark$ & $-$ & $\checkmark$ \\
$T_3$ & $\frac{1}{3}$ & 0,0 & 1,1 & 0,0 & $-$ & $\checkmark$ & $\checkmark$ \\
$T_4$ & $\frac{1}{3}$ & 0,0 & 0,0 & 1,1 & $-$ & $-$ & $\checkmark$ \\
\hline
\end{tabular}

Under this interpretation of $m_T$ and $m_{>C}$ only the state $m_1$ is inconsistent. Our signaling game model $G^+_{T}$ is the context model in figure 5.5, from which it is obvious that the irsr model will assign interpretation $t_4$ to the message $m_{A>C}$. We thus derive the exact same prediction as before under the more intuitive scalar-like reasoning outlined in the last section. What the game theoretic model adds to the picture is a justification for exactly this kind of scalar-like reasoning: as an indirect answer to a contextual question under discussion the receiver constructs a context representation after the fact that accommodates his own foregone unawareness, i.e., he integrates into his own aware representation of the context how he would have interpreted messages if he had remained unaware.

**Summary.** I suggest to conclude positively that the mission’s objectives have been met. We wanted to account for the topic dependence of $cp$-readings and we have done so first in intuitive terms and then backed up by a rather involved game theoretic model that implemented a notion of indirectness of answers by awareness dynamics of the receiver. In effect, the model thus mimicked scalar reasoning with a contextual scale in which the conditional
is compared with the direct answers to the contextual question under discussion. This, however, is only as-if-scalar reasoning, because the game model does not rely on a fixed scale but rather accounts for the contextual adoption of a set of alternative expressions by awareness dynamics, as proposed in several recent accounts in the rational choice literature.

5.3 Unconditional Readings

Conditional perfection, the topic of the last section, is in a certain sense the mirror imagine of another interesting phenomenon in the interpretation and use of conditionals: some conditionals not only do not get a CP-reading, but even receive what I would like to call unconditional readings. A particularly representative instance of such conditionals is the class of biscuit conditionals (BCS) — so-called after Austin’s example (65a), repeated here.

(65a) There are biscuits on the sideboard if you want them.

This conditional is remarkable because it relates propositions “there are biscuits on the sideboard” and “you want some biscuits” in a conditional construction, although these are by common sense conditionally unrelated, as far as their content is concerned: whether there are biscuits on the sideboard at the present moment is not dependent on whether the addressee would like some or not. It is in this sense that I speak of unconditional readings of conditionals, and its such unconditional readings that I would like to deal with in this section.

The main idea which I would like to put forward here is that unconditional readings can be derived from a standard semantics of conditionals together with a contextual assumption of conditional independence of propositions. I will give a suitable formal notion of conditional independence and relate it to existing notions, such as logical and probabilistic independence. Not all unconditional readings deserve or require an account of this kind, though. To delineate which ones do and which ones do not is therefore the secondary objective of this section.

This section is then decidedly not exclusively about biscuit conditionals. Philosophers and linguists alike have frequently adopted the view that BCS are a special subspecies of conditionals that can be singled out by peculiar syntactic and perhaps intonational properties. I will elaborate on some of the properties of BCS in section 5.3.1 and review some influential and recent accounts of BCS which also aim to derive unconditional readings. Still, as
I would like to show in section 5.3.2, unconditional readings do not occur only for \textit{bc}s with their distinct syntactic properties, but also for seemingly standard conditionals. This, I argue, casts doubt on the relevance of accounts of unconditional readings that are based on special properties of \textit{bc}s. I will then offer a very general pragmatic explanation for unconditional readings in section 5.3.3 and finish in section 5.3.4 with a game theoretic explanation of the discourse effects of \textit{bc}s and related constructions.

### 5.3.1 Biscuit Conditionals

\textit{Biscuit conditionals} are conditionals named after the example in (65a) which have been discussed as special cases of conditionals from a variety of angles under a variety of names.\footnote{Here are some of the labels used by various authors, often indicative of the respective author’s preferred analysis: non-conditional conditionals (Geis and Lycan 1993), speech-act conditionals (van der Auwera 1986; Sweetser 1990), relevance conditionals (Iatridou 1991), metarepresentational conditionals (Noh 1998) or non-interference conditionals (Bennett 2003).} Further examples are the sentences in (96).\footnote{We could be more thorough and further distinguish subtypes in this vaguely defined set. Günthner (1999), for instance, differentiates meta-communicative conditionals like (96a) and (96b) and discourse-structuring conditionals like (96c) from relevance conditionals like (65a).}

\begin{enumerate}[a.]
\item If I may say so, this is boring.
\item Her dress is too German for my taste, if you know what I mean.
\item If we now turn to the last agenda item, fund cuts are tremendous.
\end{enumerate}

There are striking intuitive differences between these examples and more standard conditionals. In a rough first approximation, the intuitive difference seems to be that (i) \textit{bc}s appear to somehow convey the unconditional truth of their consequents and (ii) the antecedents of \textit{bc}s relate in some fashion to matters of felicity or relevance of the consequent material.

\textbf{Characterizing Biscuits.} How exactly to delineate these intuitive differences is, however, a rather delicate matter, and it is here that we very clearly see mere description of the data blend into theorizing. Some authors have claimed that the antecedent material gives conditions on the very speech act performed by the consequent:

\begin{quote}
“\textit{P}ragmatic if is a typical conditional for speech acts: it specifies the conditions —of a context unknown to the speaker— under which a speech
\end{quote}
act should count. That is, I inform you of the following fact which would be of use to you in the event that you need me.”

(van Dijk 1979, p. 455)

“[T]he preferred reading [of a $bc$] has the adverbial modifying the act of stating, informing, etc.”

(Davison 1983, p. 505)

Others have claimed instead that the antecedent material gives conditions under which the consequent material —be that the speech act associated with the consequent or its semantic content— is relevant in some appropriate sense:

“Nevertheless, although in a non-integrative conditional [i.e., in a $bc$] the truth of the protasis is not sufficient for the truth of the apodosis, the truth of the protasis is a sufficient condition for the relevance of the speech act vehicled through the apodosis.”

(Köpcke and Panther 1989, p. 694)

“[T]he if-clauses in [$bc$s] specify the circumstances in which the consequent is relevant (in a vague sense, also subsuming circumstances of social appropriateness), not the circumstances in which it is true.”

(Iatridou 1991, p. 51)

**Conditional Speech-Acts.** Both assessments have motivated analyses of $bc$s as some sort of *conditional speech-acts*. In crude outline, a generic instance of this explanation scheme would either, as in (97a), postulate an elliptical performative (cf. Rutherford 1970; van der Auwera 1986; Iatridou 1991) or, as in (97b), some abstract illocutionary force operator (cf. Davison 1983; Sweetser 1990; DeRose and Grandy 1999).

(97)  

a. If you want some, (I hereby say to you that) there are biscuits on the sideboard.

b. If you want some, assert(“there are biscuits on the sideboard”).

Even where we neglect the intricacies of individual proposals, with their respective merits and flaws, it is still fair to say what is unappealing about any such account. Firstly a conceptual point: conditional speech-acts, if taken seriously, are very peculiar entities —where else in life do you perform your actions conditionally?— whose properties can only be assessed via exactly those sentences’ meanings whose meaning they are to explain.\(^\text{20}\) Secondly, it

\(^\text{20}\) I don’t want to commit myself to claiming that there are no conditional speech-acts whatsoever, but I certainly believe that it takes very peculiar, stylized circumstances to have a speech act come out as (if it was) conditionally performed.
is implausible to treat a case like (98) —and especially a past tensed one like (99)— as a multiply performed speech-act, as the given paraphrases would suggest (see Siegel 2006, for related criticism).

(98) a. If/Whenever you need anything later, my name is James.
    b. If/Whenever you need anything later, (I hereby say to you that) my name is James.
    c. If/Whenever you need anything later, assert("my name is James").

(99) a. Ah, living in California was great! If/Whenever we wanted to go for a swim, the sea was just a five minute ride away.
    b. If/Whenever we wanted to go for a swim, (I hereby say to you that) the sea was just a five minute ride away.
    c. If/Whenever we wanted to go for a swim, assert("the sea was just a five minute ride away").

Potential Literal Acts. Against naïve conditional speech-act accounts, Siegel (2006) suggests to analyze bcs in terms of what she calls quantification over potential literal acts.\footnote{21. Here is how Siegel characterizes potential literal acts: "these semantic objects are not literally acts, not things that people actually do. They lack the contextual specifics of actual speech acts: a speaker, an addressee, an appropriate context. [... ] They are abstract objects consisting only of propositional content and whatever illocutionary force potential can be read directly from their morphosyntactic form, not necessarily the actual illocutionary act that might be performed." (Siegel 2006, p. 170)} Eventually, Siegel offers the paraphrase in (100) as her analysis of the bc in (65a).

(100) If you want them, there is a (presupposed relevant, salient, and otherwise felicitous) potential literal assertion with the propositional content "there are biscuits on the sideboard."

Opposed to the rather strong conditional speech-act accounts, this account is fairly weak, both semantically and pragmatically. For one, Siegel’s account predicts that bcs are always true semantically —potential literal acts should always exist in abstract space—, and so Siegel has to argue that bcs may or may not have presupposition failures (of varying severity), as there may not always be relevant, salient, and otherwise felicitous potential literal acts (for criticism, see also Predelli 2007). For another, there is still quite a gap to be bridged from the existence of a potential literal act —be that relevant or not— to the actual performance of a concrete speech act. This is a problem
because, as Ebert et al. (2008) as well as Scheffler (2008a,b) argue, examples such as (101) seem to show that the speech act associated with the consequent is always performed unconditionally on the truth of the antecedent.  

(101)    a. If I don’t see you anymore, I hope you enjoy your holiday!
    b. If you don’t want to watch the movie, the gardener is the killer.  
    (Ebert et al. 2008, (3))
    c. If the congregation is ready, I hereby declare you man and wife.  
    (Ebert et al. 2008, (4))

Unconditional Speech-Act ”C”. In particular, Scheffler (2008a,b) suggests that a bc $A > C$ is to be analyzed as (i) asserting C outright and (ii) conventionally implicating that “if $A$, then utter($C$).” This analysis is motivated by data showing that bc$s$ behave similar to certain other attested conventional implicature items with respect to embeddability under, for instance, negations, question operators and attitude verbs.

Ebert et al. (2008), on the other hand, advance a speech-act conjunction analysis of bc$s$ according to which an utterance of the bc $A > C$ performs (i) an act of referring to a possible world with the antecedent $A$, and (ii) the speech act associated with the consequent $C$. This proposal is corroborated with data showing how bc$s$ behave similar to certain topic constructions with respect to binding of pronouns in the consequent by quantifiers in the antecedent.

Taken together, both of these accounts derive unconditional readings of bc$s$ by assuming that the consequent is asserted (or that another veridical speech-act with the content that $C$ is performed). To support this explanation, both accounts seek to work out special characteristics of bc$s$, such as embeddability (Scheffler) or binding properties (Ebert et al.).

Does this suffice as a satisfying account of unconditional readings as such? I believe the answer is “no.” I believe that unconditional readings arise also independently of special semantic or syntactic properties of certain conditionals. Unconditional readings arise by pragmatic strengthening whenever propositions occur in a conditional construction that are not conditionally related by commonsense, be that causally, evidentially, logically or in any other conceivable way. In order to support this claim, the next section will review data that shows that the question whether a conditional has an unconditional

---

22. A nicely twisted way of framing this argument would be to say that you cannot avoid insulting somebody by hedging “If this does not offend you, you’re a total idiot!”
reading is orthogonal to the question whether the conditional satisfies basic properties associated with $bc$s.

### 5.3.2 Unconditionality Beyond Biscuits

The mistaken idea that $bc$s are the only conditionals that receive unconditional readings readily suggests itself, especially in the light of the widespread but dubious conviction that $bc$s form a syntactically neatly delineated subclass of conditionals. A key argument in favor of this latter hypothesis revolves around the observation that in certain languages, such as Dutch or German, an English conditional like (102), which is ambiguous between a conditional and an unconditional reading, is disambiguated in Dutch and German by word order of the consequent. While both sentences in (103) and (104) translate into (102), the variants with main clause verb-second (V$_2$) word order in (103a) and (104a) get an unconditional reading only; the verb-first (V$_1$) word order in (103b) and (104b), on the other hand, gets a conditional reading only.

\[(102) \quad \text{If you need me, I'll stay at home all day.}\]

\[(103) \quad \begin{align*}
\text{a. Als je me nodig hebt, ik blijf de hele dag thuis.} \\
& \quad \text{If you need me, I stay the whole day at home.}
\end{align*}\]

\[(104) \quad \begin{align*}
\text{a. Wenn du mich brauchst, ich bleibe den ganzen Tag daheim.} \\
& \quad \text{If you need me, I stay the whole day at home.}
\end{align*}\]

Thus conceived, it is natural to hypothesize that there is a clear syntactic demarcation between standard, truly conditional conditionals and conditionals with an unconditional reading, and that this dividing line falls together with the distinction between standard conditionals and $bc$s.

This idea is, however, not correct in its generality. Already Köpcke and Panther (1989) dismissed the above hypothesis in its strong formulation because, as they argue, there are (i) V$_2$-cases with conditional readings, and (ii) V$_1$-cases with unconditional readings. Köpcke and Panther give the example (105) as an example where even the V$_2$-variant gets a conditional reading.

\[(105) \quad \begin{align*}
\text{a. Wenn er das erfährt, gibt es Ärger.} \\
& \quad \text{If he that find out result in trouble.}
\end{align*}\]
b. Wenn er das erfährt, das gibt Ärger.
   If he finds out about this, there will be trouble.
   'If he finds out about this, there will be trouble.'

   (Köpcke and Panther 1989, (45))

Strengthening this point, (106) is an example of my own which does not rely on the questionable topical proform das in the V2-variant, but still gets a clear conditional reading.

        If you also only in the vicinity of my car come, I spit you in your soup.

b. Wenn du auch nur in die Nähe meines Autos kommst, ich spuck dir in deine Suppe.
        If you also only in the vicinity of my car come, I spit you in your soup.

   'If you come anywhere close to my car, I'm going to spit in your soup.'

Intuitively, both variants in (106) express that the speaker is going to spit in the hearer’s soup if (and only if) he gets near her car.

I agree that one could analyze the sequence in (106b) as two separate speech acts, because individual if-clauses can indeed occur on their own, especially to make threats. The subsequent main clause could then be taken as a standalone assertion which is restricted in scope by a general mechanism of modal subordination (Roberts 1989). I would even endorse such an analysis because it drives the mills of my argument. The most natural explanation for why we restrict the second assertion by modal subordination (if that is what we are doing), is because that makes sense pragmatically: that the spitting can be prevented by staying away from the speaker’s car is an absolutely natural idea in a normal context of utterance of (106). But that means that whether taken as a single conditional or not, common sense takes the involved propositions to be very much conditionally related in this case, so as to even establish a conditional reading despite a main clause V2 word order.

Still, it is even more important to my overall concern that there are also conditionals with integrative V1 word order that nonetheless get an unconditional reading. Köpcke and Panther give the examples in (107) and (108), all variants of which were found acceptable by subjects in Köpcke and Panther’s survey and all variants of which convey that the consequent holds independently of whether the antecedent does.
Again, what seems crucial for the unconditional readings of examples (107) and (108) is not the word order in the main clause, but rather, I argue, the extent to which common sense supports the notion that the propositions or events in antecedent and conditional are conditionally independent.23

Summary. Summing up, I argue that a purely pragmatic approach is reasonable and necessary. I concede that there are ambiguous conditionals $A > C$ such as (102) in which $A$ and $C$ could either be conditionally related or unrelated, and that in those undecided cases integrative or non-integrative word order will help decide on the reading of the sentence. But it is not so that in all cases the syntax or prosody of a sentence uniquely forces the pragmatic interpretation.24 It then remains to be demonstrated how a suitable notion of conditional independence can do the pragmatic work that I claim it does.

23. That sentences like (107c), (108c) get unconditional readings may be critical to the account of bcs advanced by Ebert et al. (2008), according to which the (English) proform then forces a conditional reading (see the paper for details).

24. This suggests that there is something like a lexicographic order of strength, so to speak, according to which evidence for or against an unconditional reading is featured in interpretation: first and foremost the pragmatic question whether propositions $A$ and $C$ are plausibly conditionally (in)dependent is assessed; where this is (relatively) undecided syntactic information disambiguates readings.
Conditional Independence

The idea to explain the non-conditional readings of bc$s pragmatically is very simple. Take again Austin’s example (65a):

(65a) There are biscuits on the sideboard if you want them.

My explanation in a nutshell is this: since normally we would not expect the truth or falsity of propositions

\[
\text{you want some (A)} \quad \& \quad \text{there are biscuits on the sideboard (C)}
\]

to depend on one another, a speaker who felicitously asserts (65a) must believe in —or be willing to defend, or purport to believe in, or purport to be willing to defend, or . . . — the unconditional truth of C.25 To spell out this idea we have to make precise what it means for two propositions to be independent in some appropriate sense.

**Conditional Independence.** I suggest that the right kind of independence of propositions is epistemic — epistemic in the sense that it governs how agents change their beliefs about one proposition when they change their beliefs —if only hypothetically— in the other. In other words, although the truth values of A and C might be fixed, what matters for our concern is whether propositions are normally believed to depend on one another. From this point of view we can say that A and C are conditionally independent for an agent (in a given epistemic state) if a minimal change in the belief about A will not result in a change in the belief about C, and vice versa.26

---

25. I know of two brief occurrences of this idea in the literature on conditionals. When discussing the pragmatics of certain ‘odd conditionals’, as he calls them, Frank Veltman reasons that any (data-semantic) information state which (i) supports a bc $A > C$, (ii) and supports $\Diamond A \land \Diamond \neg A$, must also support $\square C$, as long as, Veltman reasons in a short bracketed remark, we don’t expect the speaker to be able to merely make $C$ true at will (Veltman 1986, p. 163).

A similar idea is also reported on in a footnote of a paper by Geis and Lycan (1993) where it says: “[Robert Stalnaker] does not buy our distinction of kind between ‘ncc$s’ [read: non-conditional conditionals] and ‘genuine’ conditionals, but maintains that our alleged ncc$s are genuine conditionals which only implicate their consequents; in context, Ad [the addressee] knows that Sp [the speaker] would not be asserting the conditional in question unless Sp had the truth of its consequent as a ground. We are unsure how the relevant Gricean reasoning would go, and/but we shall not try to criticize Stalnaker’s view until he has spelled it out in writing.” (Geis and Lycan 1993, p. 55, footnote 17) As far as I can tell, the work that comes closest to implementing Stalnaker’s proposal in writing is a paper by Swanson (2003).

26. The nature of epistemic uncertainty does not play a role here. The account applies to epistemic, predictive and even counterfactual conditionals, as we will see later.
Chapter 5. The Pragmatics of Conditionals

Here is a first formal take on the notion of conditional independence, geared towards a strict implication analysis. Take a set $W$ of possible worlds, propositions $A, C \subseteq W$ and an agent’s epistemic state $\sigma \subseteq W$ of worlds held possible. We say that $\Diamond A$ is true iff $\sigma \cap A \neq \emptyset$. With this define that $A$ and $C$ are conditionally independent (on $\sigma$) iff

$$\forall X \in \{A, \overline{A}\}, \forall Y \in \{C, \overline{C}\} : \text{if } \Diamond X \text{ and } \Diamond Y \text{ then } \Diamond (X \cap Y).$$  

(5.12)

This notion captures the idea that two propositions are conditionally independent for an agent just in case learning one proposition to be true or false (where this was not decided before) is not enough evidence to decide whether the other proposition is true of false (where this was not decided before).

**Deriving Unconditional Readings.** We can now make our initial idea more precise and derive unconditional readings under a strict implication analysis. If the speaker utters $A > C$, we may infer that, if she spoke truthfully, her epistemic state $\sigma$ is such that $\sigma \cap A \subseteq C$. But if we also assume that the speaker does not believe in a conditional relationship between $A$ and $C$ in the sense of (5.12), we derive that the speaker either believes in the falsity of $A$ or the truth of $C$. This is so, because if $\Diamond A$ and $\Diamond \overline{C}$, then by conditional independence we have $\Diamond (A \cap \overline{C})$ which contradicts $\sigma \cap A \subseteq C$. Consequently, if we furthermore assume $\Diamond A$ —by non-triviality presupposition— we may conclude that the speaker actually believes $C$.

**Unconditional Variety.** Before justifying this account in more detail, let us first settle the issue to which cases it should or should not apply. Obviously, not all conditionals with conditionally independent propositions have the unconditional reading that $C$ is true. The conditionals in (109), which we could call ‘monkey’s uncle’-conditionals, all convey that the speaker disbelieves the antecedent, and they supposedly do so in virtue of modus tollens and the commonsense assumption that the speaker believes in the falsity of the consequent.

(109)  
\begin{itemize}
\item a. If that’s true, I’m a monkey’s uncle.
\item b. I’ll be hanged, if my abstract got accepted.
\item c. If you are an astronaut, then I am the Emperor of China.
\end{itemize}

The derivation of unconditional readings by conditional independence does not apply to these conditionals, but we also don’t need conditional independence to account for the intuitively attested readings of these sentences either.
Conversely, not all conditionals with an unconditional reading need to derive this reading by appeal to conditional independence. In other words, there are conditionals with unconditional readings whose propositions are not conditionally independent. Examples of these are given in (110).

(110)  

a. This match is wet. If you strike it, it won’t light.

b. Bij gladheid wordt niet gestrooid.

   ‘When icy, this road will not be salted.’

In general propositions like

you strike this match \((A)\) \& it will not light \((C)\)

or

the ground is frozen \((A)\) \& this road will not be salted \((C)\)

are conditionally dependent in the sense that we do think that normally \(A\) is (something like) a necessary condition for \(C\). The conditionals in (110) are of the form \(A > C\), so that by mere reasoning about normal courses of events we should conclude that \(C\) is true as such, unconditional on \(A\). This case is then similar to CP-readings that arise from (reasoning about) world knowledge in the form of commonsense normality assumptions (see section 5.2.2).

Another nice class of examples of conditionals with unconditional readings but conditionally related propositions are the sentences in (111).

(111)  

a. This is the best book of the month, if not the year.

b. Some if not all of my friends are metalheads.

These conditionals are of the form \(\overline{A} > C\), but it is safe to additionally assume that it is commonly understood that \(A \subseteq C\). Whence that these conditionals also convey the unconditional truth of their consequents despite conditionally related propositions.

A final class of conditionals that may also get unconditional readings in a rather trivial manner are echoic conditionals like in (112), at least if we assume that these really presuppose the truth of their antecedents (cf. Iatridou 1991; Haegeman 2003).

---

27. Example (110b) is from a road sign in Amsterdam’s Westerpark.

28. Examples of this kind were brought to my attention by Frank Veltman.

29. I am not convinced that echoic conditionals really presuppose the truth of their antecedents. To me it sometimes rather seems that the antecedent is pending in the ‘negotiation zone’ between conversationalists. But this is not overly important here.
a. If she is so pretty, you should have her do your laundry, not me.

b. If you are so smart, it is curious why you are unable to get a job.

c. If the wine bottle is half-empty, you are a pessimist. (Noh 1998)

If the truth of $A$ is presupposed, the utterance of the conditional $A > C$ trivially derives the truth of $C$ by *modus ponens*.

**Variations on Independence.** Where does the notion of conditional independence come from? Why is it justified to use it in the way we do? And how does it relate to other comparable notions of independence? First of all, conditional independence is provably equivalent to Lewis (1988)'s notion of *orthogonality of questions*. This was observed and spelled out by van Rooij (2007) who took the notion I am suggesting here to account for the strengthening of conditional presuppositions.

Moreover, it is easy to verify that conditional independence is the purely qualitative counterpart to standard *probabilistic independence*. Propositions $A$ and $C$ are PROBABILISTICALLY INDEPENDENT given a probability distribution $Pr(\cdot)$ iff $Pr(A \cap C) = Pr(A) \times Pr(C)$. If we equate the epistemic state $\sigma$ of an agent with the support of the probability distribution $Pr(\cdot)$ as usual so that $\sigma = \{w \in W \mid Pr(w) \neq 0\}$, we can show that probabilistic independence entails conditional independence. First, we establish that if $Pr(A \cap C) = Pr(A) \times Pr(C)$, then for arbitrary $X \in \{A, \overline{A}\}$ and $Y \in \{C, \overline{C}\}$ it holds that $Pr(X \cap Y) = Pr(X) \times Pr(Y)$. From the three arguments needed, it suffices to give just one, as the others are similar. So assume that $Pr(A \cap C) = Pr(A) \times Pr(C)$ and derive that $Pr(A \cap \overline{C}) = Pr(A) \times Pr(\overline{C})$: $Pr(A \cap \overline{C}) = Pr(A) - Pr(A \cap C) = Pr(A) - (Pr(A) \times Pr(C)) = Pr(A) \times (1 - Pr(C)) = Pr(A) \times Pr(\overline{C})$. Next, assume that $Pr(X \cap Y) = Pr(X) \times Pr(Y)$ and that $\Diamond X$ and $\Diamond Y$. That means that $Pr(X), Pr(Y) > 0$. Hence, $Pr(X \cap Y) > 0$, which is just to say that $\Diamond (X \cap Y)$.

The converse, however, is not the case. Conditional independence does not entail probabilistic independence. It may be the case that proposition $A$ is not enough (evidence, support, information) to decide whether $C$ is true or false, but still learning that $A$ is true, for instance, makes $C$ more or less likely.

Conditional independence is, however, strictly weaker than the more standard notion of *logical independence* if this latter notion is relativized to an epistemic state. The normal definition renders $A$ and $C$ LOGICALLY INDEPENDENT iff

$$\forall X \in \{A, \overline{A}\}, \forall Y \in \{C, \overline{C}\} : X \cap Y \neq \emptyset.$$
This is equivalent to the following formulation: take a maximally ignorant information state $\sigma = W$ that does not rule out any possible world whatsoever; then say that $A$ and $C$ are logically independent (on $\sigma$) iff for all $X \in \{A, \neg A\}$, $Y \in \{C, \neg C\}$: $\Diamond(X \cap Y)$. But although logical independence can thus be related to an all-inclusive information state, for our purposes this notion is inadequate to deal with restrictions of $\sigma$: generalizing logical independence of $A$ and $C$ to arbitrary information states $\sigma$ in the most straightforward way excludes that either $A$ or $C$ is believed true or false in $\sigma$. In other words, logical independence does not have a flawless ‘positive fit’ if applied straightforwardly to epistemic states: there are instances of intuitively independent propositions which are not logically independent on some epistemic states. Conditional independence is weak enough to circumvent this problem.

Still, it might be objected that conditional independence as defined above is actually too weak to capture our intuitions about independence properly, for it shares with probabilistic independence the counterintuitive trait that if a proposition $A$ is believed true, then any proposition $C$ is independent of $A$, even $A$ itself. In other words, conditional independence does not have a flawless ‘negative fit’: there are intuitively dependent propositions which are conditionally independent on some states. Yet so far this was not a problem for the above derivation of unconditional readings because (i) we have reasoned only from independence, and not towards it, so to speak, and, more importantly even, (ii) we have only looked at conditionals so far for which it was feasible to assume that the speaker was uncertain about the antecedent $A$. For these cases, the given notion of conditional independence applies non-vacuously and does the desired work for us.

**Counterfactual Biscuits.** A problem surfaces, however, when we turn to another interesting class of conditionals with unconditional readings, namely subjunctive or at least partially subjunctive examples as in (113).30

(113)  

a. If you had needed some money, there was some in the bank.  

(Johnson-Laird 1986, (51))  

b. If you would have wanted a beer, there were some in the fridge.  

---

30. Example (113b) was brought up by Nathan Klinedinst as a problem case for an early version of the present account that I presented at PALMYR-V in Paris June 2nd 2007. I’m very grateful for this critical observation and the discussion that ensued. Also, van Rooij (2007) acknowledged this problem with the notion in (5.12).
Both of these sentences also convey the unrestricted truth of their consequents, but interestingly the antecedents have subjunctive mood marking and express counterfactuality. I suggest to speak of counterfactual biscuit conditionals or CBCs for short.

As far as I can tell, CBCs have not received much attention in the literature so far.\footnote{Scheffler (2008b) deals with CBCs sentences briefly. Moreover, McCawley (1996) and von Fintel (1999) mention Johnson-Laird’s example (113a) as curious but do not enlarge on it.} This is remarkable, since CBCs are interesting and relevant to the linguist’s concerns in a number of ways. Firstly, with a subjunctive antecedent and a standard indicative consequent, the examples in (113) are hybrids between subjunctive and indicative and as such suggest themselves as an interesting test case for a compositional theory of tense and mood marking in conditionals. Unfortunately, this issue is way beyond the scope of this thesis.

Secondly, it is apparent that CBCs are problematic for naïve conditional speech-act accounts. For cases like (113) the analogue to a conditional-assertion analysis would have to be a counterfactual-assertion analysis which is curiously implausible: whereas in case of a conditional assertion a reasonable speech act is performed at least when the antecedent is true, a counterfactual assertion would never make it to assertion status, when the antecedent is presupposed false. It is then entirely unclear how conditional assertion approaches, if naïvely construed, could reasonably extend to CBCs.

Unconditional Counterfactuals. Yet again, I do not think that unconditional readings arise only for special counterfactuals that we could address as CBCs. There are plain counterfactuals —i.e. with subjunctive mood marking both in antecedent and consequent— that function exactly like a standard BC would and convey the unconditional and actual truth of the consequent. Take the following small example dialogue:

\begin{align*}
(114) \quad & a. \text{ Bonnie: Are you hungry?} \\
& b. \text{ Clyde: No, I’m not.} \\
& c. \text{ Bonnie: Ah, that’s a shame.} \\
& d. \text{ Clyde: Why is that?} \\
& e. \text{ Bonnie: If you had been hungry, there would have been pizza in the fridge.}
\end{align*}

To my mind, the counterfactual in (114e) is certainly felicitous in this context and it clearly conveys that there is pizza in the fridge, and not that pizza
would have miraculously materialized there if Clyde had been hungry.32

As far as my intuition goes, we can even vary the German word order (and possibly even drop in the proform dann), and still, in a context like (114), all the variants in (115a)–(115d) are not only felicitous but do convey the unconditional reading that pizza is in fact in the fridge; only the variants (115e) and (115f) with indicative main clauses seem truly unacceptable.33-34

(115) Wenn du Hunger gehabt hättest, ...
If you hunger have-PART-PERF have-KONJ-2 ...

a. ... es wäre noch Pizza im Kühlschrank gewesen.
... it be-KONJ-2 still pizza in the fridge be-PART-PERF.

b. ... wäre noch Pizza im Kühlschrank gewesen.
... be-KONJ-2 still pizza in the fridge be-PART-PERF.

c. ... dann wäre noch Pizza im Kühlschrank gewesen.
... then be-KONJ-2 still pizza in the fridge be-PART-PERF.

d. ... es ist noch Pizza im Kühlschrank.
... it be-IND still pizza in the fridge.

e. *... ist noch Pizza im Kühlschrank.
... be-IND still pizza in the fridge.

f. *... dann ist noch Pizza im Kühlschrank.
... then be-IND still pizza in the fridge.

5.3. Unconditional Readings

Challenges of Unconditional Counterfactuals. Counterfactuals with unconditional readings pose a challenge to accounts of unconditional readings based on properties of bcs. It is not entirely obvious how the accounts of Ebert et al. (2008) and Scheffler (2008a,b) could derive these unconditional readings without the additional help of a theory of the kind that I am defending here. For these accounts, an assertion of (114e) comes down to an

32. I believe that (114e) is felicitous and conveys that there is pizza in the fridge, but ultimately my argument does not depend on the perfect felicity of (114e) as long as we acknowledge that even if (114e) is slightly (or not so slightly) odd, it is understood to convey that there is pizza in the fridge in a charitable conversation.

33. It may be advisable to compare the intuitive acceptability of the sentences in (115): even if the reader doubts the judgement that (115a)–(115d) are felicitous in a context like (114), the contrast remains between (115a)–(115d) on the one hand, and (115e) and (115f) on the other hand, the latter of which are clearly more marked.

34. The abbreviations Part-Perf, Konj-2 and Ind in the glosses for example (115) stand for “Partizip Perfekt” (past participle), “Konjunktiv 2” (roughly: subjunctive mood marker) and “Indikativ” (indicative).
assertion of the consequent (116) — supposing that this is the speech-act associated with the consequent in this context.

(116) There would have been pizza in the fridge.

An assertion of (116), however, does not directly establish that there is, but only that there would be, pizza in the fridge. The problem is that normally an assertion of a modalized expression “would C” does not flatly assert that C is the case. It can convey this meaning, of course. But the question is when exactly it does so and when exactly it does not. So, an explanation of unconditional readings as unconditional assertions of their consequents, as offered by Ebert et al. (2008) and Scheffler (2008a,b), though not falsified by this data, does not as such yet fully account for the unconditional readings of examples like (114e).

Intuitively, the idea of conditional independence does explain these cases just as well as the indicative cases we looked at before. There is no reasonable conditional relationship between the propositions

\[
\text{you are hungry (A) \& there is pizza in the fridge (C)}
\]

even when it is common ground that A is false: if we adopted the most conservative counterfactual belief in A we would not change our mind with respect to C. A similar reasoning as before should then yield that the only way of linking conditionally independent propositions in a counterfactual conditional is that the consequent must actually be true.\textsuperscript{35}

This also explains why in some contexts a statement “would C” such as (116) can convey the actual truth of C: we may assume that the modal “would” is restricted by modal subordination to certain counterfactual worlds, say the most natural worlds where A is true, so that the proposition expressed is ultimately the same as that expressed by a counterfactual A > C as in (114e); but then the same account for the derivation of unconditional readings can apply to the explicit counterfactual in (114e), as well as to the contextually restricted (116).

\textsuperscript{35} This can also be implemented in a semantic theory of counterfactuals that spells out laws and law-like connections explicitly and derives from this an ordering \(\preceq_w\) on accessible worlds (see Veltman 2005; Schulz 2007). That is to say that the notion of conditional independence I suggest here should be regarded as a general interpretation constraint that some theories find easier to accommodate than others. The question remains whether a notion of independence cannot in some sense be reduced to properties of laws and facts alone. Such a reduction depends on the representation of laws and facts, of course, and is, as far as I can see, not trivial.
5.3. Unconditional Readings

Generalizing Independence. Though, perhaps, intuitively appealing, my argument from conditional independence does not yet formally derive unconditional readings for counterfactuals. The formulation of conditional independence in (5.12) was matched to strict implication. For counterfactuals (and other kinds of conditionals) we would like to generalize the notion of independence to be compatible with order-sensitive implication.

Towards this end, we need to make the notion of independence sensitive to the ordering information represented in the modal structure \( \langle R_w, \preceq_w \rangle \). The intuition behind the notion of conditional independence remains unchanged. We still say that \( A \) and \( C \) are conditionally independent for an agent (in a given epistemic state as represented by \( \langle R_w, \preceq_w \rangle \)) if a minimal change in the belief about \( A \) will not result in a change in the belief about \( C \), and vice versa. In this spirit, say that \( C \) is conditionally independent of \( A \) (on a modal structure \( \langle R_w, \preceq_w \rangle \)) iff

\[
\forall X \in \{ A, \overline{A} \}, \forall Y \in \{ C, \overline{C} \} : \Diamond Y \iff X \iff Y. \tag{5.13}
\]

This notion straightforwardly captures the intuition that \( C \) is independent of \( A \) if learning \( A \) does not change an agent’s initial opinion as to whether \( C \). Obviously, \( A \) and \( C \) are conditionally independent iff \( A \) is conditionally independent of \( C \) and \( C \) is conditionally independent of \( A \).

This notion is in part a conservative extension of and in part an improvement of the previous formulation in (5.12). If we set \( \sigma = \text{Min}_w \), then independence in the sense of (5.13) entails independence in the sense of (5.12). The reverse is not generally true. This is where the notion in (5.13) improves on the previous one in (5.12). Remember that according to (5.12), if an agent has a fixed belief in a proposition \( A \), i.e., if \( \Box A \) or \( \Box \overline{A} \) is true on information state \( \sigma \), then any proposition \( C \) is conditionally independent of \( A \) on \( \sigma \) in the sense of (5.12). The notion in (5.13), on the other hand, allows such ‘circumstantial beliefs’ not to interfere with the definition of independence, because it extends, so to speak, beyond \( \text{Min}_w \) in comparing beliefs in \( A \) and \( C \).

It is still straightforward to show that independence as defined in (5.13) also successfully derives unconditional readings for indicatives if we apply an order-sensitive analysis to these. We would like to show that \( A \Box \Rightarrow C \) implies

\[36. \text{Recall that for all } X, Y \subseteq W \text{ we have:}
\]

\[
\Diamond Y \iff \text{Min}_w \cap Y \neq \emptyset
\]

\[
X \iff Y \iff \text{Min}_w(X) \cap Y \neq \emptyset.
\]
\(\Box C\) if \(A\) and \(C\) are conditionally independent no matter what properties \(R_w\) and \(\preceq_w\) have. This is indeed so, because if \(\Diamond \bar{C}\) was true, we could derive that \(A \Leftrightarrow \bar{C}\) was true from (5.13) which rules out that \(A \Box \Rightarrow C\) could be true.

**Independent Counterfactuals.** Moreover, the revised formulation of conditional independence also does some new work for us and helps account for the unconditional readings of counterfactuals. To deal with counterfactuals we would like a modal structure to represent information about an agent’s disposition to revise her beliefs. Towards this end, let us assume that the ordering \(\preceq_w\) represents similarity in the sense of Lewis (1973). More concretely, let \(R_w = W\) contain all the possible worlds and let the relation \(\preceq_w\) satisfy weak centering. It is then a simple argument that shows that if \(A\) and \(C\) are conditionally independent on \(\langle R_w, \preceq_w \rangle\) in the sense of (5.13), and if the conditional \(A > C\) is true in \(w\), i.e., if \(\text{Min}_w(A) \subseteq \llbracket C \rrbracket\), then \(C\) is true in the actual world \(w\).

Above, we have already derived \(\Box C\) from these conditions, which means that \(\text{Min}_w \subseteq C\). But then it suffices to note that weak centering guarantees that the actual world \(w\) is in \(\text{Min}_w\) and hence must make \(C\) true. This then derives the unconditional meaning of a conditional with counterfactual antecedent, no matter whether the main clause is in the subjunctive or the indicative.

5.3.4 Biscuits in Discourse

What is left to be explained is why a conditional with an unconditional reading should be used at all in conversation, given that its discourse effect, as far as information is concerned, is that of a simple assertion of the consequent. What purpose does the antecedent serve in an ‘unconditional conditional’?

**The Received View.** The received view on the matter, found implicitly or explicitly in a lot of work on bcs in one form or another, appears to be something like this: the antecedent of a bc gives the conditions under which the speech act associated with \(C\) is felicitous (according to the speaker). According to the received view, the speaker is unsure whether a straightforward utterance of \(C\) would be felicitous, but believes that \(A\) is (likely enough) a sufficient condition for a felicitous utterance of \(C\). Hedging the statement by uttering a conditional \(A > C\) instead of a plain use of \(C\) then makes (sufficiently) sure that, as far as the speaker is concerned, the whole utterance is felicitous.
Biscuits as Interpretation Cues. I would like to argue that the received view, as I have spelled it out here, is mistaken. It is not the truth of the antecedent that serves to establish felicity, but rather it is the mere use of the antecedent, the fact that it was produced that helps assure felicity. I will argue towards this conclusion based on our intuitions about two situated examples.

Here is my first example. Imagine that we want to go swimming and you are waiting for me while I am packing my bag. If I now say to you —out of the blue— that

There are biscuits on the sideboard (C).

it is conceivable, if not likely that you may not know what exactly I meant to tell you (cf. Cappelen and Lepore 2005, on speech-act pluralism): May you eat the biscuits? Do I want you to stay away from them? Must you hand them to me? Throw them into my bag? You may be unsure, even though you are in fact hungry and lust for sweets and I know it. The critical point is that it may not be intelligible in which way the utterance of C has to be understood, maybe because it is not common ground that you would like to eat biscuits, although this is true and known by both speaker and hearer. In contrast, the Austinean bc in (65a) makes entirely clear for what reason the information C is given. This example suggests that the function of the antecedent is to make an utterance of C intelligible, to help understand how the information C has to be treated and processed.

Here is another similar example that makes a related but slightly different point. In certain contexts, different antecedents may change the interpretation of the consequent dramatically. Just compare the sentence (118a) from the quote that opened this chapter, with the sentence in (118b) that notably has the exact same consequent.

a. If you need anything, I’m Jill.

b. If you want to go out tonight, I’m Jill.

Though used in the same context of utterance, the interpretation of the consequent C differs substantially: sentence (118a) might encourage the hearer to ask for help (as a customer), while the sentence (118b) might encourage him to ask for the speaker’s phone number (or some such). Again, the example shows how the antecedent may specify or disambiguate the interpretation of the consequent, i.e., how it affects its broader integration, reception and processing in discourse.

Taken together, these two examples support the idea that it is not necessarily the case that the truth of the antecedent guarantees felicity and relevance
of the speech act associated with the consequent, but rather that giving the antecedent contributes to relevance or felicity.

This brings up a discourse function of conditionals that has so far not been explicitly discussed in the literature, as far as I can tell. I propose to think of some conditionals as ‘intelligibility conditionals’: the antecedent is given to cue the proper reception and interpretation of the consequent. This is certainly what is going on in (119a) and plausibly also in (119b).

(119) a. He’s a buhubahuba, if you know what I mean.

    b. He trapped two mongeese, if that’s how you make the plural of “mongoose.” (Noh 1998)

Not all bc’s are intelligibility conditionals in this sense: witness, for instance, politeness-hedging and speaker-attitude commenting with “if I may say so,” “if you ask me,” “if I’m honest,” “if I may interrupt” etc.

Context-Shifts for Optimality. The game theoretic model that we used to explain conditional perfection readings in section 5.2.4 neatly captures such discourse functions of conditionals. Section 5.2.4 introduced the idea of an extensive game with dynamic unawareness in order to explain how a conditional $A > C$ is to be interpreted as an answer to the contextual question whether $C$ is true. I argued that the conditional shifts the interpreter’s conceptualization of the context of utterance: while a simple assertion of $C$ would have been interpreted in the light of a simple game $G ? C$, the conditional forces the hearer to revise his conception of the signaling game to a more complex game $G ? C$.

A similar process of comparison between a simple signaling game $G$ and a revised game $G^+$ also explains the discourse function of bc’s and related constructions. If the interpreter derives an unconditional reading from independence, forming the belief that $C$ is true, it is natural to compare the utterance of $A > C$ with a simple utterance of $C$. Thus conceived it is the presence of the antecedent, not its truth, which helps establish felicity, be that in the form of relevance or intelligibility.

Moreover, just as in the case of conditional perfection under a contextual question $? C$, the use of the conditional is to be rationalized ex post. We predict some sort of conditional perfection, in a loose manner of speaking perhaps.

37. In example, (119b) the speaker might either worry about not being understood, about saying something ungrammatical (while still being understood), or both.
also for conditionals with unconditional readings. For intelligibility conditionals the hearer could conclude that the speaker was not sufficiently sure that the simple utterance $C$ would have been interpreted appropriately. For other kinds of $bc$s the perfection inference here would be different: indeed it may be that the hearer comes to believe that the speaker thought that an utterance of $C$ would have been impolite, ill-formed or otherwise infelicitous. At the heart of this explanation is the idea that forward induction reasoning naturally models language interpretation as rationalization in an *ex post* constructed context.

5.3.5 Projection and a Big Fat Lie

I would like to conclude the discussion of unconditional readings by a defense of my account against possible criticism based on certain aberrant examples that were featured prominently in the recent discussion of $bc$s. To begin with, consider the following examples of $bc$s:

\begin{enumerate}
\item (The door bell is ringing.)
Mary to Jane: If that’s John, I’m not here. (Noh 1998, (65))
\item If anyone talks to you about the treasure map, you don’t know anything about it, you have never heard of it. (Noh 1998, (66))
\item If they ask you how old you are, you’re four. (Siegel 2006, (8))
\end{enumerate}

The examples in (120) are special in that their antecedents should not be taken as flat, honest and credible assertions, but rather as *directives*: intuitively, the speaker urges the hearer into performing a certain action, in particular, into behaving as if $C$ was true in (at least) those situations in which $A$ is true. We could speak of these as *projections* in the sense that the speaker projects onto the hearer commitment to the truth of the consequent (in a certain sense), rather than to believe it, or be willing to defend it herself. But then, shouldn’t these projection examples be problematic for the account that I have given here? After all, the account given here derives that the speaker believes that the consequent is true.

The same worry arises in connection with the following example: \footnote{I am grateful to Cornelia Ebert for raising this issue.}

\begin{enumerate}
\item If you want to hear a big fat lie, George W. and Condi Rice are secretly married. (Siegel 2006, (22))
\end{enumerate}
Indeed, as Ebert et al. (2008) rightly point out, the speech act associated with the consequent in (121) “cannot be a run-of-the-mill assertion since it has been explicitly classified as a lie beforehand.” Certainly, it also seems dubious to claim that the speaker believes the consequent of (121).

Still, I do not think that either the projection cases (120), nor the ‘big fat lie’ in (121) prove my account of unconditional readings wrong. The point is simply that I am not committed to the assumption that pragmatic reasoning stops once it has established that an utterance normally conveys that the speaker believes such and such. Irony and sarcasm most likely also start with a literal interpretation: indeed, one of the main ideas of the IR model is that literal and credulous interpretation is a natural starting point that can be overturned by further pragmatic consideration. So, I don’t think it is implausible at all to maintain that the derivation of an unconditional reading could proceed as sketched above, but that the hearer continues to interpret, roughly, as follows: so I should conclude that the speaker believes that C, but that is not plausible (because she certainly knows that not C) and she probably rather does as if she believes C in order for me to realize that (i) she wants me to behave as if C was true (in certain confined circumstances; for her benefit, etc.), or (ii) she wants me to entertain the untrue thought that C is true (and that she thinks that this is hilariously funny).

Summary. Let me then briefly sum up this chapter. I have argued for a contextualist treatment of conditional perfection and unconditional readings of conditionals: in many cases commonsensical assumptions about the context of utterance derive these readings. This is not always the case. Some conditional perfection readings require a more genuinely pragmatic explanation in terms of reasoning about the available alternative answers to a topical question under discussion. Similarly, not all unconditional readings need to be derived by appeal to conditional independence. Still, intuitions about conditional relatedness are strong enough to even overrule cues from word order that have been taken as constitutive of the class of biscuit conditionals.