The use of conditionals in argumentation: a proposal for the analysis and evaluation of argumentatively used conditionals

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4 Conditionals functioning as a connecting premise

4.1 Introduction

As can be seen from the last chapter, in making a distinction between conditionals that can and conditionals that cannot be subjected to the definition of material implication, a pivotal role is played by the context in which the conditional sentence appears. The context is necessary to determine whether a conditional possesses the characteristics that define knowledge conditionals: the antecedent containing accepted knowledge and the consequent containing a deductive conclusion.

This context dependency does not mean that it will be impossible to say anything in general about conditional sentences to which the definition of material implication is applicable. By giving the context a closer look, one might get a better understanding of the role the conditional plays in this context. This might in turn lead to an insight into which characteristics the conditional has to possess in order to be able to fulfil this role.

Let us start by taking a closer look at example 20" from the last chapter.

20" Of course you haven’t closed the bottle properly! If it is leaking – and it is, as you can see – you haven’t closed it properly.

In this context the conditional clearly is a knowledge conditional: there is a common understanding that the bottle is leaking, and from this a – what Davies calls ‘deductive’ – conclusion is drawn that the addressee has not closed the bottle properly. What is it in the context that brings about this interpretation of antecedent and consequent? Regarding the antecedent, the speaker alludes to a shared acknowledgement of the truth of it, by stating explicitly that the bottle is leaking and by indicating that the addressee would agree with it since it is visible. Regarding the consequent, the interpretation that it contains a ‘deductive’ conclusion urges itself upon us since this conclusion is explicitly mentioned at the beginning.

Also in contexts where less contextual clues are available, the interpretation of a conditional as a knowledge conditional seems justified, as in example 79:
There is no reason to inform the Child Protection Office. If there is no evidence the father started the fire deliberately to hurt his children, there is no reason to do so.

Here again the deductive conclusion drawn in the consequent is explicitly stated at the beginning. There are no clues however about the status of the antecedent. Nevertheless, I would claim it is just as reasonable in this context to assume that the speaker considers the antecedent to contain accepted knowledge, because of the specific function the conditional fulfils. Both in 20° and 79 the conditional is used as a premise in support of a point of view: the speaker is not convinced from the outset that the listener will accept that ‘he did not close the bottle properly’ or ‘there was no need to inform the Child Protection Office’ and therefore uses argumentation to make these points of view acceptable. It is this context of argumentation that makes a conditional a knowledge conditional.

Argumentation characteristically comes about when there is a difference of opinion concerning a certain point of view. It can for instance be the case that a speaker asserts something that is contested right away by the other party in a dialogue. Or the speaker says something and anticipates such doubt. Even when there is no other party present, an internal difference of opinion can occur, for instance when someone is deliberating about what course of action to follow. Argumentation is subsequently put forward to remove the doubt and make a point of view acceptable.

In the most simple case, a speaker who wants to convince a listener of a certain point of view puts forward one reason (argument, premise, ground) to support his standpoint, as in 80:

Night time is the best time to work, since at night time you won’t be distracted.

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58 I use the pragma-dialectic approach to argumentation, as presented by Van Eemeren and Grootendorst, not only because it is the only systematic approach for the analysis, evaluation and production of argumentation, but also because their approach is functional in nature, in the sense that according to them, ‘verbal expressions are not “by nature” standpoints, arguments or other kinds of units of language use that are interesting to argumentation theorists. They only become so when they occur in a context where they fulfil a specific function in the communication process.’ (Van Eemeren & Grootendorst 2004: 3)
In other situations the speaker might have to extend his argumentation. A premise put forward in support of a standpoint can remove doubt in the mind of the listener only when the listener agrees that the premise is true. If the listener is not convinced that ‘at night time you will not be distracted’, this premise is in turn a point of view that has to be defended, as in 81:

81 Night time is the best time to work, since at night time you won’t be distracted. The neighbours only play their music loudly till 11 pm.

The speaker will have to continue to support his premises until he reaches a common starting point: a premise that the listener accepts as true.

Extension of the argumentation can also come about in another way. Sometimes one reason does not suffice and more (coordinative) reasons are needed in order to remove doubt, as in 82:

82 It is dangerous to swim in that pool. It has been very hot these last days and the water is still.

It is only the combination of hot weather and still waters that makes it dangerous to swim, so both reasons are needed to support this point of view.

Finally, bringing up more than one reason may serve the purpose of a back-up: if the listener is not convinced by the first reason, maybe he will be by the second. In 83 such multiple argumentation is used:

83 You don’t need to water the plants tonight. They have had more than enough water yesterday, and anyway the weather forecast says it will rain.

The plants having had more than enough water yesterday is a sufficient reason to adopt the standpoint. However, if the listener questions whether this is true, not all is lost, since he might be convinced by the second reason.

59 For a complete survey of more complex argument structures see Snoeck Henkemans 1992.
In this chapter I defend the claim that the definition of material implication is applicable only to conditionals that function as a premise in support of a point of view. However, it is not applicable to all such conditionals. In 11”, just as in 20” and 79, the conditional functions as a premise in support of a standpoint:

11” The U.S. should not halt the bombing. If the U.S. halts the bombing, then North Vietnam will not agree to negotiate.

The conditional in 11” is different from the ones in 20” and 79 since it cannot be submitted to contraposition. Contraposition would yield 11’, where the decision to uphold subvention seems to be dependent on the willingness to negotiate:

11’ If North Vietnam agrees to negotiate, then the U.S. will not have halted the bombing.

In order for the definition of material implication to be applicable, a conditional should not just function as a premise, but also as a specific kind of premise: one that forms the connection between another premise and the standpoint at issue. The conditionals in 20” and 79 do form this connection, whereas the one in 11” does not.

In this chapter connecting premises are described in detail. First, in 4.2 the notion of connecting premise is elucidated and linked up with the definition of material implication and with the logical operations of contraposition, hypothetical syllogism and strengthening the antecedent. Then, in 4.3 the characteristics a conditional must possess in order to be able to function as connecting premise are listed. Finally, in 4.4 evaluation criteria are proposed.

4.2 The role connecting premises play

In order to gain a better understanding of connecting premises, let us look at another example of argumentation:

84 Ikram doesn’t drink alcohol, since she is a Muslim.

In 84, the speaker apparently expects the other party in the discussion to question whether Ikram drinks alcohol or not. In order to convince
him that Ikram doesn’t, the speaker puts forward a premise: ‘Ikram is a Muslim’. His argumentation can only be successful when the other party accepts this premise as being true.

But acceptance of the premise is not enough. The other party can accept the premise and still not be convinced of the acceptability of the standpoint, as in 85:

85 True, Ikram is a Muslim, but there are enough Muslims that do drink alcohol. It just depends on how strictly religious they are.

This reaction is not directed at the premise put forward, but at the connection between the premise and the conclusion drawn from it. It is accepted as true that Ikram is a Muslim, but it is challenged that from this you can draw the conclusion that Ikram does not drink alcohol.

This connection between premise and conclusion is what Van Eemeren and Grootendorst call an ‘unexpressed premise’. It can be made explicit and added to the argument so as to make the argument put forward logically valid.\(^{60}\) In this example it could amount to adding an if-then-sentence where the antecedent contains the premise and the consequent contains the standpoint.\(^{61}\) The argumentation then acquires the logically valid form of *modus ponendo ponens*. Schematically the standpoint and the argumentation put forward to support it can be represented as follows:

1. Ikram does not drink alcohol
   
   \[\begin{align*}
   &1.1 \quad \text{she is a Muslim} \quad \land \quad \text{[if Ikram is a Muslim, she does not drink alcohol]}
   \end{align*}\]

It is not always the premise that expresses the connection that is left

\(^{60}\) For a precise method of reconstructing unexpressed premises and the rationale behind such reconstructions, see Chapter 6 of Van Eemeren and Grootendorst 1992.

\(^{61}\) Actually, according to Van Eemeren and Grootendorst, explicating this ‘logical minimum’ is not enough. The analyst should formulate a pragmatic optimum: some statement that is more informative than the logical minimum but still can be seen as something the speaker is committed to. I will discuss this issue at the end of section 4.3.
unexpressed.\textsuperscript{62} Sometimes a speaker leaves his standpoint implicit, as in 86:

86 \hspace{0.5cm} \textit{If it rains, there is no reason to water the plants. And it is pouring.}

Or he just puts forward the standpoint and the premise that expresses the connection and leaves out the ‘direct premise’\textsuperscript{63}, as was the case in example 79:

79 \hspace{0.5cm} \textit{There is no reason to inform the Child Protection Office. If there is no evidence the father started the fire deliberately to hurt his children, there is no reason to do so.}

In other situations all three elements – standpoint, direct premise and connecting premise – are present, as in 20”:

20” \hspace{0.5cm} \textit{Of course you haven’t closed the bottle properly! If it is leaking – and it is, as you can see – you haven’t closed it properly.}

Whether the connecting premise is expressed or unexpressed, it nevertheless fulfils a specific role. It is by means of the connecting premise that the truth or acceptability of the direct premise is transferred to the standpoint.\textsuperscript{64}

\begin{footnotesize}
\begin{enumerate}
\item This is why I prefer ‘connecting premise’ over ‘unexpressed premise’. The first term denotes the function the premise fulfils and not a coincidental quality.
\item For easy reference I will call the not-connecting premise the ‘direct premise’. I have chosen the term ‘direct’ because of its contrast with indirect proof, in which a standpoint is explicitly supported by a connecting premise – a conditional of which the antecedent contains the negation of the standpoint under discussion.
\item The distinction between the direct premise and the connecting premise bears a strong resemblance to the distinction between ‘data’ and ‘warrant’ that Stephen Toulmin makes in his book \textit{The Uses of Argument} (1958). The data are the facts appealed to as a foundation for the claim (1958: 97) The warrant should be seen as an inference licence: a hypothetical statement that can act as a bridge and that authorises the step from the data to the claim (1958: 98). I decided not to use Toulmin’s terminology because what I call the connecting premise differs from a warrant in a significant respect: warrants are general hypothetical statements, whereas connecting premises are by definition not general statements (see section 4.3).
\end{enumerate}
\end{footnotesize}
It is because of this role that the context in 20° presses for an interpretation of the conditional as a knowledge conditional. In a conditional that functions as a connecting premise in a *modus ponendo ponens*, the two characteristics of knowledge conditionals Davies described are present: the antecedent contains accepted knowledge (or at least what the speaker expects to become accepted knowledge when this statement is in turn supported) – the premise the speaker expects the listener to accept as a common starting point – and the consequent contains a ‘deductive’ conclusion – the claim supported by this premise.

My suspicion is that conditionals functioning as a connecting premise may be unproblematic with regard to the definition of material implication. Not so much because they are knowledge conditionals, but because they fulfil a transferring function between the direct premise and the standpoint under discussion. Therefore, I want to include a second category of conditionals, since not only conditionals that Davies would call knowledge conditionals can function as a connecting premise in argumentation. A conditional like the one in 87 can function as such as well:

87  **Daniel is no athlete. If he were an athlete, he would have stamina. But he can’t climb the stairs without losing his breath.**

In 87 the protagonist puts forward a standpoint ‘Daniel is no athlete’. In support of his standpoint, he puts forward a conditional sentence ‘If he were an athlete, he would have stamina.’ The argument used can be made valid by adding the (unexpressed) direct premise ‘he does not have stamina’. This premise is supported in turn by the statement that Daniel can’t climb the stairs without losing his breath. Schematically the argumentation can be represented as follows:

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65 The notation I use slightly differs from the pragma-dialectical notation in that I do not use use the apostrophe (like in 1.1’) to indicate that a statement is unexpressed, but rather to indicate the connecting premise that forms the connection between the direct premise and the standpoint under discussion. To express that a statement is unexpressed, it is represented in square brackets.
1. Daniel is no athlete

1.1 [he does not have stamina] – & – if he were an athlete, he would have stamina

1.1.1 he can’t climb the stairs without losing his breath

In 87 the conditional is not used as a conditional in a *modus ponendo ponens*, but in a *modus tollendo tollens*: instead of deducing the truth of the proposition expressed in the consequent from the truth of the proposition expressed in the antecedent, the falsity of the proposition expressed in the antecedent is deduced from the falsity of the proposition expressed in the consequent. For Davies, the conditional in 87 is not a knowledge conditional: the antecedent does not contain a proposition that is mutually accepted. Nevertheless, from my point of view the conditional can be judged to be a connective premise. The conditional transfers shared knowledge of the falsity of the proposition expressed in the consequent (hence the truth of the direct premise) to the falsity of the proposition expressed in the antecedent (hence the truth of the standpoint).

So far I have argued there may be good reasons to assume that at least one category of conditionals that function as a connecting premise can be called knowledge conditionals. Furthermore, I have argued that a second category of conditionals can function as a connective premise. However, is it correct to assume that conditionals that function as a connecting premise are unproblematic with regard to the definition of material implication along with the logical operations of contraposition, transitivity and strengthening the antecedent?

In order to answer this question let us take a closer look at one of the first modern representations of the definition of material implication: the one offered by Gotlob Frege. Frege writes:

> Wenn A und B beurtheilbare Inhalte bedeuten, so gibt es folgende vier Möglichkeiten:
> A wird bejaht und B wird bejaht.
> A wird bejaht und B wird verneint.
> A wird verneint und B wird bejaht.
> A wird verneint und B wird verneint.
Frege describes four possibilities, which are the ones that are represented in the truth table of material implication. I would say there is a close connection between the four possibilities Frege describes and the four situations that may occur in a discussion concerning a certain point of view. To illustrate what I mean, let us look once again at example 79:

79 There is no reason to inform the Child Protection Office. If there is no evidence the father started the fire deliberately to hurt his children, there is no reason to do so.

If we analyse this example, we arrive at the following structure: the standpoint put forward is (1) ‘there is no reason to inform the Child Protection Office’. The (unexpressed) direct argument is (1.1) ‘there is no evidence the father started the fire deliberately to hurt his children’. The connecting premise is (1.1’) ‘if there is no evidence the father started the fire deliberately to hurt his children, there is no reason to do so’.

In this example, the ‘B’ in Frege’s definition stands for ‘there is no evidence the father started the fire deliberately’ and the ‘A’ stands for ‘there is no reason to inform the Child Protection Office’.

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The sign $\text{□}_A \text{□}_B$ is Frege’s symbolic representation of the assertion of ‘if B then A’. See for an explanation of this sign, Frege 1964: 1.
Suppose the antecedent of the connecting premise is true. In this specific context, this means that the direct argument is accepted; both parties agree there is no evidence the father started the fire deliberately to hurt his children. In that case, the conditional (if true) leaves us with just one possibility: the proposition expressed in the consequent is true as well. Or, in other words, there is indeed no reason to inform the Child Protection Office. This is the first of the four possibilities Frege depicts.

If the direct argument is accepted but the other party can show that the Child Protection Office should be informed anyway, we have the third possibility. The antecedent is true, the consequent is false, so the conditional ‘If there is no evidence, there is no reason to inform the Child Protection Office’ has been shown to be false and must be retracted.

Now suppose the antecedent of the connecting premise is false, that is, the direct argument is rejected. It is shown that there is evidence the father started the fire deliberately to hurt his children. What does this mean for the standpoint put forward? It means the speaker needs to come up with new support for his standpoint if he wants to convince the listener. Or else he should retract his standpoint and concede that he was wrong. But nothing can be said about the truth of the proposition expressed in the standpoint. This proposition can be false or true; we just don’t know. Or, to put it in other words, if the antecedent is false, either the second or the fourth possibility will be the case, we just do not know which one.

The four possible situations Frege describes do not only coincide with the four possible outcomes of a discussion where a conditional functions as a connecting premise in a *modus ponendo ponens*. When a conditional functions as such in a *modus tollendo tollens* the same correlation can be found. Let’s take a closer look at 87:

\[
\begin{align*}
\text{i.} & \quad \text{Daniel is no athlete} \\
\text{i.1} & \quad \text{[he does not have stamina]} \quad \& \quad \text{if he were an athlete, he would have stamina}
\end{align*}
\]

In this example the ‘B’ in Frege’s definition stands for ‘Daniel is an athlete’ and the ‘A’ stands for ‘Daniel has stamina’.\(^\text{67}\)
In this example, the situation where the direct premise is rejected is represented in the first and second situation Frege depicts. ‘Daniel does not have stamina’ (not-A) is false, hence A is true or ‘wird bejaht’. In that case nothing can be said of the standpoint put forward: Daniel may be an athlete or not, we don’t know. If the direct premise is accepted – it is found that Daniel indeed does not have stamina (A wird verneint) – the conditional (if true) leaves us with just one possibility: the standpoint is true as well. Daniel is no athlete (B wird verneint).

This outcome is reflected in the fourth situation Frege describes. And again the third possibility reflects the situation where the conditional sentence is found to be false: the direct premise is accepted (A wird verneint), whereas the standpoint is rejected (B wird bejaht).

In sum: if we look at the four possibilities depicted by Frege, we see a complete overview of the four situations that could emerge after evaluation of the argumentation in support of a point of view. Either the direct argument is rejected, in which case the question remains unanswered whether the proposition expressed in the standpoint is true or not, or the connecting premise is rejected by showing that the direct premise is true whereas the proposition expressed in the standpoint is false, or both the direct argument and the standpoint are accepted, and the antagonist retracts his doubt concerning the acceptability of the standpoint put forward.

The close correspondence between the situations described in the definition of material implication and those that can occur after the evaluation of the argumentation put forward in support of a point of view, makes it at least plausible that it is the category of conditionals functioning as a connecting premise that the definition should be restricted to. Let us see whether the context of argumentation can shed light on the logical operations of contraposition, hypothetical syllogism and strengthening the antecedent as well.

First of all, how does the logical operation of contraposition fit in with a context of argumentation? According to Frege, contraposition is important for indirect proofs. He writes:

67 Although the conditional sentence is in the subjunctive mood, I represent B and A in the indicative mood. The subjunctive mood does not change a proposition, the speaker only indicates he distances himself from the truth of it (which in this case is not all that strange, since he is defending the contrary of ‘B’ by means of the contrary of ‘A’). Since for our present purpose it is the proposition that is of interest and not so much the speaker’s attitude towards it, I left this information out.
Für die aus Bedingung und Folge bestehenden Gedanken gilt nun das Gesetz, daß unbeschadet der Wahrheit das Entgegengesetzte der Bedingung zur Folge und zugleich das Entgegengesetzte der Folge zur Bedingung gemacht werden darf. Die Engländer nennen diese Übergang contraposition. Nach diesem Gesetze kann man von dem Satze “Wenn \((21/10)100\) größer als \(10 \sqrt[1021]{1021}\) ist, so ist \((21/20)1000\) größer als \(1021\)” übergehen zu dem Satze “Wenn \((21/20)1000\) nicht größer als \(1021\) ist, so ist \((21/10)100\) nicht größer als \(10 \sqrt[1021]{1021}\)”.

Indirect proof would be impossible if contraposition did not hold. In an indirect proof, the contradictory of the conclusion is added to a set of premises and a contradiction is derived from it. Assuming that the initial premises are true, this means that the contradictory of the conclusion must be false and hence the conclusion must be true. The *modus tollendo tollens* in 87 is an example of a condensed indirect proof. In order to prove that Daniel is no athlete, the speaker supposes that he is and shows that this would lead to a contradiction. If he were an athlete, he would have stamina, whereas in reality he hasn’t. The conclusion therefore must be that Daniel is not an athlete.

Although this analysis of 87 might seem to be clear enough, it does not clarify why contraposition is of such importance to indirect proof – as Frege claims it to be. There seems to be no contraposition involved. The situation would be rather different had the speaker left the connecting premise implicit instead of the direct premise. Let’s suppose the speaker had supported his point of view in the following way:

87’ Daniel is no athlete, he doesn’t have stamina. He can’t climb the stairs without losing his breath.

The structure of this argumentation is straightforward and can be represented as follows (with the unexpressed connecting premise made explicit):
Daniel is no athlete

↑

he does not have stamina – & – [if Daniel doesn’t have stamina, he is no athlete]

↑

he can’t climb the stairs without losing breath

The importance of contraposition becomes apparent as soon as the protagonist is asked to support the (unexpressed) connecting premise in 87’. The basis for his claim that ‘If Daniel doesn’t have stamina, he is no athlete’ probably is that ‘Athletes have stamina’. However, this statement cannot be easily connected to the connecting premise, since cause and consequence are in the opposite order. The contrapositive of the unexpressed connecting premise in 87’ makes the connection possible. From the general statement ‘If one is an athlete, one has stamina’, it is deduced that ‘If Daniel were an athlete, he would have stamina’. Then, by means of contraposition we obtain ‘If Daniel does not have stamina, he is no athlete’, the connecting premise we need in order to pass the truth of the direct premise to the standpoint at issue. The result is the following (rather complex) structure.68

Daniel is no athlete

↑

he does not have stamina – & – [if Daniel doesn’t have stamina, he is no athlete]

↑

he can’t climb the stairs without losing breath

If he were an athlete, he would have stamina

↑

Athletes have stamina
In comparison with the argumentative use of contraposition, the use of hypothetical syllogism in argumentation is straightforward. By means of an hypothetical syllogism, the speaker can create a shortcut in his argument. If we take the following dialogue:

88 Anthony: Theodore cannot have stolen the bracelet.
Beth: Why not?
Anthony: January 30 is a public holiday.
Beth: That is true, but what’s your point?
Anthony: Well, if January 30 is a public holiday, the shop was closed that day. And if the shop was closed, he cannot have stolen the bracelet.

The argumentation Anthony uses can schematically be represented in the following way:

1. Theodore cannot have stolen the bracelet

↑

1.1

January 30 is a public holiday

↑

1.1'1a

If January 30 is a public holiday, the shop was closed that day

↑

1.1'1b

If the shop was closed, he cannot have stolen the bracelet

The complexity of this structure might explain the results of the psychological experiments Johnson-Laird conducted: “Psychological experiments have shown that people with no training in logic cope reasonably well with arguments in the form of modus ponens (see Wason and Johnson-Laird 1972). (...) Ordinary reasoners have greater difficulty with arguments in the form of modus tollens (...)”(Johnson-Laird 1986: 56).
Hypothetical syllogism can be used to support a connecting premise that is not immediately acceptable to the listener. The cause of the initial unacceptability is the shortcut the speaker took in the defence of his point of view: as a direct premise he puts forward something that is acceptable to the listener, but seems to be unconnected with the standpoint at issue. By means of hypothetical syllogism this link is clarified, since an intermediate step is added.\textsuperscript{69}

Finally, how does the logical operation of strengthening the antecedent relate to conditionals fulfilling the role of a connecting premise? At first sight, strengthening the antecedent does not fit in with the context of argumentation at all. In conditionals that fulfil the role of a connecting premise, the antecedent contains the premise(s) put forward in support of a point of view, and the consequent contains the conclusion drawn from it. For instance, ‘Max can fly, since he is a bat’ has as a connecting premise the conditional ‘If Max is a bat, then he can fly’. In turn ‘It is dangerous to swim in that pool. It has been very hot these last days and the water is still’ has as a connecting premise ‘If it has been very hot these last days and the water is still, it is dangerous to swim in that pool’

If only one premise is sufficient to draw the conclusion desired, there is no reason to add an extra premise. There is no need to replace single argumentation by coordinatively compound argumentation: it would only enlarge the burden of proof of the speaker, since he does not have to only commit himself to the truth of one premise, but of two premises. Although the logical operation of strengthening the antecedent allows for it, there is no need to say something like ‘If Max is a bat and is a baby, Max can fly’. So why would one want to strengthen the antecedent?

The answer might be that one indeed does not want to, but at times one may have to strengthen the antecedent. Let us assume that the

\begin{verbatim}
The conditionals used as premises in the hypothetical syllogism are the connecting premises in the following piece of argumentation.

Anthony:  He cannot have stolen the bracelet
Beth:    Why not?
Anthony:  The shop was closed that day.
Beth:    How do you know?
Anthony:  January 30 is a public holiday.
\end{verbatim}
conditional ‘If Max is a bat, he can fly’ is used as a connecting premise. In that case, the speaker supports his standpoint ‘Max can fly’ by the direct premise ‘Max is a bat’. An opponent disagreeing with this point of view, can do two things to counter argue. He can either attack the direct premise (Max is not a bat), or he can attack the connecting premise. In order to do the latter, he has to show that situation 3 depicted by Frege is the case: Max is a bat (the antecedent is true) but cannot fly (the consequent is false). Since the consequent contains the standpoint under discussion, just stating that Max cannot fly will not suffice: the protagonist will not accept this statement; he is of the conviction that Max can fly. Therefore, the only way in which the opponent can conclusively attack the connecting premise is by supporting the statement that Max cannot fly (for instance by putting forward the counter-argument that Max was born this morning). If the speaker wants to maintain his original argumentation, he has to show that this counter-argument is irrelevant, meaning that, he has to be able to show that ‘If Max is a bat and was born this morning, he can fly’ is true as well. If he cannot do that, he will have to concede that the original connecting premise was false or at least unwarranted. The logical operation of strengthening the antecedent reflects therefore that in argumentation the speaker is committed to ‘If A..., then ‘no matter what’ B’. A strong claim, but necessarily so, since otherwise it would be impossible to argue against the connecting premise.

In this section I have argued that there is good reason to suppose that the definition of material implication should be restricted to conditionals that fulfil the role of a connecting premise. Not only because there is a close correspondence between the four situations the definition describes and the four possible outcomes in the evaluation of argumentation, but also because the context of argumentation can enhance our understanding of the logical operations of contraposition, hypothetical syllogism and strengthening the antecedent. The next step is to determine what characteristics a conditional sentence must possess in order to be able to fulfil the role of a connecting premise. Then a distinction can be made between conditional sentences to which the definition of material implication is applicable and sentences to which it is not.
4.3 Characteristics of conditionals that function as a connecting premise

In order to establish what characteristics a conditional sentence must possess so that it can function as a connecting premise, let us turn once again to Frege’s definition of conditionals. He writes: ‘Wenn A und B beurtheilbare Inhalte bedeuten, so gibt es die folgende vier Möglichkeiten’ (1964:5). Apparently A and B must be ‘judgeable contents’, but what does Frege mean by that? The distinction between judgeable and not-judgeable content is described as follows:

Nich jeder Inhalt kann durch das vor sein Zeichen gesetzte [fig 12] ein Urtheil werden, z.B. nicht die Vorstellung “Haus”. Wir unterscheiden daher beurtheilbare und unbeurtheilbare Inhalte**).

**)Dagegen wäre der Umstand, dass es Häuser (oder ein Haus) gibt (vgl. § 12), ein beurtheilbarer Inhalt (1964: 2).

I take this to mean that the antecedent and the consequent must contain something that can be judged. ‘House’ cannot represent a judgement in that way: it is not clear what this judgement would mean, that is, it is not clear under which circumstances this judgement would be correct. ‘There are houses’, on the other hand, is a content that is judgeable; that can be judged.

The context of argumentation can clarify what ‘judgeable content’ means. If we look at the role the conditional sentence plays, it becomes clear why this prerequisite of judgeable content is so important. The conditional sentence that functions as a connecting premise passes truth /falsity from the direct premise to the standpoint at issue. Of course it can only do so, when the truth / falsity of the direct premise is established. Only if both the speaker and the listener have committed themselves to the truth of B, can this truth by means of ‘If B, then A’ be transferred to the standpoint of A, so that doubt regarding this statement can be removed after all. Similarly, in the case of a conditional that functions as a connecting premise in modus tollendo tollens, falsity can only be transferred to the standpoint not-B if both the speaker

70 The term ‘felicitously asserted’ refers to John Searle’s speech act theory. The felicity conditions for the speech act of assertion have been described by Searle in Speech Acts. An essay in the philosophy of language (1969: 66-67).
and the listener have committed themselves to the falsity of A. Both the antecedent and the consequent must therefore contain propositions that one can commit oneself to. They must contain propositions that can felicitously be asserted or denied. In other words, the antecedent and consequent need to contain what Frege calls a ‘Gedanke’.

Sometimes it is quite difficult to judge whether the antecedent and consequent of a conditional contain a Gedanke. First of all, general conditionals can cause difficulties. In ‘Gedankengefüge’ Frege says:

‘Was ich über den Ausdruck “Wenn B, so A” gesagt habe, darf nicht so verstanden werden, daß jedes Satzgefüge dieser Form ein hypothetisches Gedankengefüge ausdrücke. Wenn “A” für sich allein kein vollständiger Ausdruck eines Gedankens, also kein eigentlicher Satz ist, oder wenn “B” für sich allein kein eigentlicher Satz ist, haben wir einen andern Fall. In dem Satzgefüge

“Wenn jemand ein Mörder ist, so ist er ein Verbrecher”


At first sight, clauses like ‘He is a criminal’ or ‘Someone is a murderer’ seem to contain judgeable content. But in fact – in the context given

\[ \forall x: Fx \rightarrow Gx \]
by the general conditional – there is no person to whom ‘he’ refers, and therefore it is not possible to decide whether ‘he is a criminal’ is true or false. The same goes for ‘someone is a murderer’, that – within this context – does not express ‘there is someone who is a murderer’. Therefore, neither the antecedent nor the consequent of the conditional sentence ‘If someone is a murderer, then he is a criminal’ contains a Gedanke: the conditional sentence cannot be seen as a hypothetisches Gedankengefüge and as a result it cannot function as a connecting premise.  

It can be difficult to decide whether a conditional sentence should be seen as a general conditional or not. Consider sentence 89:

89  **If it is over 25°C, there are about 5000 people at this beach.**

This conditional sentence is ambiguous. It can be interpreted as a general statement, as in ‘Normally, if it is over 25°C, there are about 5000 people at this beach’, where the antecedent and consequent do not contain judgeable content. But 89 can be interpreted as a singular statement as well. Suppose someone wants to defend the point of view that there are currently about 5000 people at the beach, by means of the direct premise that it is currently over 25°C. In this context the antecedent and the consequent of the conditional in 89 do contain judgeable content: it can be checked whether ‘it is currently over 25°C’ as it can be checked whether ‘there are currently about 5000 people at the beach’.

Although Frege mentions only general conditionals, I think there is another category of conditionals that may at first seem but in fact do not (and cannot) represent a hypothetisches Gedankengefüge. The conditional sentence in 90 – where the consequences of a proposed course of action are sketched – represents a case in point:

90  **We should pay off our debts, because if we pay off our debts, we don’t have to pay interest anymore.**

‘We pay off our debts’ and ‘we don’t have to pay interest anymore’ seem to be propositions that can be judged to be either true or false. We even know what the judgement should be: both propositions are false. It is not true that ‘we pay off our debts’, since that is the situation the protagonist wants to achieve. The same goes for the consequent: interest has to be paid since the beneficial situation where ‘we
don’t have to pay interest anymore’ has not (yet) been realized.

However, the propositions ‘we pay off our debts’ and ‘we don’t have to pay interest anymore’ do not express the same as the antecedent and the consequent of the conditional in 90. If we judge propositions to be true or false, we add what Frege calls a ‘Zeitbestimmung’: we consider whether we ‘pay off our debts’ / ‘don’t have to pay interest anymore’ is true at the moment of speaking.72 The antecedent and consequent in the conditional in (90) both lack such a Zeitbestimmung – the sentence does not tell us at which moment ‘we pay off our debts / don’t have to pay interest anymore’ is to be judged true or false. As a result, the antecedent and consequent cannot be considered to contain a Gedanke in Frege’s sense of the word. And since the antecedent and consequent do not contain a Gedanke, the conditional does not represent a hypothetisches Gedankengefüge and cannot function as a connecting premise.

Conditionals like the one in 90 can be characterized as belonging to the class of conditionals that Dancygier calls ‘predictive’.73 It is characteristic of predictive conditionals that the antecedent contains backshift: although in 90 the antecedent refers to a future situation, the present tense is used. Another example of a predictive conditional is 41:


73 The distinction Dudman makes between conditionals, like sentence 41, and compounds, like sentence 33 ‘If Socrates is a man, Socrates is mortal’ seems to be of value here as well. According to Dudman, a compound like 33 is an if-sentence that is built from the two prior messages ‘Socrates is a man’ and ‘Socrates is mortal’. Compounds can therefore be seen as a hypothetisches Gedankengefüge. On the other hand, a conditional like sentence 41, is not built from two prior messages but is a subject-predicate sentence with a rather elaborate and complex predicate. In 41 the subject would be ‘the match’ and the predicate ‘will be cancelled if it rains’. Sentence 41 therefore does not contain two, but only one Gedanke. The difficulty with Dudman’s approach is however that he does not make clear why sentence 33 should not be seen as a subject-predicate sentence in which the subject is ‘Socrates’ and the elaborate predicate ‘is mortal if he is a man’.
If it rains, the match will be cancelled.

Since the antecedent contains backshift, in 41 the antecedent seems – like the antecedent in 90 – to contain judgeable content: one can judge whether ‘it rains’ or not. But again, judging the proposition ‘it rains’ is not the same as judging the antecedent of the conditional sentence: participants in a dialogue using this conditional are not interested in whether it rains right now – which one evaluates in judging whether the proposition ‘it rains’ is true – but whether it rains at some indeterminate time in the future. The antecedents of predictive conditionals like the one in 41 – lack a \textit{Zeitbestimmung} as well. As a result, the antecedents of predicative conditionals do not contain a \textit{Gedanke}, predicative conditionals do not represent a \textit{hypothetisches Gedankengefüge} and cannot function as a connecting premise.

One might say that by this strict interpretation of what a \textit{Gedanke} is, I have extensively limited the use of reasoning and argumentation. Predictive conditionals typically reflect on the future (when in the indicative mood) or on what could have been different in the past (when in the subjunctive mood). By arguing that predictive conditionals cannot function as a connecting premise, it may look like I contend one can only discuss the here and now.

But future happenings are not excluded from argumentation, as can be seen from the following example:

\begin{quote}
We can take it easy now, since we will miss the next train anyway.
\end{quote}

In 91 the protagonist defends his claim ‘we can take it easy now’ by means of the direct premise ‘we will miss the next train anyway’. Although this premise speaks of a situation that will take place in the future, it

\begin{enumerate}
\item\textbf{74} That the speaker is not referring to actual time is indicated by the tense used as well. A speaker who wants to refer to actual time would use the present continuous ‘It is raining’ and not the present simple ‘it rains’.
\item\textbf{75} One could argue that the \textit{Zeitbestimmung} in 41 is implied, and that the antecedent actually should read ‘If it rains at the time the match takes place, the match will be cancelled’. However, I doubt that it is correct to limit the interpretation of this sentence in this way. The conditional could just as well mean ‘If it rains 10 minutes before the match is scheduled, it will be cancelled’ or ‘If it rains during the first 20 minutes, the match will be cancelled’ (and – being indeterminate – perhaps it could even have all these interpretations at the same time...).
\end{enumerate}
can be accepted as true or rejected as false here and now.

Suppose the train referred to leaves in ten minutes from the moment
the discussion takes place. Moreover, suppose the participants engaged
in the discussion know that it will take them at least twenty minutes to
get to the railway station. In that context, the direct premise ‘We will
miss the next train anyway’ would be judgeable. The antagonist may
accept this premise and agree on taking it easy, or he may not accept
the direct premise and say something like ‘You never know, the train
may be delayed, let’s hurry anyway.’ He even can accept the direct
premise and still reject the standpoint, i.e. when he says: “we still have
to hurry, otherwise we might even miss the next one after this.” In that
case, the antagonist rejects the connecting premise.

Now what is the connecting premise in case of 91? The conditional
sentence we have to add in order to make the reasoning deductively
valid is expressed in 92:

92 If we will miss the train anyway, we can take it easy now.

The antecedent of 92 contains the same proposition as the direct
premise and the consequent contains the same proposition as the
standpoint. I would say both the antecedent and the consequent of
this conditional do contain a Gedanke in Frege’s sense of the word.
But then again, this conditional sentence differs from the one in 41.
It is not a predictive conditional since the one decisive characteristic
of predictive conditionals is absent – the antecedent does not contain
backshift.\textsuperscript{76} The time referred to in the antecedent coincides with the
time actually referred to: the future.\textsuperscript{77}

Not only predictive conditionals concerning the future are excluded
from usage as a connecting premise, it is also the case for predictive
conditionals in which one reflects on what could have been different in
the past. If we take another look at sentence 43:

43 If it had rained, the match would have been cancelled.

In 43 the speaker considers what would have happened if the past
had been different – if it had not been dry like it in fact was, but had
rained. Like 41, 43 represents a predictive conditional. The antecedent

\textsuperscript{76} I think this is what Dudman refers to when he writes: ‘...witness the diffe-
rence between saying “If we miss the last bus, (we will have to walk)” and saying “If
we will miss the last bus, (there’s no point in our running)”’ (1988: 7).
is backshifted, since the past perfect is used although there is no reference to a pre-past situation. Being a predictive conditional, 43 cannot function as a connecting premise.

This is not to say that counterfactuals in general can not express a hypothetisches Gedankengefüge. In fact, we already saw one example of a counterfactual conditional that functioned as a connecting premise, the conditional in 87:

87  **Daniel is no athlete. If he were an athlete, he would have stamina. But he can’t climb the stairs without losing his breath.**

The conditional in 87, though ‘counterfactual’ does express two thoughts, the first being ‘Daniel is an athlete’ and the second ‘Daniel has stamina’. To be sure, in this conditional the subjunctive is used, but the subjunctive mood just serves to indicate that the speaker wants to distance himself from the possible truth of those two propositions. Which is far from unusual, since he explicitly indicates that ‘Daniel is an athlete’ is false and he supports the claim that ‘Daniel does not have stamina’ by pointing out that he can’t climb the stairs without losing his breath.

The situation would have been different if the speaker had phrased the conditional as follows:

93  **If Daniel had been an athlete, he would have had stamina.**

The conditional in 93 is a predictive conditional: the speaker predicts what the situation would have been like if the present situation was different: Daniel is not the same old lazy person that we know, but an athlete. The predictive nature of the conditional causes the first backshift in time: instead of the present tense the past tense is used. But since the speaker also distances himself from the truth / likelihood

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Contrary to what is often thought, ‘will’ is allowed in ‘if’-sentences. In the textbook *Advanced Grammar in Use* one can read for instance: ‘We don’t use ‘if...will’ in conditionals. However, we can use ‘if...will’ when we talk about a result of something in the main clause. ‘If it will help you to sleep, you can open the window’ (‘Helping you to sleep’, is the result of opening the window.)” (Hewings 1999: 200). In this example, the causal order is reversed: the antecedent contains the effect and the consequent the result. It might not be just a coincidence that conditionals where the causal order is reversed allow for ‘will’ in the antecedent, since such conditionals typically reflect reasoning.
of the situation, time is backshifted once more, resulting in the past perfect tense. Therefore 93 does not represent a hypothetisches Gedankengefüge and hence it cannot be used as a connecting premise.

The prerequisite that both the antecedent and consequent represent a Gedanke excludes two types of conditional sentences from being used as a connecting premise. First of all, general conditionals like ‘If someone is a murderer, he is a criminal’ are excluded. In the case of general conditionals neither the antecedent nor the consequent contains a Gedanke, since there is no entity to which ‘someone’ and ‘he’ refers to. As a consequence, it cannot be established whether ‘someone is a murderer’ and/or ‘he is a criminal’ is true or false. Secondly, predictive conditionals are excluded since the antecedent and consequent of those conditionals lack a Zeitbestimmung.

Those two categories of conditionals that ‘may seem at first but do not in fact’ represent a hypothetisches Gedankengefüge can shed light on the counter-examples against hypothetical syllogism and contraposition. Against hypothetical syllogism the following counter-examples were put forward:

12 If Brown wins the election, Smith will retire to private life. If Smith dies before the election, Brown will win it. So if Smith dies before the election, Smith will retire to private life.

13 If it had snowed, I would have gone skiing. If there had been a blizzard, it would have snowed. So if there had been a blizzard, I would have gone skiing.

It is clear why in 12 hypothetical syllogism yields undesirable results. Not one of the conditional sentences used is a conditional that can be employed as a connecting premise, since the conditionals are all predictive conditionals. In 13, the first conditional cannot be used as a connecting premise. Not because it is a counterfactual statement, but because it is a counterfactual statement of a specific kind. When the statement is rewritten in a non-counterfactual way, we get ‘if it snows, I will go skiing’, which is a predictive conditional again.

Also when we look at 16, the example Stalnaker and D. Lewis use to show why transitivity fails, we see that in this logical operation as well, conditional sentences are used that do not represent a hypothetisches Gedankengefüge:
If J. Edgar Hoover had been born a Russian, then he would have been a communist.
If he had been a communist, he would have been a traitor.
Therefore: If he had been born a Russian, he would have been a traitor.

The first conditional in 16 is a predictive conditional: the speaker reflects on how matters might have been different if the past had not been as we know it. It therefore does not make sense to engage it in the logical operation of transitivity.

In the following counter-example against contraposition the pre-requisite of judgeable content is not met either.

If the U.S. uphold subvention, then the European Union will not agree to negotiate.

In sentence 11 the consequences of a proposed action are discussed: the consequent of this predictive conditional expresses (undesirable) consequences that will occur when the U.S. in the (near) future decides to uphold subvention.78

If a conditional does represent a hypothetisches Gedankengefüge, it can in principle function as a connecting premise in argumentation. However, for it to be applied successfully as a connecting premise in a particular instance, something more is needed. If it is to be used as a connecting premise in a modus ponendo ponens, both the speaker and the listener must be able to commit themselves to the proposition expressed in the antecedent. To put it in Davies’ words, the antecedent has to contain accepted knowledge. If the speaker does not commit himself to this proposition, he cannot assert it and therefore cannot use it as a direct argument. If the listener does not commit himself to this proposition, it cannot function as a common starting point and therefore the doubt the listener has concerning the standpoint will not be removed.

If the connecting premise is to be used in a modus tollendo tollens, both the speaker and the listener must be able to commit themselves to the contradictory of the proposition expressed in the consequent. In

78 For a discussion of the evaluation criteria applicable to this kind of conditional, see section 6.2.
that case, it must be accepted knowledge that the proposition expressed in the consequent is false. If the speaker does not commit himself to the falsity of this proposition, he cannot put the contradictory of it forward as a direct premise in support of his point of view. If the listener does not commit himself to the contradictory of this proposition, he will not accept the direct premise put forward and therefore he will not become convinced of the standpoint under discussion.

Whether the speaker and listener will commit themselves to the proposition expressed in the antecedent or the contradictory of the proposition expressed in the consequent, is dependent upon their personal positions. Yet sometimes it is clear from the outset that such commitment is unlikely or even impossible. For example, this is the case for conditionals such as 10:

10 \hspace{1em} \text{If it did rain, it did not rain heavily.}

In this sentence the antecedent is of a concessive nature. Such a concessive conditional can be used in a conditional defence like 10’:

10’ \hspace{1em} \text{It did not rain, the streets were dry. And if it did rain, it did not rain heavily.}

In this context it becomes clear that the speaker does not want to commit himself to the statement that it did rain (as he would, if the conditional functioned as a connecting premise in a \textit{modus ponendo ponens}). Not to speak of the fact that he would want to commit himself to the statement that it did rain heavily (as he would if the conditional functioned as a connecting premise in a \textit{modus tollendo tollens}).

Conditionals derived in the ‘paradoxes of material implication’ will not be used as connecting premises since the necessary commitment on either the truth or falsity of the component propositions is impossible for both the antagonist and the protagonist. According to the definition of material implication, one can infer ‘if p, then q’ from either the confirmation of the consequent or the denial of the antecedent. Both 94 and 95 are therefore true.

94 \hspace{1em} \text{If Aristotle is born in 384 BC, then Frege is born in 1848.}

95 \hspace{1em} \text{If Frege is born in 1748, then Aristotle is born in 384 AD.}

94 is true, since it is true that Frege is born in the year 1848; 95 is true
since it is false that Frege is born in 1748.

Although these two conditionals are true according to the definition of material implication, they are not acceptable when the role they are meant to fulfil in a discussion is taken into account. A speaker who wants to use these conditionals as a connecting premise will never be able to convince the other party of the truth of the standpoint he maintains. Let us assume that 94 is a connecting premise in a modus ponendo ponens. In that case, the antecedent contains the direct premise and the consequent contains the standpoint defended. The argumentation has the following structure:

1. Frege is born in 1848
   ↑
1.1 [Aristotle is born in 384 BC] – & –  if Aristotle is born in 384 BC, Frege is born in 1848

At first sight nothing seems to be wrong here: when the premises are accepted, the conclusion (and hence the standpoint) can be accepted as well. Moreover, there is no reason to doubt the direct premise. But when the other party questions the connecting premise, the speaker will have difficulty in defending it. The reason he has for maintaining this premise is that Frege is born in 1848, which is the same as the standpoint he tries to defend (and is questioned by the other party). Therefore, a connecting premise deduced from the truth of the consequent cannot be used in modus ponendo ponens since that would lead to circular reasoning.

A conditional derived from the truth of the consequent can also not be used as a connecting premise in modus tollendo tollens. A protagonist using a conditional like 94 is committed to the truth of the consequent, after all, it is the truth of the consequent that has made him consider the conditional to be true. However, in order to use this conditional in modus tollendo tollens, he has to commit himself to the falsity of this consequent – only then can through modus tollendo tollens conclude that the antecedent is false as well. A protagonist using a conditional derived from the truth of the consequent as a connecting premise in modus tollendo tollens would therefore contradict himself: he would commit himself both to the truth and the falsity of a proposition.

A connecting premise deduced from the falsity of the antecedent
also cannot be used to make a point of view acceptable. Using this connecting premise in a *modus tollendo tollens* would lead to circularity: it would be used to prove the falsity of the antecedent whereas the falsity of the antecedent is the ground for maintaining the connecting premise. Excercising it in *modus ponendo ponens* would lead to a contradiction. The speaker will be committed to the falsity of the antecedent since that is the ground for maintaining the conditional whilst he commits himself to the truth of the antecedent in order to prove that the consequent of the conditional (the standpoint under discussion) is true.

Although the definition of material implication allows for deducing conditional sentences from the truth of the consequent or the falsity of the antecedent, these conditionals cannot be put to use as a connecting premise in the defence of a point of view. As Johnson has explained:

> The solution of the paradox is therefore found in the consideration that though we may correctly infer an implicative from the denial of its implicans, or from the affirmation of its implicate, [...], yet the implicative, [...] so reached cannot be applied for purposes of further inference without committing the logical fallacy either of contradiction or circularity’ (1921: 42).

In this section I have defended the view that only conditional sentences that contain a *Gedanke* in both the antecedent and the consequent can function as a connecting premise. Furthermore, conditionals only will be used as a connecting premise if it is possible for both the speaker and the listener to commit themselves to either the truth of the proposition expressed in the antecedent or to the falsity of the proposition expressed in the consequent. The next step will be to formulate evaluation criteria for conditionals used in this way. Under what circumstances will such sentences be acceptable to the listener? But before I do so, let me respond to two objections that may be put forward against the way I have characterized connecting premises in this paragraph.

First of all, one may disagree with the prerequisite of judgeable content. As a result of this prerequisite the characterisation of a connecting premise offered in this section is contrary to a common interpretation of unexpressed premises in the field of argumentation theory. The connecting premise as I described it can be equated with what Van Eemeren and Grootendorst call the logical minimum. They
describe the logical minimum as follows:

The logical minimum is the premise that consists of the ‘if..., then...’ sentence that has as its antecedent the explicit premise and as its consequent the conclusion of the explicit argument (Van Eemeren & Grootendorst 1992: 64).

According to Van Eemeren and Grootendorst, the logical minimum cannot be adjudged as being the unexpressed premise. They replace it with what they call the pragmatic optimum: a statement that is more informative than the logical minimum but one that can still be determined as something the speaker committed himself to in advancing a particular premise in support of his standpoint. As an example of the relationship between logical minimum and pragmatic optimum they use the following of argument (2a is the logical minimum and 2b is the pragmatic optimum)(1992: 64):

(1) Angie is a real woman

(2a) If Angie is a real woman, she is nosy. (2b) Real women are nosy.

(3) Therefore: Angie is nosy

In this example, the specific ‘if..., then...’-statement is replaced by a general statement, that could be rewritten as a general conditional ‘If someone is a real woman, she is nosy’. Van Eemeren and Grootendorst replace the logical minimum with the pragmatic optimum for the following reason:

Pragmatically, this [adding the logical minimum–jmg] is not enou-
gh. From the very fact that he advances this particular argumentation for his standpoint it is already clear that the speaker assumes that this conclusion follows from this premise. The logical minimum contributes nothing new, and is, therefore, superfluous. Identifying this logical minimum as the unexpressed premise means that a violation of the third rule of communication [be efficient – jmg] is unnecessarily ascribed to the speaker (Van Eemeren & Grootendorst 1992: 64).

In my opinion, there is no reason not to equate the connecting premise with the logical minimum. To be sure, the logical minimum is ‘implied’ by explicitly putting forward the direct premise and drawing the conclusion from it: in order to make the reasoning logically valid the logical minimum has to be added. That is why the speaker can leave the connecting premise (or the direct premise, or the standpoint) implicit (perhaps in order to avoid a violation of the third rule of communication). It is peculiar to claim that the analyst attributes such a violation to the speaker when making the unexpressed premise explicit.

More importantly however, Van Eemeren and Grootendorst concede that ‘there are contexts where the analyst is forced to consider the logical minimum to be the pragmatic optimum’ (Van Eemeren en Grootendorst 1992: 66). This can for instance be the case when a point of view is supported by an elaborate coordinatively compound argumentation. If the pragma-dialectical analysis is correct, then the speaker in such contexts would necessarily be guilty of a violation of the Cooperative Principle, which would be odd, given that the argumentation in such cases can be perfectly acceptable.

Finally, the analysis Van Eemeren and Grootendorst provide is problematic when the speaker does not leave the connecting premise implicit, but the standpoint, as in 86:

If it rains, there is no reason to water the plants. And it is pouring.

If we reason along the same lines, completing the reasoning by adding the standpoint ‘therefore, there is no reason to water the plants’ would lead to a violation of the third rule of communication. After all, the

standpoint left unexpressed would be implied by putting forward the direct premise in combination with the connecting premise. It is hard to see how the logical minimum could be replaced by a pragmatic optimum in such a case.

A second objection that could be directed against the way connecting premises are characterised in this chapter would be that having a Gedanke in the antecedent and the consequent is not sufficient for a conditional to be able to fulfil the role of a connecting premise. Should there not be another prerequisite as well, such as a connection between the antecedent and the consequent? From my point of view, authors who claim there should be a connection, confuse the assertion of a conditional sentence with the grounds one has for asserting it, i.e. there is a difference between stating that where ‘either one of the situations 1, 2 or 4 does occur, situation 3 does not occur’ and the grounds or reasons one has for making that claim. A conditional like ‘If it is summertime, my father’s bookcase is full up’ can be used as a connecting premise: the proposition in the consequent could be a standpoint, the one in the antecedent could be a direct premise. Whether this connecting premise is acceptable to the listener is quite another matter. The question as to how it’s acceptability should be assessed, will be taken up in the next section.

4.4.

The evaluation of connecting premises

Until this point, I have argued that the definition of material implication is applicable to conditionals that function as a connecting premise. The conclusion that might be reached is that for one category of conditionals evaluation criteria are formulated: conditionals that function as a connecting premise are acceptable whenever they are true according to the definition of material implication, and unacceptable when they are false. However, the context of argumentation – though helpful as it has been – seems to be less rewarding confronting this issue. In the context of argumentation, it cannot be assessed whether a conditional is true according to the definition of material implication or not. To be able to perform this act, one should know whether the propositions expressed in the antecedent and the consequent are true or false. It only may be possible for one of these propositions – namely for the proposition put forward as the direct premise – but the other proposition cannot be assessed in this manner. It was the controversy over the
truth or falsity of the proposition that is expressed in the standpoint which created the need for argumentation in the first place.

In order to establish the acceptability of a conditional sentence that functions as a connecting premise, one has to resort to something other than the definition of material implication. Fortunately, the field of argumentation theory provides an answer to what this something other may be. A part of the study of argumentation has been directed toward the notion of an argument scheme. An argument scheme is – like a logical form – an abstract entity that specifies the relationship between the direct premise and the standpoint. Van Eemeren and Grootendorst define this notion as follows:

> Argument schemes pertain to the kind of relationship between the explicit premise and the standpoint that is established in the argumentation in order to promote a transfer of acceptability from the explicit premise to the standpoint. Argument schemes are more or less conventionalized ways of achieving this transfer (Van Eemeren & Grootendorst 2004: 4).

There are different ways in which the direct premise can be related to the standpoint. Sometimes a speaker bases his argumentation on a comparison, as in 96

96 €500.000,- is a reasonable price for this apartment. The apartment three doors down the street has sold for €500.000,- as well.

The price of €500.000 is considered to be reasonable because a similar apartment has been sold for that price. A speaker can also use what Van Eemeren and Grootendorst call ‘symptomatic argumentation’, like in 97.

97 Emile does not eat macaroni and cheese, since he is a snob.

Here the direct premise and the standpoint are connected in a different way. Not eating macaroni and cheese is seen as characteristic for snobs. Since Emile is a snob, the conclusion is drawn that he does not eat macaroni and cheese.

From the point of view of argumentation theory, it is important to assess what kind of argument scheme is used. In relation to an argument scheme critical questions are formulated by means of which
the argumentation put forward can be evaluated. In the case of 96, one of the critical questions that can be posed is ‘are there significant differences between the case sketched in the direct premise and the one sketched in the standpoint?’ If the apartment three doors down the street has a view of the park, then the comparison fails. Significant differences are not relevant in the case of 97. In that case one might look for an example of someone who is a snob but does eat macaroni and cheese.

Since argument schemes are concerned with the relation between the direct premise and the standpoint, and it is this relationship that is expressed in the connecting premise, it seems reasonable enough to assume that the critical questions connected with the various argument schemes can be used to evaluate conditionals that function as a connecting premise. However, at first glance it is not quite clear to what these critical questions are directed toward. Let us take a closer look at example 97. The argumentation used can be analysed as follows:

1. Emile does not eat macaroni and cheese
   ↑
   1.1
   he is a snob – & –
   1.1’
   [if Emile is a snob,
   he does not eat macaroni and cheese]

Now how can an example of someone who is a snob and does eat macaroni and cheese affect the argumentation put forward? In the argumentation, the only person dealt with is Emile.

In my opinion, the criticism contained in the counter-example is directed at something that is unexpressed. It is not aimed at the connecting premise but at the ground the speaker has for maintaining the connecting premise. The speaker considers the connecting premise to be justified on the basis of the general statement that ‘snobs do not eat macaroni and cheese’ and it is this general statement that is attacked

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82 If I were to use Van Eemeren and Grootendorst’s words, I would say: ‘the pragmatic optimum supports the logical minimum.’ This analysis justifies the explication of the pragmatic optimum: the analyst is allowed to reconstruct it, not so much because the logical minimum is uninformative, but since the speaker can be expected to have acceptable grounds for the connecting premise. Contextual clues could give the analyst information on the kind of ground the speaker has for asserting the connecting premise.
by the counter-example. The complete structure would be:

1. Emile does not eat macaroni and cheese
   ↑
   1.1 he is a snob
   ↑
   1.1’ [if Emile is a snob, 
   he does not eat macaroni and cheese]
   ↑
   1.1’’ [snobs do not eat macaroni and cheese]

A speaker can have various grounds for maintaining a connecting premise. In 97 the general statement ‘snobs do not eat macaroni and cheese’ is the ground for ‘If Emile is a snob, he does not eat macaroni and cheese’.

In 96 ‘the two apartments are comparable’ is the ground for maintaining that ‘if the apartment three doors down the street has been sold for €500,000,-, €500,000,- is a reasonable price for this apartment. I would claim that it is important to make a distinction between the connecting premise and the grounds one has for maintaining this premise. In this analysis, the connecting premise is a premise like all others. This means that the evaluation of such premises can proceed along the line in which other premises are evaluated: if a connecting premise is challenged, the speaker will have to support it, or retract it. The ground put forward in support of the connecting premise can subsequently be criticised by showing that the ground is untrue, or by showing that the ground does not justify the conclusion that the connecting premise is true.

This last way of criticizing is of special interest, since it gives the opportunity to accept the ground and still reject the connecting premise. In such cases, one can accept the general rule, but deny that – or question whether – this general rule is applicable in a specific case. If we take the following dialogue:

98 Tony: Max can fly.
Bob: How do you know?
Tony: Bats can fly
Bob: Max can’t fly, his wings are torn.

Analysed in the traditional way, the argumentation structure which is reflected in this dialogue would be:
The criticism put forward by Bob can be seen as directed only at the pragmatic optimum ‘Bats can fly’. The direct premise is accepted, whereas the conclusion is rejected. Therefore, the second premise must be rejected and ‘Bats can fly’ must be retracted.

When the pragmatic optimum is seen not as the connecting premise but as the ground for the truth of the connecting premise, the consequences of Bob’s criticism are less serious. In this analysis, the argumentation has the following structure:

Bob accepts that Max is a bat. He does not want to commit himself to the connecting premise ‘If Max is a bat, he can fly’. The torn wings confirm that the antecedent of this conditional is true whereas the consequent is false, and therefore the conditional is false. In this analysis, it does not mean that he has to reject the general statement ‘bats can fly’. He can maintain this statement, whilst denying that from this general statement the particular statement ‘If Max is a bat, Max can fly’ can be deduced. The criticism is directed not at the general statement that forms the ground of the connecting premise, but at the connection between this general statement and the specific conditional statement that functions as a connecting premise.

If we look at ‘appeal to authority’ (one of the argument schemes that has been discussed elaborately in the literature) we find that the critical questions can indeed be perceived as being directed either at the ground for the connecting premise or at the connection between this ground and the connecting premise. In 99 the protagonist supports his claim by means of an appeal to authority:
As can be seen from Dr. Baumann’s book on the countries and people of Africa, the Nyimang know their own language.

The argument structure of 99 can be represented as follows:

1. The Nyimang know their own language

1.1
Dr. Baumann says so  &  [if Dr. Baumann says in his book in his book on the countries and people of Africa that the Nyimang know their own language, then the Nyimang know their own language]

↑
1.1’ [Dr. Baumann is an authority]

For the evaluation of an appeal to authority, the following critical questions have been proposed: 83

(a) Is the authority quoted correctly?
(b) Is the quoted authority a specialist in the field?
(c) Is the quoted authority unbiased?
(d) Is his knowledge up-to-date?
(e) Is there consensus in the field?
(f) Is the field an acknowledged field of knowledge?

The first of these critical questions is not directed at the connecting premise but at the direct premise. By asking whether the authority is quoted correctly, one asks ‘is it true that Dr. Baumann says so in his book on the countries and people of Africa?’. Questions (b) and (d) are directed at the ground for the connecting premise, aimed at establishing whether Dr. Baumann can indeed be called an authority.

83 This list of critical questions is by no means meant to be exhaustive, I use it only to illustrate how different critical questions are related to different parts of the argument structure. For more information on critical questions that can be posed in the case of an appeal to authority, see Schellens (1984), Kienpointner (1992), Walton (1997), Groarke & Tindale (2004).
Questions (c), (e) and (f) question the connection between the connecting premise and the ground the protagonist has to maintain it. They are not aimed at challenging the authority of Dr. Baumann, but question whether his authority is sufficient to guarantee that what he says is true. If Dr. Baumann is biased, what he says might not be trustworthy. If another authority claims the opposite and therefore there is no consensus in the field, it is not clear why one would prefer Dr. Baumann’s opinion over that of the other expert. If Dr. Baumann is an authority in a ‘self-proclaimed’ field, this again would not guarantee that what he says is true.\footnote{84}

Within the field of argumentation theory there is no consensus on how many argument schemes must be discerned and there is no consensus as to which critical questions are related to the various argument schemes. Therefore, I can not provide a complete set of evaluation criteria for conditionals that function as a connecting premise. But I hope that this section may provide an indication of where to look: to evaluate a connecting premise, one should try to determine what ground the protagonist has for maintaining it. In some cases, one can use contextual information to identify the argument scheme used.\footnote{85} In other cases, one may have to directly ask the protagonist. But once one knows what the ground for the connecting premise is, one can evaluate whether the connecting premise is acceptable. It will be acceptable when the antagonist can both accept the ground and the connection between the ground and the connecting premise.

\footnote{84} This criticism is not directed at the ground, since one does not question whether Dr. Baumann is in fact an authority in this self-proclaimed field. One just wonders whether being an authority in this self-proclaimed field justifies the conclusion that what Dr. Baumannn says on the subject matter is in fact true.

\footnote{85} For an overview of the contextual information that can be used, see Van Eemeren, Houtlosser & Snoeck Henkemans (2007).
4.5

Conclusion

In this chapter, I have tried to show that although the definition of material implication and the logical operations contraposition, hypothetical syllogism and strengthening the antecedent may yield awkward results when applied to certain ‘if’-sentences, nevertheless, this does not mean they need to be discarded. On the contrary, the definition of material implication and the logical operations connected with it reflect accurately what may occur if one tries – by means of argumentation – to convince someone of the acceptability of a point of view. In this process, conditional sentences do play an important role, since they can function as a connecting premise. They either transfer the truth / acceptability of the Gedanke expressed in the direct premise to the Gedanke expressed in the standpoint (in the case of modus ponendo ponens), or transfer the falsity of the Gedanke expressed in the direct premise to the Gedanke expressed in the standpoint under discussion (in the case of modus tollendo tollens).

Looking at the definition of material implication from the perspective of argumentation also may clarify the confusion that has arisen concerning the paradoxes of material implication. In discussing those paradoxes the focus has been on either the truth of the consequent (when the conditional is true according to the definition of material implication just because the consequent is true) or the falsity of the antecedent (when the conditional is true according to the definition of material implication just because the antecedent is false).

When one takes into account the function these conditionals are meant to fulfil in argumentation, one sees that this focus is mistaken. For the indicative conditionals that the definition of material implication is meant to represent (the ones functioning as a connecting premise in modus ponendo ponens), it is not important for the consequent to contain a ‘truth’. In fact, by definition, the consequent does not contain an accepted ‘truth’, since the proposition in the consequent is what needs to be proved: the consequent contains the claim that is defended.

It is because of this agreement on the falsity of the consequent (and of the speaker’s commitment to the falsity of the antecedent), that a conditional functioning as a connecting premise in a modus tollendo tollens is always a subjunctive conditional: in the context of use the speaker is committed to the negation of the propositions expressed in the antecedent and consequent; cf section 4.2.
What is important is that the antecedent contains a proposition both participants in the discussion can agree on. For the subjunctive conditionals that the definition of material implication is meant to represent (the ones functioning as a connecting premise in *modus tollendo tollens*), the focus should not be on the falsity of the antecedent. The falsity of the antecedent is by definition not established – since in a *modus tollendo tollens* that is what needs to be proved. In a subjunctive conditional, the focus should therefore be on the common agreement concerning the falsity of the consequent.\(^{86}\)

Finally, the context of argumentation can explain why ‘if’-sentences can only function as a connecting premise when certain prerequisites are met. The antecedent and consequent need to contain something that can be either asserted or denied, so that the same content (or its negation) can be put forward as a direct premise and standpoint. For that reason, both the antecedent and the consequent should contain a *Gedanke* – something that is judgeable, something of which one can determine whether it is either true or false (or accepted to be true or false).\(^{87}\) The conditional should represent (or: should have at least one interpretation in which it represents) a *hypothetisches Gedankengefüge*. With this prerequisite in mind, well-known counter-examples against contraposition and hypothetical syllogism can systematically be explained away: the conditionals used in these examples do not represent a *hypothetisches Gedankengefüge* but are predictive conditionals. As a result, these conditionals cannot function in those logical operations.\(^{88}\)

\(^{87}\) ‘It is true / false’ may refer too much to ‘brutal facts’ like ‘Frege was born in 1848’. I think ‘This book is well-written’ does express a *Gedanke* as well and a conditional like ‘If this book is well-written, you should buy it’ can be seen as a *hypothetisches Gedankengefüge*.

\(^{88}\) One well-known counter-example against contraposition has not been discussed: I did not explain why a sentence like 9 ‘If you would appreciate it, I could ask the manager for a special discount’ cannot be subjected to contraposition. Both clauses seem to contain assessable content: it can be decided whether the propositions ‘You would appreciate it’ and ‘I could ask the manager for a special discount’ are true. It is clear however, that it does not make sense to interpret these sentences as a connecting premise; it is awkward to say ‘I could ask the manager for a special discount, because you would appreciate it.’ In these instances the antecedent contains a condition that has to be met in order for the speech act expressed in the consequent to be carried out. Examples like 9 that are argumentatively used, are discussed in section 5.2.
To limit the applicability of the definition of material implication to conditionals that function as a connecting premise means of course that ‘if-sentences’ that cannot function as a connecting premise now lack evaluation criteria. In the next chapters I will try to formulate evaluation criteria for conditionals that fulfil a different function in argumentation. First, I will discuss conditionals that function as a standpoint, and in chapter 6, I will discuss conditionals that function as a constituent of an argument scheme, such as the one that is to be found in 90:

90  We should pay off our debts, because if we pay off our debts, we don’t have to pay interest anymore.

In formulating those evaluation criteria, the starting point will not be the definition of material implication, but rather the function that the conditional fulfils.