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

3.1 Introduction

Whereas abandoning the search for an unified theory is rather uncommon amongst logicians, many linguists never even were concerned with the development of an unified approach. To the contrary, as Dan-cygier puts it in *Conditionals and Prediction*:

‘One solution fits all’ kind of approaches are not common amongst linguists, because a linguistic analysis cannot fail to notice the significant differences between types of conditionals (1998: 4).

For instance, most authors differentiate between the following three conditional sentences:

21 If it rains, Charley’s birthday party will be cancelled.

22 If it had rained, Charley’s birthday party would have been cancelled.

23 If you feel like coming, you are invited to Charley’s birthday party.

Sentences 21 and 23 are considered to be different from sentence 22 since the ‘knowledge status’ of their antecedent differs.²⁹ In 21 the question ‘will it rain or not’ remains open: the conditional sentence does not give any indication of truth or falsity, or the degree of probability of the antecedent. The sentence can be read as ‘Should it be the case that it rains – which it may or may not – then the birthday party

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²⁹ The term ‘knowledge status of the antecedent’ is used in The Encyclopedia Brittanica to differentiate between three types of conditionals. ‘The knowledge status of this antecedent (...) may be problematic (unknown), or known-to-be-true, or known-to-be-false. In these three cases, one obtains, respectively (a) the problematic conditional: ‘should it be the case that p – which it may or may not be –, then q’; (b) the factual conditional: ‘Since p, then q.’ and (c) the counterfactual conditional: ‘If it were the case that p – which it is not –, then q would be the case’ (1998, vol 23: 260, 2nd column).”
will be cancelled’. Similarly, in 23 the question whether the listener’s feelings like coming or not’ is left open. In 22 however, the situation described in the antecedent is presented as contrary-to-fact. This sentence reads most naturally as ‘If it had been the case that it rained – which it did not – then the birthday party would have been cancelled.’

Sentence 23 is seen as different from 21 and 22 because of a difference in the status of their consequent. In 21 and 22 the truth / fulfilment of the consequent seems to be dependent on the truth / fulfilment of the antecedent. Whether the birthday party is cancelled is dependent on the weather conditions: rain leads to cancellation.30 In 23 the consequent is independent of the condition described in the antecedent: whether the listener feels like coming or not, he is invited.31

These and other differences between conditional sentences have given rise to various classifications. The proposed classifications differ in many respects. First of all, there is a big difference in the number of classes discerned: some authors have delineated only two classes of conditionals, others as many as six. Secondly and more importantly, the criteria used in differentiating between classes vary considerably. Some authors take as a starting point the linguistic characteristics of the different conditional sentences. Dancygier (1998) for instance makes a distinction between predictive and non-predictive conditionals on the basis of the linguistic phenomenon of ‘backshift’. She considers 21 and 22 to belong to the same category of predictive conditionals since in both antecedents the time indicated by the verb that is used is ‘backshifted’ from the time the sentence refers to. In 21 the present tense is used although the birthday party will take place in the future, in 22 the past perfect is used although there is no reference to a pre-past situation. The verb in the antecedent of 23 is not backshifted, therefore this conditional belongs to the class of non-predictive conditionals.

Other classifications do not take linguistic characteristics into account but rather characteristics of the content of the conditional sentence. Nieuwint (1992) for instance differentiates between conditionals.

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30 In these examples some authors feel justified in concluding that the birthday party will not be cancelled if it doesn’t rain. The conditional is interpreted as a biconditional: ‘If p, q and if not-p, not-q’. This phenomenon is commonly called ‘conditional perfection’.

31 Sentences like 23 are sometimes called ‘Austin’s conditionals’, since Austin was the first to focus on this kind of conditional.
tionals on the basis of the type of connection that exists between the antecedent and the consequent. This connection can be free – as in 24 – or unfree – as in 25 and 26:

24 If you do the dishes tonight, I will do them tomorrow.
25 If the ball hits the window, the window breaks.
26 If $6 \times 5 = 30$, then $30 / 5 = 6$.

In these examples, there are no linguistic clues for deciding what kind of connection is expressed in a specific conditional sentence. Knowledge of the world is needed to decide whether the connection is free (when the antecedent is fulfilled, it is up to the speaker whether the situation described in the consequent will occur) or unfree (the occurrence of the consequent is independent of the speaker) (1992:141).

No matter how different the various proposed classifications may be, they do indeed have some things in common as well. First of all, in all of the classifications something is said about the status of the proposition expressed in the antecedent, i.e. conditionals like 21 and 22 are put into different categories since the ‘epistemic status’ of the antecedent differs in these cases.\(^{32}\) Secondly, it is generally accepted that in conditional sentences the antecedent and the consequent are somehow connected. These two characteristics are taken in this chapter as a starting point for the discussion of several classifications of conditional sentences: the difference in status of the antecedent is discussed in 3.2 and the type of connection between the antecedent and the consequent in 3.3.

3.2 Degrees of hypotheticality

The first characteristic that most authors who are involved with the classification of conditionals consider to be basic, is the degree of hypotheticality that can be expressed in the antecedent of a conditional sentence.

\(^{32}\) Eventually, Dancygier differentiates between 21 and 22 as well. Within the category of ‘predictive conditionals’ she distinguishes conditionals (sentences like 21) and – weak or strong – hypotheticals (sentences like 22).
The degree of hypotheticality can be seen as the relationship between the propositions expressed in the antecedent (and the consequent) of a conditional sentence and a state of affairs in ‘the world’. According to Johnson-Laird, three major classes of states of affairs can be discerned: actual states, real possibilities and hypothetical states (1986:65). One would then expect that these three classes of states of affairs could give rise to three types of conditional sentences, namely sentences like 27, 21 and 22:

27  
Tom: I’m leaving now
Harry: If you’re leaving now, I won’t be able to come with you.33

21  
‘If it rains, Charley’s birthday party will be cancelled.

22  
If it had rained, Charley’s birthday party would have been cancelled.

In 27, the antecedent refers to an actual state, since Tom has just announced that he is leaving now. In 21 the antecedent refers to a real possibility: at the moment of speech, it is not known whether it will rain or not and there is a real chance that it will. In 22 the antecedent refers to a hypothetical state. Apparently, it didn’t rain, and in this sentence one ponders upon the hypothetical situation in which things would have been different.

In the literature on conditionals a division in ‘actual’, ‘possible’ and ‘hypothetical’ conditional sentences is not at all common.34 Sentences like 27 remain largely undiscussed. Even Johnson-Laird himself does not formulate a class of ‘actual’ conditionals, judging contingent asser-

33  Example given by Comrie (1986: 79).
34  Dangygier discusses ‘traditional philosophical approaches’ that make a distinction between ‘realis’, ‘potentialis’ and ‘irrealis’ (1998: 29). This division seems to coincide with actual states, real possibilities and hypothetical states, but this coincidence is only apparent. The terms realis, potentialis and irrealis do not refer to states of affairs in the world, but to the speaker’s expectation as to the fulfilment of the condition expressed in the antecedent. The speaker can express no opinion towards fulfilment, as in ‘If two times two makes four, then two is an even number’ (realis), he can express that fulfilment is impossible, as in ‘If it rained, the match would be cancelled’ and ‘If it had rained, the match would have been cancelled’ (irrealis) or he can express that fulfilment is possible, as in ‘If it rains, the match will be cancelled’ (potentialis) (1998: 29).
tions to be the only type of sentence referring to an actual state (1986: 65). Others who are involved in this kind of analysis do acknowledge that in some conditionals the antecedent contains a proposition that is ‘actual’ and discern a class of factual conditionals consisting of sentences that can be paraphrased as ‘since p, then q’ (Encyclopedia Britannica 2000: 260:2). Yet other authors have argued that conditionals with an ‘actual’ antecedent are in fact no conditionals after all. Bennett for instance made the following remark on conditionals such as 27:

> When my colleague hears me say that I have applied for leave, he may say ‘If you have applied, I am going to apply too’. This is not a conditional, either. My colleague means ‘Because you have applied, I am going to apply’, and he uses ‘if’ because he is still digesting the news about my application (2003:5).

Whereas actual conditionals are not generally acknowledged, it is more common to make a distinction between possible and hypothetical conditionals. One could even say that the traditional ‘standard division’ is one between sentences 21 and 22. Sentences like 21, expressing a real possibility, have been called indicative, open, or real conditionals as opposed to subjunctive, closed, hypothetical or counterfactual conditionals like 22, where the antecedent refers to a hypothetical state. The terminological differences reflect differences in focus: the terms ‘indicative’ and ‘subjunctive’ refer to grammatical categories, the other notions refer to a relationship between the propositions expressed in the conditional clauses and the actual state of affairs in the world. Furthermore, they reflect a difference of opinion about the meaning of conditional sentences. A term like ‘counterfactual’ implies that ‘it didn’t rain’ is part of the meaning of sentence 22 whereas a term like ‘closed’ does not have this implication.

Although the division between sentences 21 and 22 is commonly called the standard division, it is not acknowledged by all authors on conditionals. Comrie (1986) for instance questions whether there exists such a clear-cut distinction between open and closed conditionals or between real and hypothetical or counterfactual conditionals. He proposes that hypotheticality should be seen on a continuum: sentences can express a higher or lower degree of hypotheticality. He defines ‘hypotheticality’ as ‘the degree of probability of realization of the situations referred to in the conditional, and more especially in the protasis [antecedent–jmg] (1986: 88)’. The lower the probability, the
higher the hypotheticality and vice versa. The degree of hypotheticality can therefore vary from very low (in a factual statement) to very high (in a counterfactual one).

Whereas Comrie explicitly distances himself from the standard division, other authors have been less explicit in rejecting it. By speaking of ‘open’ and ‘closed’ conditionals, Funk (1985) for example, seems to comply with the distinction commonly made. However, a closer look reveals that he does deviate from the standard division since he uses the terms ‘open’ and ‘closed’ in a rather different way.

Funk claims a speaker uses a conditional when it is uncertain as to whether the situation sketched in the antecedent holds. In that sense, sentences 28 and 29 have something in common:

28 If he submitted his paper to a journal, we won’t include it in our book.

29 If he submits his paper to a journal, we won’t include it in our book.

According to Funk, both in 28 and 29 the situation sketched in the antecedent is presented as uncertain: from these sentences one cannot tell whether the paper is / will be submitted to a journal. But sentences 28 and 29 differ as well, since the uncertainty comes from different sources. As Funk puts it:

In the case of (4) [29 – jmg] the uncertainty is largely due to the fact that the state-of-affairs described and predicated, does not yet exist, i.e. is still subject to manifestation (so that it cannot be affirmed or denied – it is unverifiable) at the moment of the sentence being uttered. In (1) [28 – jmg] however, the state-of-affairs does exist at the time of speaking (either in the positive or negative sense – it is manifested and could thus be verified), but the speaker does not have enough information (or is otherwise not disposed) to be sure about it and hence to affirm or deny it (1985: 375-376).

In 29, the uncertainty is objective: ‘he’ may or may not submit his paper to a journal; we don’t know what he will do. The state of affairs depicted in the antecedent did not yet manifest itself and as a result is not yet verifiable. In 28, the uncertainty is subjective. The relevant state of affairs is manifested. That the question as to whether ‘he’ did or did
not submit his paper to a journal cannot be answered, is due to lack of knowledge. The difference between 28 and 29 is illustrated by Funk where he shows that 28 should be paraphrased as ‘If it is true that he submitted the paper to a journal’, whereas 29 should be paraphrased as ‘If it happens that he submits the paper to a journal’.

Funk uses the term ‘closed’ for sentences like 28 and the term ‘open’ for sentences like 29. Reasoning along these same lines, Funk would consider 30 to be a closed conditional as well:

30  If it is raining, we won’t go to the playground.

Funk would paraphrase 30 as ‘If it is true that it is raining, we won’t go to the playground’ because, after all, the situation depicted in the antecedent can be verified. He therefore does break with the standard division, whereby a conditional like 30 would be classified not as a closed but as an open (indicative) conditional.

An author that explicitly and strongly opposes the standard division between indicative and subjunctive conditionals is Dudman. He argues that this distinction is not only mistaken, but complicates the discussion of if-sentences and as a consequence has steered especially logicians to positions that are untenable from a grammatical point of view. First of all, Dudman points out that it is wrong to confine the discussion of if-sentences to sentences. One should rather be concerned with the messages those sentences express. Dudman uses examples 31 and 32 to make his point clear (1988: 1):

31  If she misses the last bus, the countess will walk home.
32  If she missed the last bus, the countess would walk home.

Sentences 31 and 32 can receive two different interpretations: they are interpreted either as generalisations (‘she will / would often walk home) or as particular claims about the future (if she misses / missed

35  Dudman has written several articles in which he formulates his criticism on the standard division in theories on conditionals.
36  The pagenumbers in the references to Dudman refer to the pages of the actual article, not to the pagenumbers of the journals in which these articles were published.
the bus this evening...). Dudman calls these different interpretations messages and claims that a theory of if-sentences should be aimed at such messages (1989: 1).

As a result, instead of merely being concerned with 31 and 32, we should rather direct our attention to messages 31a-32b:

31a  If she misses the bus, the countess will often walk home.

31b  If she misses the bus this evening, the countess will walk home.

32a  If she missed the bus, the countess would often walk home.

32b  If she missed the bus this evening, the countess would walk home.

The question then arises as to how those messages are classified according to the standard distinction between indicative and subjunctive conditionals. According to Dudman, logicians tend to place the generalisations 31a and 32a together with a particular claim about the future 31b in one class: that of indicative conditionals. The particular claim about the future 32b is put in the class of subjunctives.

Although the way in which the messages are placed into the different classes is already peculiar, according to Dudman matters become even more enigmatic when other members of the class of indicative conditionals are taken into account. In the standard division, 33 and 34 would be part of the class of indicative conditionals as well:

33  If Socrates is a man, Socrates is mortal.

34  If Tom is fat, his sister is immense.

Dudman claims that from a grammatical point of view, this classification could not be more mistaken. He argues that 31a and 32a differ from 31b which in turn differs from 33, whereas 34 differs from all sentences mentioned earlier. As a result, Dudman rejects the standard division.

According to Dudman, the study of if-sentences would greatly benefit if the standard classification is replaced by a classification based on the way if-sentences are generated grammatically. Dudman discerns four categories, because in English, if-sentences can be generated in basically four different ways: compounds, like 33, habituals, like 31a and 32a, conditionals, like 31b and 32b and a remaining category which he

Compounds, the first category of if-sentences, are formed from two prior messages. The compound 33 is for instance composed of the independent sentence ‘Socrates is mortal’ and what Dudman calls a ‘subsidiary string’ ‘If Socrates is a man’. This subsidiary string is in turn composed of the conjunction ‘if’ and the dependent sentence ‘Socrates is a man’. When ‘if’ is prefixed to a sentence, the message expressed receives the status of an hypothesis: it is announced that it is being treated as true or accepted, regardless of whether it actually is. Adding a subsidiary string containing ‘if’ to an independent message, signals that the independent sentence is ‘presumptively affirmed’: it is affirmed unless there is rational reason to believe otherwise (1991: 227).

A speaker can have different reasons for presumptively affirming an independent sentence. In what Dudman calls ‘hypotheticals’ the antecedent is hypothesized so that the consequent can be concluded from it. The conditional in 33 is an example of a hypothetical:

33 If Socrates is a man, Socrates is mortal.

According to Dudman, hypotheticals are condensed arguments. The premise of the condensed argument in 33 is expressed in the dependent sentence ‘Socrates is a man’. Together with some further ground like ‘Men are generally mortal’, this premise justifies the conclusion that ‘Socrates is mortal’, which is expressed in the independent sentence (1986:15).

A speaker can also decide to assert the independent sentence only presumptively when he is in doubt about either the propriety of it, or some detail of it, as in 35 and 36 (1989: 7).

35 If the Mayor is married, his wife did not accompany him.

36 The dog, if it was a dog, ran off

In 35, the speaker is in principle willing to commit himself to the assertion that the Mayor was not accompanied by his wife, for instance

37 This analysis inspires Dudman to reject the traditional ‘ternary analysis’ of if-sentences, where an if-sentence is analysed as being built up from three components: the antecedent, the consequent and a ‘binary connective’ (‘if’) (1986: 3).
on the ground that the Mayor was not accompanied by any woman, be it that he is not quite sure whether the Mayor is married and hence whether the phrase ‘his wife’ refers to anything. In order to confirm the message expressed in the independent sentence, he adds a subsidiary string to it in which the presupposition is explicitly taken to be true. In 36 the speaker asserts the independent sentence only presumptively because he is in doubt about some detail.

Whatever reason a speaker has for asserting the independent sentence presumptively, the ‘if’-sentence that results, consists of two prior messages. In that sense, compounds differ from the second category of ‘if’-sentences that Dudman discerns: the category of ‘habituals’.

This category contains ‘messages’ 31a and 32a as well as 37:

31a  If she misses the bus, the countess will often walk home.

32a  If she missed the bus, the countess would often walk home.

37   If she missed the bus, the countess often walked home.

Dudman argues that in habituals, ‘if’ is not prefixed to a sentence, but must be seen as the first word of a subordinate clause (1988:3). In that respect ‘if she misses the last bus’ is similar to ‘on Wednesdays’ in 38:

38   On Wednesdays the Countess walked home.

A sentence like 38 is analysed as a subject-predicate sentence where ‘the countess’ is the subject and ‘walked home on Wednesdays’ the (complex) predicate. Sentences 31a, 32a, and 37 must be analysed in the same way. In those sentences ‘the countess’ is the subject and ‘will often walk home if she misses the bus’, ‘would often walk home if she missed the bus’ and ‘often walked home if she missed the bus’ are the complex predicates respectively.

Conditionals, the third category of ‘if’-sentences Dudman discerns, resemble habituals in that they also are not composed of two prior messages. Examples of conditionals are 31b and 32b:

31b  If she misses the bus this evening, the countess will walk home.

32b  If she missed the bus this evening, the countess would walk home.
Conditionals are subject-predicate sentences with a rather elaborate and complex predicate as well. In sentences 31b and 32b, the subject is ‘the countess’ and the predicates are ‘will walk home if she misses the bus this evening’ and ‘would walk home if she missed the bus this evening’ respectively. The difference between habituals and conditionals is that in habituals the ‘if’-clause governs the verb phrase, whereas in conditionals the ‘if’-clause governs the modal ‘will / would’ (1988:5).

It is characteristic for the third category, that the time registered in the message is always later than the time registered by the form of the verb. In 31b for instance, the present tense is used, whereas the message refers to a situation in the future. In 32b this gap is even wider: the message still refers to a situation in the future while the past tense is used. Dudman explains this phenomenon by pointing out that conditionals express “judgements arrived at by imaginatively thinking futurewards from historical realities of some time whose location as present, past or past past is registered by the form” (1988: 7). What he means by this can be illustrated by comparing sentences 39 and 40:

39   If the auditors come tomorrow, they will find our books in perfect order.

40   If the auditors had come tomorrow, they would have found our books in perfect order.

In 39 the imagined developments start at the moment of speech (hence the present tense). In 40 the imagined developments start at a time before the auditors came for their surprise visit. In this way, the speaker can set aside this historical fact and ‘imaginatively think futurewards’ how things could have been different.

The fourth and final category of ‘if’-sentences seems to be brought up by Dudman for completeness’ sake only. This category of what Dudman calls ‘totally egregious if-sentences’ bears a great deal of similarity to the first category of compounds, since ‘if’-sentences in this category also are composed of two prior messages. Sentence 34 is for instance composed of an independent sentence ‘His sister is immense’ and a dependent sentence ‘Tom is fat’.

34   If Tom is fat, his sister is immense.

Still, sentences like (34) differ from compounds. Whereas in com-
pounds the speaker can choose to change the order of the independent and dependent sentence, in conditionals belonging to the fourth category this is not possible. It is perfectly acceptable to say ‘Socrates is mortal, if he is a man’, but one cannot say ‘Tom’s sister is immense, if he is fat.’ In ‘if’-sentences like 34 the dependent sentence necessarily precedes the independent sentence and that is why Dudman assigns a separate category to them.

Finally, yet another author who has challenged the standard division between indicatives and subjunctive conditionals is Dancygier. Like Dudman, Dancygier is of the opinion that in the standard distinction, conditionals are grouped together that do not belong together, while simultaneously conditionals are put in different categories when they should be in the same. To illustrate her point, Dancygier uses the following examples (1998:25):

41 If it rains, the match will be cancelled.
42 If it rained, the match would be cancelled.
43 If it had rained, the match would have been cancelled.

In the standard division, 42 and 43 are grouped together on the basis that both sentences signal – by means of the subjunctive mood – that the speaker does not want to commit himself to the propositions expressed. In 41 no such message is signalled, therefore 41 does belong to a different class.

According to Dancygier, all verb forms – including indicative forms – do contribute to the interpretation of the conditional construction. She argues that 41, 42 and 43 do belong to the same class, since in all three sentences the tense of the verb used in the antecedent does not coincide with the time actually referred to. In 41 the present tense is used to refer to the future, in 42 the past tense is used to refer to either the present or the future and in 43 the past perfect is used although there is no reference to a pre-past situation. As was already mentioned in section 3.1, Dancygier calls this phenomenon ‘backshift’ and takes its presence or absence as the main criterion in classifying if-sentences.

Dancygier calls the class of if-sentences that contain backshift ‘predictive’ conditionals, since they are used for making predictions about future situations. For Dancygier, a common feature of predictions
– conditional or not – is that they cannot be judged true or false at the moment of utterance. Nevertheless, predictions can be very acceptable to the listener because they are rooted in reality. Having knowledge of certain facts and laws, the speaker can arrive at a conclusion that has not yet manifested itself. For instance, a speaker who knows that it rains and that the match will start in five minutes, and furthermore has knowledge of the regulation that the match would be cancelled in case of rain, has solid reason to predict that the match will be cancelled (1998: 46).

It is when a speaker lacks some of the knowledge needed for a well-founded prediction that predictive conditionals are of use. If the match does not take place in five minutes but tomorrow, the speaker cannot know whether it will rain or not. However, he still can predict the match will be cancelled, as long as he signals to the listener that his prediction is based on an assumption for which there is no sound basis. The ‘if-clause’ is used to signal exactly this: the speaker distances himself from the truth of the assumption. Moreover, since the assumption is not predicted itself, the marker of prediction ‘will’ is eliminated, resulting in 41: ‘If it rains, the match will be cancelled’ (1998: 47).

Dancygier argues that in this respect, 42 and 43 are like 41:

42  If it rained, the match would be cancelled.

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

Although 42 and 43 are marked as hypothetical, the predictive statement remains the same: the antecedent does not contain a marker of prediction whereas the consequent does. For that reason, Dancygier classifies 42 and 43 together with 41 as predictive conditionals (1998: 50).

While 42 and 43 both belong to the class of predictive conditionals, there is of course a difference between the status of their antecedents and that of the antecedent of sentence 41. Both 42 and 43 contain what Dancygier calls ‘hypothetical backshift’: the tense of the verb is backshifted (even further) so as to indicate that the speaker distances himself from the assumption expressed in the antecedent. Not only is this assumption unknown / unknowable, but furthermore, the speaker has evidence that it is very unlikely (in 42) or even contrary-to-fact (in 43). Both 42 and 43 are therefore not only predictive, but hypothetical as well (1986: 40).
Dancygier not only classifies conditionals together that according to the standard division should be in different categories, but she also distinguishes between conditionals that in the standard division are classified together. For instance, 44 would in the standard division be classified together with 41, based on the indicative mood:

44 **If Rudolph is in the lobby, the plane arrived early.**

Since in 44 the tense of the verb coincides with the time actually referred to, it is not marked with a backshifted verb form. That is why Dancygier classifies 44 as a non-predictive conditional and groups it with sentences like 45 and 46:

45 **If I may ask, where were you last night?**

46 **When did you last see my husband, if I can still call him that.**

In comparison with the class of predictive conditionals, the class of non-predictive conditionals is far more varied. Predictive conditionals are iconic with respect to the sequence of events referred to: the event in the antecedent precedes the one in the consequent. For non-predictive conditionals this need not be the case, as can be seen from 44: there the consequent describes an event that ‘in reality’ precedes the event described in the antecedent.

Secondly, in predictive conditionals the unassertability of the assumption is event-based: by means of ‘if’ the speaker distances himself from the assertion of the assumption because it is not ‘knowable’ at the time of utterance. In non-predictive conditionals the speaker can have many different reasons to distance himself from the assumption expressed in the antecedent. In 47 for instance, the teacher holds her knowledge in abeyance for the sake of argument:

47 **If two and two makes four, four is an even number.**

The teacher knows that two and two makes four but she is ‘putting aside’ this knowledge to show her pupils how she arrives at the con-

38 It is difficult to see how an assumption can be unknown / unknowable and contrary-to-fact at the same time: an assumption that is contrary-to-fact is known – it is known to be false.
clusion that four is an even number’ (1998: 114).

Finally, predictive and non-predictive conditionals differ in the kind of relation between the antecedent and consequent. For predictive conditionals there is always a causal relation between the two: the rain in the antecedent of 41 is the cause of the match being cancelled. In non-predictive conditionals the antecedent and consequent can be related to each other in many different ways, and Dancygiers subdivides this category on the basis of the type of connection that is expressed.

3.3
Types of connection between the antecedent and the consequent

A second characteristic of conditional sentences that is considered to be basic by most authors who classify conditionals, is the conception that natural language conditionals only make sense if antecedent and consequent are somehow related. A conditional sentence such as 48 seems to be unacceptable, although both antecedent and consequent could be true:

48 If Pete drives a red Jaguar, John has curly brown hair.

The reason for this is that apparently there is no connection between the state of affairs described in the antecedent and the one described in the consequent.

However, one can think of contexts where 48 is an acceptable sentence. Suppose you are trying to solve a puzzle where characteristics have to be paired with characters. It turns out that the characteristic ‘curly brown hair’ is left to either Pete or John. Furthermore, the character driving a red Jaguar is known to have blond hair. In a context like this, 48 is a meaningful conditional sentence. When conditionals like 48 are contextualized, the relation between antecedent and consequent becomes apparent and therewith the conditional becomes an acceptable one. As Johnson-Laird puts it:

‘(...) we can make sense of certain conditionals only by bearing

39 48 is also an acceptable conditional in a context where both speaker and listener know that John is bald. It then expresses the speaker’s disbelief in the proposition that Pete is driving a red Jaguar.
in mind that they are invariably taken to mean that some sort of relation is intended to hold between antecedent and consequent’ (1986:67).

Given the assumption that antecedent and consequent in natural language conditionals are related, several authors have classified conditionals on the basis of the kind of connection that holds. As was mentioned earlier, Nieuwint makes a distinction between conditional sentences where the relation between antecedent and consequent is unfree and sentences where that relation is free. Causal and logical relations are unfree, whereas what Nieuwint calls ‘stochastic’ reasoning is free. He uses this distinction (among other things) to explain the difference between the following two well known contrasting sentences, first discussed in Adams (1970):

49  If Oswald didn’t kill Kennedy, then someone else did.

50  If Oswald hadn’t killed Kennedy, then someone else would have.

In 49 the relation between antecedent and consequent is logical: it must be rewritten as ‘If Oswald didn’t call Kennedy, then it follows necessarily that someone else did’ (given the fact that Kennedy was killed). 50 on the contrary should be rewritten as ‘If Oswald hadn’t killed Kennedy, then I predict someone else would have.’ For 50, the fulfilment of the consequent is ‘up to the speaker’ (he might decide not to predict the murder), 50 is therefore an example of stochastic reasoning and not a subjunctive version of 49 (Nieuwint 1992: 142).

Johnson-Laird makes a rather different distinction. He distinguishes between three different degrees of relation: the antecedent can determine the state of affairs in the consequent completely, as in 51, partially, as in 52 or not at all, as in 53.40

51  If someone is in a room, that room is not empty.

52  If the accused was on a train when the murder occurred, then he must be innocent.

53  If you’ve run out of petrol, there’s a garage down the road.

40  All examples are from Johnson-Laird 1986:69-71.
In 51 the antecedent determines the state of affairs completely, since there is no state of affairs thinkable where the antecedent is true and the consequent isn’t. In 52 this is not the case. In order to claim what is said in 52, one has to acknowledge implicit assumptions of all kinds: the murder hasn’t occurred in the train but somewhere else, someone cannot be in two places at the same time, etc. The condition expressed in the antecedent has to be taken in conjunction with other information in order to arrive at the conclusion expressed in the consequent. In 53 the information conveyed in the antecedent is superfluous for the occurrence of the situation described in the consequent: whether the listener has run out of petrol or not, the garage is down the road. According to Johnson-Laird, these three categories should be distinguished since the truth conditions of a conditional sentence depend on the category this sentence belongs to. If the antecedent determines the state of affairs in the consequent completely, the sentence ‘if p, then q’ is true if and only if ‘q’ is true in any mental model of ‘p’. If the antecedent is superfluous for the situation described in the consequent, the conditional sentence is true whenever the consequent is. If the antecedent determines the state of affairs in the consequent only partially, the conditional lacks truth conditions. Since the condition in the antecedent has to be taken in conjunction with ‘other information’ and it is impossible to establish which other information must be added, the ‘real’ antecedent of such conditionals is always undetermined. It is therefore impossible to examine models in which the antecedent is true.

Yet another distinction is made by Noordman (1977). In his experiments on psychological processes in understanding sentences and inferring from sentences, he finds different results for sentences with

41 When applied to Johnson Laird’s examples, Nieuwint’s distinctions are less clear than they might appear to be at first glance. Clearly in example 51 the link between antecedent and consequent is logical and therefore unfree. Presumably, he would call the relation in 53 unfree as well. Nieuwint considers this sentence to be elliptical since the ‘real q’ reads something like “(If you’ve run out of petrol), then the information that there is a garage down the road will be of interest to you (1992: 107).” This ‘real q’ doesn’t seem to be ‘up to the speaker’. With 52 however, matters are less clear. On the one hand it looks like an unfree relation: from the information in the antecedent the consequent follows. On the other hand, this conditional could be interpreted as ‘If the accused was on the train when the murder occurred, then I consider him to be innocent.’ In that case it is up to the speaker to consider the accused innocent, which makes the relation ‘stochastic’ and therefore free.
what he calls a ‘condition consequence relation’ between antecedent and consequent and those with an ‘inference relation’. 54 is an example of the first and 55 of the latter.42

54 If John is ill, he is not going to his work.

55 If John is not going to his work, he is ill.

The distinction Noordman makes, rests entirely on the distribution of the cognitive cause and effect over the two clauses of the conditional. In 54 the antecedent contains the cause and the consequent the effect. In 55 this relationship is reversed: the effect is mentioned in the if-clause and the cause is mentioned in the then-clause. This difference in distribution amounts to a different interpretation of the two sentences. According to Noordman, 54 expresses the fact that John’s being ill is a condition or cause for his not going to his work, whereas 55 expresses something like ‘From John’s not going to his work one may infer John’s illness.’

The difference Noordman notices between 54 and 55 is also discussed by Comrie, although Comrie arrives at a different conclusion. In his view, the antecedent always represents a cause for the effect described in the consequent, not only in sentences like 54 but in 56 and 57 as well.43

56 If it will amuse you, I’ll tell you a joke.

57 If I saw John stealing, he is a thief.

For 56 the causal relation seems to go in the opposite reaction: telling the joke is the cause of the listener’s being amused and not vice versa. But Comrie contends there is a causal relation from antecedent to consequent as well: the listener’s future amusement is the cause for the speaker’s telling a joke. For 57 something similar is the case. Although seeing John steal is not the cause of him being a thief, one can say that seeing John steal caused the speaker’s belief in John being a thief (1986:81).44

42 Examples given by Noordman (1977: 105).
43 Example 56 is taken from Comrie and example 57 is an adapted example from Comrie (1986: 81).
44 Sentence 55 could be analysed similarly.
One could argue that the meaning of ‘causal’ is inadmissibly stretched if interpreted in the way Comrie does. But in fact one of the more influential semantic theories on conditionals reflects a similar view on causality. In her book *From Etymology to Pragmatics. Metaphorical and Cultural Aspects of Semantic Structure* (1992), Sweetser claims that in all conditionals the if-then-construction expresses the same thing: the antecedent describes a sufficient condition for the consequent. However, the interpretation of the condition-consequence relation is dependent on the domain the conditional belongs to.

Sweetser makes a distinction between the content domain, the epistemic domain and the speech act domain. She considers the content domain to be the most basic. In that domain the if-then connective expresses a causal or enablement relationship between the state of affairs described in the antecedent and the one described in the consequent. An if-then connective used in one of the other domains is metaphorical: it doesn’t express a causal or enablement connection between states of affairs in ‘the real world’. In the epistemic domain the connective connects epistemic states: the knowledge of the hypothetical premise in the antecedent causes the knowledge of the conclusion. In the speech-act domain the state described in the antecedent enables or causes the speech act in the consequent.

An example of a conditional belonging to the content domain is sentence 58:

58  *If he is already gone, (then) they will have to leave a message.*

According to Sweetser, in the most natural reading of this sentence the ‘real world’ situation in which ‘he’ is already gone is a sufficient condition for the real world situation in which ‘they’ leave a message. If the content of the antecedent and the consequent are reversed – as in 59 – the sentence is not a content but a epistemic conditional:

59  *If they have to leave a message, then he is gone already.*

Sweetser argues that this sentence should be interpreted as ‘If I know that they have to leave a message, then I conclude that he is gone

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45  Of course there are a lot of dissimilarities between Comrie’s and Sweetser’s views as well, see for instance Sweetser 1992:122.

46  Examples 58, 59 and 60 are Sweetser’s (1992: 123, 118).
already’ (1992: 116). Finally, an example of a conditional in the speech-act domain would be 60:

60 If I haven’t already asked you to do so, please sign the guest book before you go.

Speech act conditionals differ from content and epistemic conditionals in that the condition described in the antecedent seems not to determine the consequent at all. In 60 the request to sign the guest book has been made, whether the speaker has already asked the listener to do so or not. 47 Still, the request in the consequent is made conditional on the state of affairs described in the antecedent: it must only be considered to be made if it hasn’t been made before.

The request in 60 can be called a conditional request. However, not all conditional sentences in which the consequent is not an assertion but rather some other speech act belong to the category of speech act conditionals. A sentence like 61 for instance, belongs to a different category, although it could be called a conditional threat:

61 If you don’t clean your room every week, we’ll throw you out!

In 61, the threat described in the consequent will only be effectuated if the condition described in the antecedent is fulfilled. The difference between 60 and 61 is that in 60 the request is made irrespective of the fulfilment of the antecedent: whether or not the speaker has asked the listener to sign the guest book before, this is now accomplished in this sentence. The consequent could very well be uttered just by itself. In 61 however the antecedent is an integral part of the threat: were the consequent uttered by itself, the message the speaker sends out changes considerably. 48

To determine whether a specific conditional is a content, epistemic or speech act conditional, one has to evaluate the content of both clauses. Sweetser doesn’t give any linguistic clues for differentiating between the various types, although she indicates that sometimes verb forms

47 This difference is more clearly visible in the traditional Austinian conditional ‘If you are hungry, there are biscuits on the side board’. Of course the biscuits are there, whether the listener is hungry or not.

48 Van der Auwera has discussed the difference between sentences like 60 and 61 in detail (1986:198-202 ).
can give an indication of the ‘more natural’ interpretation. Moreover, conditional sentences can be ambiguous. According to Sweetser, for example, in sentence 62 an ambiguity arises between a content and an epistemic reading:

62  If he was already gone, (then) they had to leave a message.

The content reading can be paraphrased as ‘Whenever, in the past, he was gone before their arrival, they were (thereby?) obliged to leave a message.’ As an epistemic conditional, the sentence is taken to express something like ‘If I know that he was gone before they arrived (in this instance), then I conclude that they were obliged to leave a message’ (1992: 123-124).

As was mentioned earlier, Sweetser’s tripartite division has become influential. In their tentative typology, Van Belle, Horsten and Schaeken (2002) make a similar distinction between what they call conditionals with a non-inferential or content relation, an inferential relation, and a commentative relation between antecedent and consequent. The category of conditionals with a non-inferential relation includes several predictive subtypes. For instance, not only 63 but also a conditional promise like 64 belongs to this class: 49

63  If there is oil on the surface, the road is dangerously slippery.

64  If you pass your exams, you will get a new bike. 50

It is characteristic for conditionals with an inferential relation that the consequent contains a conclusion that is drawn on the basis of the antecedent, as in 65:

65  If Oscar is ill, the lobster must have been off.

The modal term ‘must’ in the consequent indicates the kind of inference made. Conditionals with a commentative relation between antecedent and consequent are what Sweetser calls speech act conditionals.

49 Examples given by Van Belle et al. (2002:110).
50 Van Belle et al note that conditional promises generally are interpreted biconditionally: the child will get a bike if she passes the exams and won’t get a bike if she doesn’t.
Although Van Belle et al. claim that the difference between all three main categories of conditionals is based on several linguistic characteristics, they allude to the fact that many conditional sentences can be interpreted in either an inferential or a non-inferential way. For instance, sentence 66 can receive both readings:

66 **If their car is in front of the house, they are in.**

According to Van Belle et al., it is as easy to come up with a context where this sentence is taken to mean ‘Whenever their car is in front of the house, they are in’ (non-inferential) as it is to find one where it should be interpreted as ‘If it is true that their car is in front of the house, then I conclude that they are in.’

The classification in Dancygier (1998) also strongly draws on Sweetser’s division into content, epistemic and speech act conditionals. As mentioned above in section 3.1, Dancygier makes a distinction between predictive and non-predictive conditionals on linguistic grounds. These two main categories are subsequently subdivided on the basis of the type of connection between antecedent and consequent. According to Dancygier, predictive conditionals represent the central meaning of the if-then-conjunction and non-predictives are derivative. As a result, predictive conditionals are limited in the kind of relation that can hold between the antecedent and the consequent: they always belong to the content domain.

Non-predictive conditionals are far more open to different kinds of relationships between antecedent and consequent. The two main categories of non-predictive conditionals are epistemic conditionals and what Dancygier calls conversational conditionals. The latter comprises not only speech act conditionals but also metatextual conditionals like 67:

67 **Grandma is feeling lousy, if that is the appropriate expression.**

Metatextual conditionals differ from speech act conditionals because the condition in the antecedent comments not on the performance of the speech act in the consequent, but on the utterance of this speech act. The conditionality is therefore not located at the illocutionary but at the locutionary level.

Finally, Eirian Davies proposed a classification of conditionals in her work *On the Semantics of Syntax. Mood and Condition in English* (1979).
Although her classification is hardly quoted in the literature on conditionals, it nevertheless is worth mentioning here because Davies not only provides a detailed linguistic analysis of conditional constructions, but also links them to different systems of logic. Davies’ semantic analysis is based on the idea that in verbal interaction four different roles can be discerned, that of the ‘teller’, the ‘decider’, the ‘performer’ and the ‘knower’. An example of a sentence in which all of these roles are present is 68:51

**He should have taken more care.**

The *teller* is he who utters this sentence, or, to be more precise he who is ‘constructing a linguistic description and presenting it to another (or others) in a speech interaction’. The *decider* is the one that decides that ‘taking more care’ is the action that has to be performed, ‘deciding’ being “making a judgment about which occurrence value shall attach to an event.” The *performer* is ‘he’, namely the one ‘carrying out an activity or entering into / being in a relationship or state (including ‘existing’) in the ‘real world’ (1979: 65).” Finally, the *knower* is he who knows that ‘he did not take more care’. Davies describes the knower as the one “taking cognizance of the relation between a description and the ‘reality’ to which it refers so as to assign it a known occurrence value and relate it to the situation of utterance in terms of relative sequence in time”.

The four roles do not necessarily correspond to four different participants in the interaction (although this could be the case). In 68 it could well be that the speaker fulfils the roles of teller, knower and decider. In addition, all exchanges in verbal interaction need not involve all four roles. For instance, expressives like ‘blast!’ only involve the role of the teller (1979: 51).

The analytical value of distinguishing between these roles is that it facilitates a systematic analysis of the surface distinctions of mood in English. Since types of conditional sentences often are connected to the mood of the verb, Davies framework of semantic analysis can be used to systematically categorize conditionals. In accordance with the four roles that can be fulfilled in interaction, Davies classifies conditionals into four different classes: ‘telling’-; ‘decision’-; ‘performance’-; and ‘knowledge’-conditionals.52 This division is based on differences in

51 Example given by Davies (1979: 51).
the semantic status of the relation between antecedent and consequent. According to Davies, in these four classes different kinds of logical relation are involved.

Telling conditionals roughly correspond to what Sweetser calls speech act conditionals. This class does not only contain classic speech act conditionals like ‘There are biscuits on the sideboard if you want them’ but also the conditional sentence in the following exchange:

69  **Susan:** I really like watching tennis.

    **Jeff:** If you like watching tennis, Wimbledon is being televised this afternoon.

In this context the speaker has just learned from his interlocutor that she likes tennis and introduces the if-clause only to connect his utterance to this preceding conversation.

For decision-conditionals the then-clause always contains a decision feature: it always states that something should or should not happen. Examples of decision conditionals would be 70 and 71:

70  **If John comes, phone Mary.**

71  **If it rains, you must take your umbrella.**

The relation between antecedent and consequent is such that the command or advice in the consequent only becomes effective when the condition described in the antecedent is fulfilled. When the condition in the antecedent remains unfulfilled, no decision is made, so the question as to whether Mary should be phoned or not or an umbrella should be taken or not remains unanswered. Davies specifically states that decision conditionals do not represent any form of argument (1979: 151). Their main application is for ‘contingency planning’ and

52  It is rather difficult to see how the four different types of conditional sentence relate to the four different roles Davies discerns. Perhaps the best way to interpret Davies is to understand it as follows: in telling conditionals the act of ‘constructing a linguistic description’ of the consequent is performed only under condition, in decision conditionals, the ‘decision’ in the consequent is made only under condition, in performance conditionals, the activity / state in the consequent is taken only under condition, and in knowledge conditionals, the knowledge of the ‘truth’ of the description expressed in the consequent is taken only conditionally.
practical reasoning. The antecedent of a decision conditional doesn’t contain a premise and the consequent doesn’t realize a conclusion. It therefore does not follow the rule of contraposition, as can clearly be seen in 72 and 72’:

72  If genocide occurs, we must intervene.

72’ If we mustn’t intervene, genocide does not occur.

On the performance plane, Davies discerns three main types of conditional sentences: ‘open prediction’, ‘induction’ and ‘counterfactual’ constructions. Open predictions express a ‘lack of speaker and addressee knowledge’ about the situation described in the antecedent: its status cannot be decided at the moment of speech. The relation between antecedent and consequent is one of cause and effect, as in 73:

73  If the weather is wet, the roads will be treacherous.

Davies stretches the notion of cause and effect (just as Comrie does) to accommodate cases of ‘set inclusion’, as in 74:

74  If the painting is signed, it will be genuine.

According to Davies, prediction conditionals, like decision conditionals, are not constructions of argument. They are used to make limited predictions. The antecedent does not set forward a premise for a conclusion in the consequent, but the consequent involves the ‘telling’ of a probability. Therefore these types of conditionals are not expressing truth functional logic but ‘a modal logic of occurrence’ (1979: 156).

The second main type of performance conditionals are induction conditionals, like the conditional in 75:

75  If this plane has flown a thousand times without an accident, it won’t crash now.

53 Examples 69 – 71 and 73 – 77 are given by Davies (1979).

54 This may explain why contraposition is not valid: “...it is not the case that we can argue on the basis ‘if x, then will y’, that ‘if not-will y, then not-x’ or that ‘if not-will y, then not-will x’. E.g. We cannot argue on the basis of ‘If the weather’s wet, the roads will be busy’ that ‘If the roads will not be busy, the weather isn’t wet’, and still less that ‘If the roads will not be busy, the weather won’t be wet’. Neither can we
Just as in 73, in 75 a prediction is made about the occurrence of the event described in the consequent of the conditional sentence: the speaker considers it highly improbable that the plane will crash, given its immaculate track record. The difference between inductive conditionals and ‘open predictions’ like 73 is that the antecedent contains ‘accepted knowledge’: both speaker and addressee are taken to accept that the plane has flown a thousand times without anything happening to it. Davies calls this a ‘closed if’, related to ‘as’. Since the consequent of sentences like 75 makes a probability statement, induction conditionals realize – just like open prediction conditionals – implication relations described in a modal logic of probabilities and not a truth functional argument.

The third and final type of performance conditional Davies describes is the counterfactual conditional. Davies gives the following example (1979: 157):

76 If the Germans had invaded England in 1940, they would have won the war.

Counterfactuals belong to the class of performance conditionals because they are, just like open predictions and inductive conditionals, concerned with a prediction of the occurrence of an event described in the consequent. In 76 for instance, the speaker predicts what would have happened if the Germans had invaded England in 1940. The relation between antecedent and consequent is a performance relation, between the occurrence of one event as cause and the probability of another event as effect.

Just like the other performance conditionals, counterfactual condi-

argue that ‘if not-y, then not-will x’. (...) we do not allow that either a prediction concerning the state of the weather, or knowledge concerning the state of the weather may be based on a prediction / knowledge concerning the state of the roads. We do not allow that the state of the roads has any influence on what the weather does (Davies 1979: 154).”

55 Although the term ‘counterfactual’ seems to imply otherwise, Davies does not consider it to be necessary that the speaker and addressee consider the situation described in the antecedent to be contrary to fact. They might as well be neutral as to the occurrence of the event, as in the following example by Davies: ‘If John had been at the scene of the crime at the time when the murder was committed, Mary would have seen him leaving. So we must get hold of her to find out if she did see him.’ (1979: 158).
tionals are not about information, and do not themselves represent an argument. Their antecedents do not contain a premise from which the conclusion in the consequent can be deduced. However, Davies argues they are closely related to deductive argument since they can be used as a premise in such an argument. Because the event described in the consequent is situated in the past, it may be known whether it occurred or not. If we know that the effect described in the consequent did not occur, we can deduce that the cause described in the antecedent did not occur either. We know that Germany did not win the war, so we can conclude that the Germans have not invaded England in 1940. This conclusion is not realized in the conditional construction, but rather in the use of the construction as a premise in an argument. The counterfactual conditional construction only expresses a relation of a modal logic of probabilities, not a truth functional relation between propositions.

The fourth and final category of conditionals Davies describes are the so-called ‘knowledge conditionals’. They differ from telling conditionals, decision conditionals and performance conditionals in that they are the only type of conditional that realizes a truth functional relation between propositions. In knowledge conditionals the antecedent contains accepted knowledge and the consequent a conclusion deduced from this knowledge. An example of a knowledge conditional is 77:

77 If he is a local man, he must know about the old mine workings.

The conditional construction in 77 is explicitly marked as telling a deductive conclusion (by means of ‘must’). Knowledge conditionals can also be composed of two non-modal indicative clauses, as in ‘If whales are warmblooded then whales are mammals’ (1979: 162).

There is a close connection between performance conditionals and knowledge conditionals, since the former can fulfil the role of an underlying premise for the latter. For instance, performance conditional 74 ‘If the painting is signed, it will be genuine’ could serve as an underlying premise for the deductive construction ‘If the painting is signed, it must (will) be genuine’. Since knowledge conditionals permit reversal of the causal order of events, sentence 74 might as well be used as an underlying premise for a deductive construction leading to the conclusion that the painting is not signed. Whether the antecedent of a knowledge conditional describes a cause or an effect, it always contains knowledge of a proposition, which serves as a sufficient con-
dition for knowledge of the proposition expressed in the consequent. Therefore, a knowledge conditional is the only type of conditional that realizes a truth functional relation (of material implication) between antecedent and consequent (1979: 166).

3.4 Conclusion

The different views on conditionals discussed in this chapter offer – each on their own grounds – ways to discriminate between particular if-then sentences. Structure is sought and brought into the vast amount of conditionals, which facilitates the study of such sentences to a great extent. But can the distinctions made clarify the question asked in the last chapter? Do the proposed classifications offer a way to discriminate between conditionals that are unproblematic with regard to the definition of material implication and conditionals that are not?

Let us put the classifications discussed in this chapter to the test. A classification can only be used to differentiate between unproblematic and problematic conditional sentences if the problematic sentence 11 and the unproblematic sentence 20 are classified in different categories:

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

20 If the bottle of olive oil is leaking, you have not closed it properly.

First of all, can the classifications based on the status of the antecedent – discussed in section 3.2 – be used for this purpose? Clearly, the the standard division based on the status of the antecedent fails to do so: both 11 and 20 are indicative, open conditional sentences and would therefore belong to one and the same category.

The same is true for the interpretation Funk gives to the terms ‘open’ and ‘closed’, albeit for a different reason. Funk makes a distinction between conditionals in which the state of affairs described in the antecedent is still subject to manifestation and conditionals in which this state of affairs is already manifested. Conditionals belonging to the first category can be paraphrased as ‘If it happens that X,...’, conditionals belonging to the second category as ‘If it is true that X,...’. What would be the correct paraphrase for sentences 11 and 20? One could
argue that 11 is an open conditional and must be interpreted as ‘If it happens that the U.S. uphold subvention, then the European Union will not agree to negotiate.’ However, the interpretation ‘If it is true that the U.S. uphold subvention, then the European Union will not agree to negotiate’ is equally possible. The same is true for sentence 20: perhaps the paraphrase for 20 that first comes to mind would be ‘If it is true that the bottle of olive oil is leaking, then you haven’t closed it properly’, but ‘If it happens that the bottle of olive oil is leaking, then you haven’t closed it properly’ seems equally acceptable. Funk’s classification therefore fails as well. Not because problematic and unproblematic sentences are necessarily put in the same category, but because it is the case that with some conditional sentences there exists an ambiguity between categories.

The classification proposed by Dudman seems to be more promising, especially since he points out that modus ponendo ponens, modus tollendo tollens, contraposition, hypothetical syllogism and strengthening the antecedent are all unproblematic when the ‘if’-sentences are restricted to hypothetical interpretations. This observation is easily explained, he argues, when indeed hypotheticals are seen as condensed arguments (1986:17).

Now if we look at 11 and 20, we find that in Dudman’s classification these sentences will be classified in two different categories. 11 represents a what Dudman calls a conditional: it is not composed of two prior messages but should be seen as a subject-predicate sentence with an elaborate predicate, ‘the EU’ being the subject and ‘will not agree to negotiate if the US uphold subvention’ the predicate. It is therefore not surprising that 11 is problematic with regard to the definition of material implication. 20 belongs to the category of what Dudman calls hypotheticals: it is composed of two prior messages, ‘the bottle of olive oil is leaking’ and ‘you have not closed the bottle properly’ and can be interpreted as a condensed argument. The conditional that is unproblematic with regard to the definition of material implication is therefore classified in the category of conditionals where modus ponendo ponens, modus tollendo tollens, contraposition hypothetical syllogism and strengthening the antecedent are indeed unproblematic.

Although Dudman’s classification can be used to differentiate between the problematic sentence 11 and the unproblematic sentence 20, it suffers from an ambiguity between categories as well. As Dudman says: “certain sentences can be used to send different messages.” From the sentence alone one cannot always tell which message is sent and therefore from the sentence alone one cannot always tell to which category it belongs. If we take for instance 78
If it is sunny, the city is deserted.

The sentence in 78 can be interpreted in two different ways: it can be a habitual with a subject ‘the city’ and an elaborate predicate ‘is deserted if it is a sunny day’ or a hypothetical, consisting of the two prior messages ‘It is sunny’ and ‘the city is deserted’. As long as there is no way to disambiguate between the two, Dudman’s classification suffers from the same problem as Funk’s classification.

Finally, could the distinction Dancygier makes between predictive and non-predictive conditionals be of help? In Dancygier’s classification, sentences 11 and 20 would be classified in two different categories. 11 can be called a predictive conditional: the consequent contains a marker of prediction ‘will’, whereas the antecedent can be said to contain backshift. This sentence is best read as ‘If the US uphold subvention (in the future), then the EU will not agree to negotiate’. Sentence 20 is a non-predictive conditional, since the antecedent does not contain backshift.

However, the class of non-predictive conditionals does not only contain unproblematic conditionals. What belongs to this category is a whole variety of conditional sentences that are problematic with regard to the definition of material implication: ‘if you are hungry, there are cookies on the sideboard’; ‘my best friend here – if I may call you that – says I am far too generous’; ‘If their car is not on the driveway, my friends are out’ – to name but a few. If Dancygier’s classification is at all helpful, the subclasses she defines on the basis of the way the antecedent and consequent are connected should be taken into account.

So let us turn to the classifications based on the connection between antecedent and consequent and see whether those offer a way to categorize problematic and unproblematic conditionals in an univocal way. In both sentences 11 and 20 there is a causal link between the antecedent and the consequent. In 11 the U.S. upholding subvention results in the European Union disagreeing to negotiate. In 20 not closing the bottle properly causes the bottle to leak. According to Nieuwint, both conditionals would therefore belong to the category of unfree relations between antecedent and consequent. In the classification of Johnson-Laird, both conditionals would finally be placed into the same category as well, since both can be characterized as conditionals in which the antecedent determines the state of affairs only partially. These two classifications therefore provide no solution.
At first sight, the classification proposed by Sweetser, Noordman and others, following a similar line of reasoning, seems to be of help in dividing conditionals into unproblematic and problematic ones. The problematic sentence 11 belongs to the class of content conditionals. There is a causal link between the antecedent and the consequent that can be characterized as a condition-consequence relation: the antecedent contains the cause, the consequent the effect. The unproblematic conditional 20 is an epistemic conditional that is correctly paraphrased as ‘If I know that the bottle is leaking, I may conclude that you did not close it properly.’ There is an inference relation between the antecedent and the consequent. The effect (the bottle leaking) is described in the antecedent and the cause (not closing the bottle properly) is described in the consequent. Noordman would paraphrase this conditional as ‘From the fact that the bottle is leaking, one may infer that you did not close it properly.’ Conditionals 11 and 20 therefore end up in different classes.

However, these classifications can only be said to divide conditionals in an univocal way if it can somehow be shown that all conditionals that contain an inference relation are unproblematic. Furthermore, there must not be a conditional sentence with a condition-consequence relation that is unproblematic as well. It is an impossible task to establish whether the first prerequisite is met, therefore, let us focus on the second one: are there conditional sentences with a condition-consequence relation that are unproblematic when submitted to the logical operations of contraposition, hypothetical syllogism and strengthening the antecedent?

Such examples are not difficult to find. Sentence 63 seems to be a case in point:

63  **If there is oil on the surface, the road is dangerously slippery.**

Contraposition yields ‘If the road is not dangerously slippery, there is no oil on the surface’, which is unproblematic. Combined in a hypothetical syllogism with ‘If the road is dangerously slippery, the road is closed for traffic’ 63 yields ‘If there is oil on the surface, the road is closed for traffic’, which is unproblematic as well. Finally, an unproblematic instance of strengthening the antecedent would be ‘If there is oil on the surface and the oil originates from a tank lorry turned on its side, the road is dangerously slippery.’

In sum: the classifications proposed by Sweetser and Noordman and others cannot be used to discriminate between conditionals that are
unproblematic with regard to the definition of material implication and conditionals that are not. It is true, sentences 11 and 20 belong to different categories, 11 being a content conditional and 20 being an epistemic conditional, but unfortunately one cannot say that all content conditionals are problematic and all epistemic conditionals are not, since examples of unproblematic content conditionals can easily be found.\(^\text{57}\)

Let’s finally turn to Davies’ classification. She explicitly states that the definition of material implication is only relevant to one class of conditionals: knowledge conditionals. If it can somehow be shown that the class of knowledge conditionals indeed covers all conditionals that are unproblematic with regard to the definition of material implication, whereas other conditionals indeed would be problematic, Davies’ account could be used to discriminate between conditionals that can be submitted to the evaluation criteria expressed in the definition of material implication and those conditionals that cannot.

Davies characterises knowledge conditionals as follows:

1. they contain a causal relationship between the antecedent and the consequent (that can go from either cause to effect or from effect to cause);
2. the antecedent contains accepted knowledge; and
3. the consequent can be seen as a deductive conclusion based on the knowledge presented in the antecedent (as can be made explicit by adding ‘must’). Let us take a look whether the unproblematic conditional 20 could be classified as a knowledge conditional.

\hspace{1cm}20 \textbf{If the bottle of olive oil is leaking, you have not closed it properly.}

\hspace{1cm}56 One can also find examples where strengthening the antecedent yields undesirable outcomes, as in ‘If there is oil on the surface and anti-slippery chemicals are applied, the road is dangerously slippery’. For now, it suffices to show that strengthening the antecedent is not problematic ‘by definition’.

\hspace{1cm}57 Not only is 63 unproblematic with regard to the definition of material implication, it can easily receive an epistemic reading as well. There is no impediment in rephrasing this sentence as ‘If I know that there is oil on the surface, then I conclude that the road is dangerously slippery’. In fact, it is very hard, if not impossible to think of a content conditional that cannot be interpreted in an ‘epistemic way’ as well. ‘If I know that he is already gone, then I conclude that they will have to leave a message’ and ‘If I know that you pass your exams, then I conclude that you will get a new bike’ all seem to be unproblematic epistemic interpretations of content conditionals.
The relationship between the antecedent and the consequent indeed is a causal one: that the bottle of olive oil is not closed, has caused it to leak. The third characteristic seems to be present as well: ‘you have not closed it properly’ could be seen as a deductive conclusion based on the fact that the bottle is leaking. The deductive character of the consequent could be emphasized by adding ‘must’. However, whether this conditional possesses the second characteristic is difficult to assess. Judged from the conditional sentence alone, one cannot determine whether the antecedent contains accepted knowledge or not. One would have to ask the participants in the conversation to find out whether this is the case. Since it generally cannot be established whether a conditional possesses this second characteristic, it is often impossible to classify conditionals as knowledge conditionals.

Secondly, similar to the accounts of Funk, Dudman and others, some conditional sentences manifest ambiguity between the categories. In Davies’ discussion of the relation between performative conditionals and knowledge conditionals, the performative conditional ‘If the picture is genuine, it will be signed’ is word for word identical to the knowledge conditional that can be derived from it. Of course, the sentences differ in that the latter can contain ‘must’ whereas this remains unsuitable for performative conditionals. But how can one know whether it is legitimate to add ‘must’ or not? And if you cannot know this, how can you decide whether a particular conditional belongs to either the performance or the knowledge category?

None of the classifications discussed in this chapter are able as they stand now to unequivocally discriminate between a category of conditionals that is unproblematic with regard to the definition of material implication and a category of problematic conditionals. If one attempts to analyse and evaluate argumentatively used conditionals, one needs a division in categories based on the relevant evaluation criteria. First of all, conditionals that need different evaluation criteria, should be classified into different categories. Furthermore, all conditional sentences to which the same evaluation criteria apply, should end up in the same category. Finally, it should be impossible for one conditional sentence to belong to more than one category. Only then can one be sure that the correct evaluation criteria are applied in evaluating a conditional sentence.

Regarding the classifications discussed in this chapter, one can say that ultimately they all fail in making a precise distinction between different conditionals. However, they do not fail for the same reasons and
perhaps not all failure is equally grave. Although classifications that put conditionals with different evaluation criteria in the same category, or conditionals with the same evaluation criteria in different categories are not helpful for our purposes, classifications in which conditionals are ambiguous between categories can be used as a starting point.

What these classifications – the ones by Funk, Dudman and Davies – have in common is that although the characteristics presented are clear in themselves, it is impossible to assess whether a specific conditional possesses these characteristics, i.e. the conditionals are ambiguous between categories when the conditional is seen in isolation. As soon as a context is provided, the ambiguity of such conditional sentences disappears. Take for instance the ambiguous sentence 20.

20 If the bottle of olive oil is leaking, you have not closed it properly.

Seen in isolation, this sentence is ambiguous between an open conditional and a closed conditional (in Funk’s classification) or a performative and a knowledge conditional (in the classification proposed by Davies). However, when this sentence is embedded in the following context, only one interpretation remains:

20’ I don’t know whether the bottle of olive oil is leaking or not, but if it is leaking, you have not closed it properly. You were the last to use it.

At the moment of speaking, it is not known to either the speaker or the listener whether the bottle of olive oil is leaking or not. The conditional is therefore what Funk would call an open conditional and Davies a performative conditional.

It is equally easy to find a context in which a knowledge reading of the conditional sentence is the natural interpretation. Take for instance the following dialogue:

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.

Here the antecedent indeed is common knowledge to the speaker and the listener, and the consequent can be seen as a deductive conclusion based on the knowledge presented in the antecedent; all characteristics of a knowledge conditional are present.

How does this relate to the division between conditionals that do and
conditionals that don’t comply with the definition of material implication? If Davies is right in her assumption that knowledge conditionals are the only conditional sentences that realize a truth-functional relation between the antecedent and the consequent, our attention needs to be shifted. Instead of looking at characteristics that such conditional sentences possess, we should be looking at characteristics of the context in which the conditional appears.