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# Connecting conditionals: a corpus-based approach to conditional constructions in Dutch

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# CHAPTER 7

# Conclusion and discussion

## 7.1 Introduction

At the start of this dissertation in chapter 1, we saw how conditionals enable us to express our thoughts about possible states of the world, and how they form an integral part of human reasoning, decision making and communication. Even seemingly simple examples such as in (3), repeated below, show how the use of conditionals in natural language differs from their use in logic and formal reasoning.

(3) Maybe you will have to help me. We're not running our lives according to some account book. *If you need me, use me.* Don't you see? Why do you have to be so rigid? (Murakami, 1987a, p. 10, *Norwegian Wood*)

Whereas many studies on conditionals focus on specific types, or limit conditionals to those instances in which some form of formal reasoning is involved, in this dissertation, I set out to provide a corpus-based account of conditionals in terms of their use in natural language, and I opted for a combined approach of pragmatics and construction grammar to do so, focusing on two aspects of the meaning of conditionals that are apparent in the example in (3) above, but are not present in most logical analyses, namely their unassertiveness (the speaker neither asserts a need, nor, in consequence, an offer for help) and their connectedness (the speaker intends to connect the need and offer for help). This dissertation focused on the various uses of conditionals and their relation to grammatical form, and has attempted to answer the question how conditionals are used in everyday language.

This final chapter first discusses the main findings of this study by briefly summarising the results of each chapter in section 7.2, including an evaluation of the envisioned contributions discussed in chapter 1. Then, in section 7.3, I will discuss issues raised by clustering conditional constructions, and I will focus on the results of this study in terms of classifications, constructions, implicatures, and language specificity. Third, I will offer prospects for further research on conditionals by discussing the the merits of combining logical and pragmatic analyses of natural language phenomena in an argumentative approach to language use. In section 7.5, finally, I will offer some final, concluding remarks to complete this dissertation.

## 7.2 Overview of main findings

### 7.2.1 Introduction

In this section, I present a brief overview of the main findings of this study, and I evaluate the envisioned contribution to the study of conditionals, and to the field of linguistics.[1] In section 7.2.2, the results of the pragmatic analysis of conditionals in natural language are summarised, leading to a specification of the main aim of this study described above into two research questions: one on the specific implicatures licensed by conditionals, and one on their relation to the grammatical form of conditionals. In section 7.2.3, then, the answers to the first research question, concerning the various meanings of conditionals, are summarised. In section 7.2.5, a brief overview of the features of Dutch conditionals is provided, and in section 7.2.6, the answers to the second research question, concerning the relation between the meaning and form of conditionals, are summarised, before drawing a final conclusion in section 7.2.7.

### 7.2.2 Semantics and pragmatics of conditionals

In chapter 2, I introduced the concept of conditionals and identified the characteristics of conditionals in natural language. In the chapter, I compared the meaning of conditionals in truth-conditional analyses of conditionals to their meaning in natural language. From this comparison, two non-truth-conditional, but conventional meaning aspects of conditionals, i.e., aspects in which the logical operator $\supset$ differs from the linguistic conjunction *if*, were identified.[2]

The first of these meaning aspects is their unassertiveness. Conditionals cannot be used to assert $p$ or $q$. Related concepts common in the literature on conditionals, such as 'uncertainty' and 'hypotheticality', were analysed as specific implicatures licensed by the unassertiveness of conditionals. The second

[1] For the introduction of these envisioned contributions, see section 1.5.

[2] See section 2.4 for a discussion of the notions 'conventional meaning' and 'conventional implicature'. The two meaning aspects discussed in the current section are viewed as conventional meanings of conditionals.

non-truth-conditional aspect of conditionals is their connectedness, i.e. conditionals present $p$ and $q$ as connected. As with uncertainty or counterfactuality as conversational implicatures derived in part from the conventional meaning of unassertiveness of conditionals, connectedness is conventional and further specified in context by conversational implicatures of, for instance, causality or epistemic inference. The analysis of these non-truth-conditional aspects of conditionals led to the specification of the general question into two specific research questions, which suggested analysing both the meaning and the form of conditionals, as well as their relation. These questions, presented in section 2.7, are repeated below in (115a) and (115b). By offering a detailed account of conditionals in which a truth-conditional analysis and a non-truth-conditional analysis were combined, chapter 2 identified two main meaning aspects of conditionals in natural language, which were further explored in the classifications discussed in chapter 3. This part of the dissertation focused on the research question in (115a), which is accompanied by a brief answer (in italics) below. Then, in chapters 4 to 6, a corpus study was presented to answer the second research question on empirical grounds. This part of the dissertation addressed the research question in (115b), which too is accompanied by a brief answer.

(115a) What specific implicatures are licensed through unassertiveness of and connectedness in conditionals?
*Conditionals license neutral and non-neutral implicatures of unassertiveness, which may be sub-divided into implicatures of, amongst others, factuality and counterfactuality. With respect to connectedness, conditionals license implicatures of direct and indirect connections, which may be subdivided into more specific types, such as causal and inferential connections.*

(115b) To what extent do the grammatical features of conditional *if* constructions determine the more specific implicatures?
*The grammatical features included in this study do not or only weakly license specific implicatures of unassertiveness and connectedness. Although a number of interpretable groups resulted from the cluster analyses, these groups did not clearly reflect the types of specific implicatures of unassertiveness or connectedness that are distinguished in the literature.*

In the following sections, the answers above are elaborated by discussing the main findings of this study, starting with the overview of classifications of conditionals in the next section.

### 7.2.3 Classifications of conditionals

In chapter 3, I presented an overview of classifications of conditionals, pursuing two goals. The first goal was aimed at the research question in (115a) above, namely to explore which types of conditionals are postulated in the literature with respect to the two implicatures argued for in chapter 2. The second goal

was to provide a basis for answering the research question in (115b) by creating an inventory of grammatical features of conditionals related to types of conditionals as suggested in the literature.

The first aim was to create an overview of types of conditionals distinguished in the literature, using the two implicatures as a structuring principle. With respect to implicatures of unassertiveness, most accounts of conditionals distinguish between neutral and non-neutral conditionals, with the latter further sub-divided into those conditionals implicating some type and degree of factuality, uncertainty, hypotheticality, and counterfactuality. These latter two implicatures were analysed in this dissertation in terms of epistemic distancing. With respect to implicatures of connectedness, most accounts distinguish between direct and indirect conditionals, with the former sub-divided into causal and inferential connections, whereas the latter type includes sub-types such as pragmatic and meta-linguistic conditionals.

The second aim of the chapter was to inventory the grammatical features that may license the conversational implicatures under discussion. Implicatures of unassertiveness seem related most strongly to verb tense and modality, although we have seen ample debate on the ambiguity of tense as referring to either a temporal or a modal dimension. Implicatures of connectedness seem to have a weaker link to specific grammatical features, although we have seen the influence of verb tense and modal marking here too, complemented by features such as clause order, negation, sentence type, (lexical) aspect, the use of focus particles, and, for Dutch conditionals, syntactic integration. In chapter 3, I emphasised that conversational implicatures are, by definition, non-conventional, which means that it was not expected that any of the grammatical features would fully determine the implicatures focused on, not in the least because in chapter 2 it was shown that they are always cancellable in specific contexts.

With respect to the envisioned contributions to the study of conditionals, chapter 3 offered an extensive overview of classifications of conditionals. As the body of literature on conditionals is vast, chapter 3 provides a valuable overview of types of conditionals and their grammatical features.

### 7.2.4 Data selection and methodology

Chapter 4 is, in many respects, a preparatory chapter for the chapters following it. First, I critically assessed the (top-down) application of existing, mostly theoretically motivated classifications of conditionals to natural language data, and I showed that this could not be done at a sufficient level of reliability for conditionals in corpus data. This result has determined to a great extent the choice for a bottom-up, unsupervised approach to the second research question in this dissertation. Furthermore, the chapter provided a detailed account of the data selection, representativeness and balance of the corpus, annotation procedures, and discussions of enhancing annotation quality for the individual features. Fi-

nally, chapter 4 identified problems one may encounter during automated and manual annotation, most pressingly missing data, and it offered suggestions for systematically dealing with these issues.

### 7.2.5 Features of conditional constructions in Dutch

As in chapter 3, a dual goal was pursued in chapter 5. First, the chapter provides an extensive overview of the grammatical features of Dutch conditionals. I analysed the distributions of these features in a representative and balanced corpus, and tested for associations with mode (spoken, written), and register (formal, informal). Second, the resulting overview served as input for the data analyses in the following chapter. With respect to the second research question, the goal was to systematically test pairings between meaning and form of Dutch conditionals, and therefore, chapter 5 constitutes a necessary, yet in itself insightful overview of the grammar of Dutch conditionals. The overview was complemented by comparisons with previous studies of the features under inspection, in order to maximise understanding of each feature in its grammatical context, and to avoid overlooking known factors involved in their distributions. As the results presented in chapter 5 are extensive, the reader is referred to the summaries at the end of each of the sections of the chapter.

Chapter 5 contributes to the study of conditionals an extensive overview of the grammar of Dutch conditionals. As such, this chapter and the chapters following it add a language-specific analysis of Dutch conditionals to the study of conditionals in general, and as the inventory of classifications mentioned above discusses grammatical features of conditionals in English largely, this dissertation also offers a contrastive analysis of the grammar of Dutch and English conditionals. Furthermore, the inventory was based not only on written corpus data, but also on spoken data, balanced on the dimension of register, which is relatively uncommon in the literature on conditionals.

### 7.2.6 Clusters of conditionals

In chapter 6, I provided arguments for analysing conditionals as form-meaning pairings, i.e., constructions, in order to investigate relations between grammatical features and implicatures of conditionals. The primary aim was to test the extent to which the feature distributions of Dutch conditionals would be informative as grammatical contexts licensing conventional or generalised implicatures of unassertiveness and connectedness, thereby answering the last part of the second research question in (115b). The secondary aim was to explore the merits of novel machine-learning techniques on linguistic datasets.

With respect to the primary aim, it became clear that the results of the cluster analyses did not clearly reflect the implicatures of unassertiveness or connectedness discussed in chapters 2 and 3. In other words, there never appeared to be clear agreement between the types distinguished in the literature and the clusters found. Even types from highly influential accounts, such

as Quirk et al.'s (1985) direct and indirect conditionals, or Dancygier and Sweetser's (2005) content (predictive), epistemic and speech-act conditionals were not identified by the clustering algorithms. With respect to the second research question, this suggests a negative answer mostly, as the grammatical features included in this study do not seem to cluster on features to license implicatures of unassertiveness and connectedness. Whereas the partitional solution proved difficult to interpret in terms of shared implicatures, and seemed to grant high levels of influence for individual features per cluster, the hierarchical solution did combine features of conditionals to form interpretable groups. It indicated a large unmarked group of what could be seen as prototypical conditionals, namely those with present tense in both clauses, no modal marking of antecedents, and a minority of consequents marked for epistemic modality. This underlined the observation that in Dutch, consequents of direct and indirect conditionals are not marked by the presence or absence of the modal verb *zullen* 'will' respectively, which further pointed towards the importance of language specificity in this study. Another interpretable cluster was formed by the hierarchical algorithm, namely a group of past tense conditionals with modalised consequents. This cluster was interpreted as containing distanced conditionals, but the algorithm did not differentiate between temporal and epistemic distance, which reflects a common debate in the literature on the ambiguity of tense and modality. It remains thus the question whether epistemically distanced or even counterfactual conditionals should be analysed as seperate constructions.

With respect to the secondary aim, which was to explore the merits of applying a number of data-driven, unsupervised machine-learning techniques to linguistic datasets, the results were mixed. On the positive side, this part of the study contributed a bottom-up, corpus-based approach to the study of conditionals, in which most accounts (see chapter 3) tend to be top-down, theory-driven. It uses an original combination of in-depth pragmatic analysis to construct hypotheses about conditionals constructions, and applies both proven and state-of-the-art machine-learning techniques for clustering data on a carefully balanced corpus of Dutch conditionals. As such, it was a promising methodological approach to investigating the relation between grammar and meaning. Based on theory and quantitative analyses, I selected features that maximised the chance of finding structures underlying the data. These evaluations suggested removing aspect, person and number, and focus particles from the dataset to improve clusterability. Two main approaches of clustering, hierarchical and partitional clustering, were selected based on their applicability to the data, and their theoretical relation to prototype theory, and I evaluated the clusterability of their various implementations and parameters in detail, to arrive at the most promising clustering solutions. The selected solutions indicated reasonable underlying structures, but these were not found to be strongly related to the implicatures of interest.

On the negative side, the results as described above are indicative, but inconclusive on the question to what extent links between the grammatical features and implicatures of unassertiveness and connectedness can be observed. As this study systematically investigated the contribution of grammatical properties of conditionals suggested to be of influence in the literature (see chapter 5), and the results suggested only weak links between the form and meaning of conditionals, and the types suggested in the literature, it is probable that the types in the literature are not coded into the grammar of Dutch conditionals. As this result sheds light on the relation between form and meaning of conditionals, it is a point worthy of further discussion, and it will be taken up in detail in section 7.3 below.

### 7.2.7 Conclusion

The analyses of conditionals presented in chapter 2 showed how a logical analysis of conditionals may provide clear starting points for the pragmatic analysis of conditionals in language use, as their contrast provided the grounds for recognising two conventional meanings of conditionals, unassertiveness and connectedness, which license further, more specific implicatures. In chapter 3, these meaning aspects proved to be useful guides in structuring the extensive literature on classifying conditionals, and in sorting out which grammatical features should be taken into account when researching the non-truth-conditional meaning aspects of conditional constructions. After presenting the data preparation in chapter 4, the overview of the grammar of Dutch conditionals in chapter 5 not only provided insights into the grammar of conditionals in different modes and registers of natural language, but also provided the input for two (bottom-up) cluster analyses of Dutch conditionals in chapter 6. As these analyses formed the final step of this study, and answers to the research questions were provided and summarised above, what is left is the discussion of unresolved issues, and the implications of the main findings presented in this dissertation.

## 7.3 Discussion: clusters and constructions

### 7.3.1 Introduction

The primary aim of chapter 6 was to perform and evaluate a data-driven, unsupervised analysis on the data presented in the previous chapter, in order to find out whether feature distributions can be used to identify grammatical contexts licensing (generalised) implicatures of unassertiveness and connectedness. As has become apparent, applying standard procedures to the multivariate categorical dataset proved problematic. Both proven and state-of-the-art

machine-learning techniques were used to solve these problems, but the results did not show clear reflections of the types of conditionals distinguished in the literature.

In this section, I address the issue of finding clusters that can only weakly be interpreted as constructions with identifiable meaning aspects. I will discuss three issues related to these findings. In section 7.3.2, I will discuss top-down and bottom-up classification, in section 7.3.3 I will discuss an issue of construction meaning and pragmatics, and in section 7.3.4, I will reflect on language specificity, before offering a brief conclusion of this discussion in section 7.3.5.

### 7.3.2 Top-down and bottom-up classification

Although, as discussed in chapter 6, reasonable structures were found in terms of quantitative evaluations, with comparable results for hierarchical and partitional clustering, the results showed that none of the solutions directly or strongly reflected any of the implicatures discussed in chapters 2 and 3. Apart from the fact that the hierarchical solution included a large cluster of unmarked or default conditionals (see section 6.5.4), and a cluster of past tense conditionals with modalised consequents, comparable to neutral and closed conditionals (i.e., hypothetical, counterfactual, or epistemically distanced conditionals; see section 6.5.5), the results did not provide clearly separated groups of conditionals ready for theoretical interpretation.

As I hope to have demonstrated throughout this dissertation, the literature suggests relations between grammatical features of conditionals on the one hand, and meaning aspects on the other hand. I analysed these meaning aspects as conversational implicatures licensed by the conventional meaning aspects of conditionals in chapter 2. This made testing the hypothesis that features cluster as grammatical constructions with their own meaning aspects not only viable, but also promising, as implicatures can be more or less generalised (see section 6.2), and a clustering approach is able to identify such probabilistic clues for implicatures. In other words, the fact that features or combinations thereof may form means of licensing implicatures of unassertiveness and connectednes fits with the methodology used in this study. Other studies involving clustering (see section 6.3) yielded promising results without thorough theoretical motivation for the variables chosen, applying a more opportunistic approach to the data exploration. It was therefore to be expected that the current approach, which did involve theoretical motivation for the initial and final selection of variables, would maximise the chance of finding clusters related to the implicatures the features were linked to in the literature. The current results suggest that, if the types of conditionals discussed in chapter 3 indeed exist, they are probably not strongly marked by grammatical means (see also section 7.3.3).

From the results, we should not, and cannot, conclude that the types proposed in the literature do not exist as cognitive constructs. Let us take, for example, Sweetser's (1990) account (and the subsequent account in Dancygier & Sweetser, 2005; see section 3.3.7), which, to my knowledge, are most com-

monly used in corpus studies and experimental studies on conditionals. The studies referred to in sections 3.3 and 4.2 do indicate that content, epistemic and speech-act connections between antecedents and consequents can be found in Dutch conditionals. Although corpus studies using existing classifications as top-down means for categorising language data run the risk of projecting those theoretically motivated types onto the data at hand, I take this as an indication that it is unlikely that such types do not exist as cognitive categories. This is corroborated by Verbrugge et al.'s (2007) experiments, which show processing differences between content (i.e., predictive) and epistemic (i.e., inferential) conditionals, in turn providing an argument for their psychological reality (see section 4.3). Rather, it is more likely that these categories are not manifested as *linguistic* categories in Dutch, as they appear not to be marked by grammatical means (see section 7.3.4 for a discussion of language specificity). This is further corroborated by low reliability scores, which were reported not only in the experiment in section 4.2, but also mentioned by linguists applying the same classification to coherence relations (Renmans & van Belle, 2003; Spooren & Degand, 2010; see also Levshina & Degand, 2017, pp. 146–147). Such low reliability scores may, as Spooren and Degand (2010, p. 259) argue, be 'inevitable' for annotation tasks 'where interpretation (as opposed to formal characteristics) of the phenomenon under scrutiny is central'.

The question what the current study tells us about the categorisation of conditionals then resurfaces, and with it, the question how (cognitive) linguistics should incorporate these insights. The current results should not be taken as proof that certain classifications of conditionals discussed in chapter 3 are wrong, and other ones are right, or that account A is right in positing a type of conditional B, and account C in positing type D. More fundamentally, I believe the results suggest the foundation of categorising conditionals needs to be reconsidered. While it is theoretically insightful to define general categories of conditionals, it is at least as important to test such cognitive constructs on empirical grounds. It may be the case that we, as language researchers, have a desire and eagerness to postulate global categories of meaning in order to most efficiently explain language use, while, as language users, we group similar interpretations of language patterns at a much lower level, in which case, only more specific categories exist. If that is the case, categories should be defined lower down the 'classification tree', as more specific instances of patterns of use. This, however, would mean sacrificing, to a certain extent, the simplicity criteria for classification results (see section 6.2), and the generalisations current accounts offer. Future cognitive linguistic research on conditionals and other constructions could therefore benefit from exploring a new balance between accountability for all data on the one hand, and explanatory power on the other.

While most classifications discussed in chapter 3 are not bottom-up accounts, they are based on thorough research and analysis, and as such, they are rooted in observations and the analysis thereof. Therefore, I take the results of this study as a strong indication that the grammatical features of Dutch

conditionals do not correspond to those in English in licensing implicatures unassertiveness and connectedness, apart perhaps from verb tense and modal marking of distanced conditionals. Note, however, that an equivalent of the cluster analysis in this dissertation is not available for English conditionals, which leaves open the possibility that for English too the specific implicatures of unassertiveness and connectedness are underspecified by grammatical means, and perhaps are connected to other, for instance, lexical-semantic means. We will turn to this issue in the following section.

### 7.3.3 Constructions and implicatures

While the current results do not prove that the grammar of Dutch conditionals does not license conventional or generalised conversational implicatures of unassertiveness and connectedness, irrespective of any classification discussed in chapter 3, they do, in my view, make such a relation unlikely. With respect to the expectation formulated in chapter 6, namely that the features of Dutch conditionals are expected to 'work together' in licensing implicatures of unassertiveness and connectedness, i.e., functioning as form-meaning pairings or constructions, the cluster analyses did not provide strong indications that clusters of features could be connected to clearly identifiable generalised implicatures.

The results may be taken as a suggestion to include other features in the analysis. However, given the extensive overview of the literature, I deem it unlikely that any relevant grammatical features were missed in this study. Another interpretation of the results is that, in licensing more specific implicatures of unassertiveness and connectedness, grammar does not play a large role. In other words, such implicatures are not, or only weakly generalised. In this view, the results point towards a larger role for pragmatics than for grammar (or inference and code respectively; see Ariel, 2008, Chapter 1). The measures taken to ensure optimal clustering exceed what is normally attempted and reported in studies applying clustering techniques. The current approach may thus be expected to have produced clusters if there were any. As I hope to have shown in the respective chapters, the relation between the number of features and observations in the corpus was sufficient, the features were theoretically motivated, as was the choice of clustering approaches and algorithms. Furthermore, all results were thoroughly evaluated. The absence of a clear relation between groups of grammatical features and identifiable meaning aspects does not permit a more radical conclusion, but the extensive testing of each step in the data preparation and clustering does, in my view, warrant the more cautiously formulated conclusion that, apart from the unmarked conditionals and conditionals marked by past tense and modality in the consequent identified by the hierarchical clustering algorithm, the extent to which grammatical features of conditionals license implicatures of unassertiveness and connectedness is very limited. In other words, the implicatures appear not as generalised as was hypothesised. It is important to note here that I have adopted a construction grammar ap-

proach in this study, and explicitly selected *grammatical* features for inclusion in the cluster analyses. After all, construction grammar revolves around pairings between grammatical form and meaning. Furthermore, the classifications of conditionals discussed in chapter 3 suggest such an approach, as they focus on grammatical features in determining types of conditionals. The deliberate choice for grammatical features did however prohibit the inclusion of lexical-semantic features in the bottom-up approach adopted, while it is possible, and for certain types may even be expected, that lexical semantics plays a large role in licensing implicatures of connectedness and the constructional status of certain uses of conditionals. For instance, conditionals such as 'If you're not busy...' or 'If I'm not mistaken...' are clearly identifiable as pragmatic conditionals based on not only person and number, but also on the lexical-semantic contents of, in this case, the antecedents. Therefore it is suggested that future attempts at classifying conditionals using bottom-up approaches include features beyond the grammatical realm (for examples, see e.g., Levshina, 2011, 2016, on distributional semantic maps for causative constructions).

With respect to the relation between construction grammar and pragmatics, generalisation and conventionalisation of implicatures are gradual phenomena. Examples of conditionals with comparable grammatical form but different implicatures of unassertiveness or connectedness are not counter examples to a generalised state of implicatures per se. Note furthermore that there is a complicating, partially terminological factor in this discussion. As Leclercq (2020, p. 226) argues, 'constructionists often steer clear of using these terms [i.e., *semantics*, *pragmatics*], to which they prefer the wider label *function*. This is largely due to the assumption in cognitive approaches that there is no clear distinction between semantics and pragmatics [...]', as we discussed earlier in chapters 1 and 2. In other words, the term 'meaning' (*function*) within the concept of 'form-meaning pairings' is often used loosely. Leclercq (2020, p. 227) furthermore argues for clarity by adopting a constructional view in which semantics is defined in truth-conditional (i.e. 'propositional') terms, and, in line with Cappelle (2017, p. 122), pragmatics in terms of 'those aspects of a speaker's knowledge of a linguistic expression that are treated as falling outside the domain of [...] propositional semantics'. As we have discussed explicitly already in chapter 1 (see section 1.3), this may be seen as being at odds with the non-modular nature of construction grammar (cf. Fillmore, 1985; Lakoff, 1987; Langacker, 1987; Goldberg, 1995, 2013). I do not believe this to be the case, however, and I think separating truth-conditional and non-truth-conditional meaning contributions of grammatical constructions adds clarity to an analysis, without necessarily positing separate modules and with it, a modular view of cognition. Although one may, of course, disagree with such a view, in the analysis presented in this dissertation, I hope to have shown how discussing grammatical constructions in explicit and specific (Gricean) terms of truth-conditionality (i.e., truth-conditional and non-truth-conditional mean-

ing) and conventionality (i.e., conventional and non-conventional meaning) aids the identification of similarities and differences between logic and natural language, and ultimately benefits linguistic analysis.[3]

Conditionals are used frequently in both spoken and written language, and the conventional meanings of unassertiveness and connectedness is constant. They are, however, also general. As we saw in chapter 2, a speaker uses a conditional not because she is necessarily uncertain on the truth of $p$, but because she cannot or does not want to assert $p$. Further specification of this unassertiveness, such as uncertainty or counterfactuality, is necessary (see section 2.5). In addition, a speaker uses a conditional to present two situations in connection. This connectedness is further specified in context, and may be of a causal or another nature (see section 2.6). As both these specifications of the general conventional meaning of conditionals are as frequent as the use of conditionals, and the literature suggests the number of specifications (or type) to be fairly limited (see chapter 3), one may expect grammatical clues have become 'attached' to these more specific inferences, in turn developing into generalised implicatures, and into constructions. This view is comparable to Ariel's (2008, p. 306) conclusion that 'codes commonly develop out of (salient, recurrent) speaker-intended inferences associated with specific forms', because salient patterns of form and meaning 'bring into being new forms and new form-function correlations, a new grammar, in other words' (see also Schmid, 2020 on 'entrenchment' of implicatures; for further references, section 6.2). Again, the current results are not conclusive on this issue, but suggest, at least within the domain of conditional *als* 'if' constructions in Dutch, that more specific implicatures resulting from the conventional and still general (abstract, vague) meanings of unassertiveness of and connectedness in conditionals have so far not grammaticalised, and largely remain inferences instead of code.

### 7.3.4 Language specificity

A last and related issue is that of language specificity, which already introduced itself in the previous sections. While some might find it regrettable that a detailed analysis of data such as presented in this dissertation did not produce results readily interpretable in terms of the accounts of conditionals available in the literature discussed in chapter 3, the results presented in chapter 5 do

[3]See chapter 2, and especially sections 2.4 and 2.8 for discussion of this issue, and the next section for prospects on an integrative approach. See also Depraetere (2019), who argues that 'if [the term] *pragmatic* is used whenever we are referring to meaning in context, then it becomes a commonplace that is generic at the risk of becoming relatively void of meaning'. She therefore suggests to distinguish between 'meaning in context' as a formal environment including linguistic and extra-linguistic context, and 'contextual meaning', a functional category including (context-dependent) semantics and pragmatics (both context-dependent implicatures and other types of context-dependent meaning). For reasons of space, we will not discuss this issue further here.

provide a picture of the collaborative features of Dutch conditionals. These features paint, in part, a different picture than what is known for English conditionals.

Conditionals in English have been clustered before into direct (i.e., predictive, causal, inferential) and indirect (e.g., pragmatic, speech-act) conditionals using only modal marking (Gabrielatos, 2010, 2020, 2021). The presence of *will* indicates prediction in English conditionals (see e.g., Dancygier, 1998, p. 43; sections 3.3.7, 3.2.7 and 5.4.2), but future reference in Dutch is, in general, less frequently expressed by its counterpart *zullen* 'will'. In contrast, reference to future situations is most frequently expressed using the regular simple present verb tense lacking any modal auxiliary (see section 5.4 for details and discussion). I expect the current results, which do not clearly discriminate implicatures of connectedness such as those in the direct-indirect distinction mentioned above, to reflect this absence of marking of future reference. This may have led the algorithms to pick up on other features for clustering, resulting in a stronger reflection of classifications distinguishing between neutral and distanced conditionals based on past tense and modality (i.e., implicatures of unassertiveness).

The problem of language specificity is one that has already surfaced a number of times in this dissertation, and a parallel can be observed to Croft's (2001, pp. 29–31) discussion of language specificity and universality of parts of speech. In short, he argues that upholding language universality and language specificity at the same time leads 'cross-linguistic methodological opportunism'. This term denotes the use of language-specific criteria where they do not exist as general criteria in the language, or provide the '"wrong" results according to one's theory'. Applied to conditionals, this would suggest that using the inventory of grammatical features related to types of conditionals mainly in English, as was done in chapter 3, and then using those features as criteria for finding types in Dutch conditionals, is in fact an instantiation of the cross-linguistic methodological opportunism mentioned. While this may not necessarily be problematic in itself, Croft (2001, pp. 31–32) mentions it results in two 'interrelated and fatal problems'.

The first problem is that there is no principled way to decide which criteria to take into account to find cross-linguistic or universal types of conditionals. For parts of speech, Croft argues the following.

> One might propose that inflection for agreement and tense-mood-aspect will be the criterion for the category Verb across languages. But why? No reason has been given to do so. And if one does so, then one will have to conclude that all words are Verbs in Makah and no words are Verbs in Vietnamese, which is hardly a savory conclusion for a theory that posits Verbs as a part of Universal Grammar. (Croft, 2001, p. 31)

Applied to the current study, one could argue that using accounts of English conditionals for informing the decision on which features to include in the cluster analyses aimed at finding types of conditionals, or implicatures of unassertiveness and connectedness in Dutch conditionals, would indeed amount to the problem sketched above. This 'opportunism', however, was in my view warranted in order to construct an informed dataset. First, most of the literature on conditionals is based on the English language, and although even the category of conditionals itself may not overlap perfectly in different languages, I have attempted to formulate characteristics of conditionals that exclude as little uses as possible (see section 2.2.4). Second, and more specifically, the available classifications are based on English. Not taking into account these accounts would amount to ignoring valuable insights, and as mentioned in section 7.3.2, certain types of conditionals have been attested in Dutch corpus data and experimental studies. Third, by not limiting the feature set to those directly related to types of conditionals in English, but including other, less directly related features (e.g., aspect, person and number), and directly related features not present in English conditionals (syntactic integration), I hope to have, perhaps not in a theoretical, but at least in a practical sense, prevented unconscious opportunism.

The second problem is that cross-linguistic methodological opportunism introduces '*a priori* theoretical assumptions' about the phenomena to be distinguished. In Croft's discussion, these phenomena concern the categories of parts of speech, such as verbs and nouns, fundamental to linguistic analysis. These categories, however, need to be distinguished on basis of distributional patterns that require the same categories as terms to begin with. To address this point, I would like to discuss two different conceptions of corpus linguistics. In doing corpus linguistics, one can choose between what is called a 'corpus-based' approach, and a 'corpus-driven' approach (cf. Tognini-Bonelli, 2001; McEnery & Hardie, 2012, p. 6). In short, in a corpus-based approach, a corpus is used not as a 'determining factor with respect to the analysis', but only as an inventory of 'pre-existing categories' (Tognini-Bonelli, 2001, p. 66) (i.e., it is in principle a deductive process), which the analyst may refine, but these categories can not be challenged by the data. Conversely, in a corpus-driven approach, recurrent patterns and frequency distributions of examples 'taken verbatim' are used to form the 'basic evidence for linguistic categories' (Tognini-Bonelli, 2001, p. 84) (i.e., an inductive process). McEnery and Hardie (2012, p. 147) argue against the strongest form of corpus-driven linguistics, in which the '*corpus itself* (and not just corpus linguistics as a field) is the theory', as Tognini-Bonelli (2001, p. 84) argues. McEnery and Hardie (2012, p. 148) argue this would imply that, besides the corpus data, nothing should be used as to generate knowledge about language, because the corpus then would represent 'at one and the same time the phenomenon in need of explanation and the set of postulates intended to explain it'. However, by taking corpus data seriously while maintaining that 'data is data and theory is theory', we can use corpora as sources of data to provide evidence in favour or in contrast with theories of language. Using the

features derived from previous accounts of conditionals to test whether they indicate the presence of types of conditionals in the corpus data does, in my view, exactly that. We do not have to throw away existing part-of-speech categories or, in this case, grammatical features of conditionals to try and find meaningful patterns in corpus data, as long as we are aware of the pitfalls, such as those discussed by Croft (2001) discussed above.

The implications of the above for this study are as follows. Conditionals, like other constructions, are language-specific and consist of components (words, phrases, clauses). Constructions cannot be defined without references to their components, and their components cannot be defined without reference to the construction they are part of. Constructions, in this sense, are theoretical primitives, which need to be described in terms of categories of the language they exist in, and in relation to the larger construction itself. In this sense, 'grammar is a dynamic system of emergent categories and flexible constraints that are always changing under the influence of domain-general cognitive processes involved in language use' (Diessel, 2015, p. 296). Although this discussion, like Croft's above, concerns the very fundamentals of linguistic analysis, as a radical approach to construction grammar would reject pressuposed primitive categories like subject and noun (for discussion, see e.g., Jackendoff, 2002, pp. 74–77), for the current study, it implies that features defined in terms of such and higher-level categories should at least be used with caution. Illustrative is Fortuin's (2019, p. 47) cross-linguistic study of performatives, in which he concludes that 'many languages employ different types of TA(M)-marking [Tense, Aspect, Modality; AR] for different types of performatives'. This relates to the focus of this dissertation on constructions with the conjunction *als* 'if'. As in other languages, Dutch provides other means of expressing conditional thoughts, such as *mits* 'provided that' (Daalder, 2006, 2009), *tenzij* 'unless' (Paardekooper, 1986, pp. 442–443; Daalder, 1994), V1-conditionals (see e.g., Boogaart, 2007a; Breitbarth, Delva & Leuschner, 2016), pseudo-imperatives (see e.g., Clark, 1993; Fortuin & Boogaart, 2009), the conditional use of prepositional phrases such as *zonder* 'without' (Reuneker, 2016), and the conditional use of *wanneer* 'when' (van Belle, 2003, p. 67; Duin, 2011). The latter example is illustrative for the current discussion, as in Dutch, the primarily temporal conjunction *wanneer* 'when' can, in contrast to English *when*, be used as a conditional conjunction easily, and, vice versa, *als* 'if' is frequently used as a temporal conjunction (see section 4.4.4 for an elaborate discussion). This shows that the meanings of constructions with either one of these conjunctions overlap, and it is advised here that these (and other) constructions be included in future research on conditionals in Dutch. By doing so, it can be tested to what extent their respective conditional and temporal meanings overlap, and how this relates to the classifications of conditionals. However, as clear cases of non-conditional *als* 'if', including purely temporal uses, were explicitly excluded from the corpus study, resulting in a corpus of conditionals in Dutch most reminiscent of English *if*, I deem it unlikely that the current study of conditional constructions in Dutch has created a blind spot with re-

spect to the types of conditionals proposed in the literature. In fact, the choice to select only the conditional use of *als* 'if' in this study was based on the premise of construction grammar that a word such as *als* 'if' takes on specific (in this case, conditional) meaning only within a larger unit or construction. If, from a purely form-driven perspective, all uses of *als* 'if' had been included, it would have been even less likely than in the current approach that their types of uses of the conditional conjunction proposed in the literature were found. This brings us back to the suggestion that in future research on conditionals in Dutch, constructions beyond *als*-conditionals should be included, because, as discussed earlier in Verhagen's (forthcoming) terms, it is not warranted that corresponding conceptual meanings in different languages have similar or comparable formal features, and it is neither said that they have the same meaning boundaries. This, according to Verhagen, leads theorists to continuously redefine the categories, and/or to introduce additional ones. For example, the partitional results in section 6.6 did show signs of resumption being related to conditionals used for epistemic inferences (i.e., consequents presenting conclusions based on information in antecedents), but the overall results suggest that the grammatical features of conditionals distilled from the literature on English conditionals provide insufficient means for discovering implicatures of unassertiveness and connectedness in Dutch conditionals.

### 7.3.5 Conclusion

In this study, I attempted to refrain from projecting top-down classifications on corpus data (see section 7.3.2), accepting pre-defined types of conditionals (see section 7.3.3), and from accepting universal categories in a language-specific corpus study (see section 7.3.4). By using a bottom-up corpus analysis, I sought a balance between ('opportunistically') using features defined on the basis of another language on the one hand, and not taking those features at face value on the other. This has, in my opinion, provided, among the results summarised in section 7.2, the valuable insight that *als*-conditionals, like their English counterparts, conventionally express meanings of unassertiveness and connectedness, while their distributions of grammatical features appear to provide limited grounds only for licensing of more specific generalised implicatures. The implication for future research on conditionals, both in Dutch and in other languages, then, is, in my view, to investigate what features other than, or in cooperation with the grammatical features included in this study, play a role in enabling language users to interpret the stance towards the situations referred to in antecedents and consequents of conditionals, and the connection between those situations.

## 7.4 Prospects: an argumentative approach

### 7.4.1 Introduction

In this section, I offer prospects on combining logical and usage-based analyses of natural language phenomena.[4] As I hope to have shown, combining truth-conditional and non-truth-conditional analyses of conditionals enabled the identification of clear meaning aspects to be studied in detail. Of course, both types of analyses are not new, and have been studied in tandem since at least the introduction of Grice's (1975) framework of implicatures. However, having discussed a large number of studies on conditionals, many studies swiftly dismiss one of the approaches by either suggesting the non-applicability of truth-conditional analyses to actual language use, or by implicitly or explicitly discarding types of use of conditionals *a priori*. In short, the two types of analyses are often presented as fundamentally different and incompatible. Although, in chapter 2, I chose to focus on the non-truth-conditional meaning of conditionals, in turn reducing the attention for their truth-conditional aspects in the analyses in later chapters, these latter aspects were discussed in detail and explicitly used for identifying the implicatures of unassertiveness and connectedness, and the conventional meanings licensing them. In this section, therefore, I would like to suggest and explore an approach which does not presuppose the aforementioned incompatibility. In section 7.4.2, I will outline the general approach, and in section 7.4.3, the approach is applied to conditionals. In section 7.4.4, a brief conclusion is drawn, before offering some final remarks in section 7.5.

### 7.4.2 An argumentative approach to language

In chapter 2, it was shown how, on the one hand, a number of philosophical, pragmatic and linguistic studies of conditionals often quickly dismiss of truth-conditional analyses of conditionals, as do, for example Edgington (1986), Bennett (2003, Chapter 3), Akatsuka (1986), Mayes (1994, pp. 451–452), Sweetser (1990, Chapter 5), Wierzbicka (1997), Cruse (2000, p. 9). In the same chapter, we saw how, on the other hand, formal semantic studies often do not incorporate results from usage-based studies, and discard certain uses of conditionals *a priori*, such as pragmatic or metalinguistic conditionals (e.g., von Fintel, 2011, p. 1517; Sanford, 1989, p. 5). In this dissertation, I combined both types of analyses to arrive at two clearly identifiable meaning aspects of conditionals, namely their unassertiveness and connectedness. Here, I would like to address the merits of combining formal and functional approaches by offering further thoughts in terms of an argumentative view on language use.

[4]Parts of this section were previously published in Boogaart and Reuneker (2017).

Boogaart and Reuneker (2017) offer a discussion and an application of Verhagen's (2005) argumentative approach to grammatical constructions. This argumentative approach views language, and communication at large, in terms of the cognitive coordination between two subjects of conceptualisation.[5] In the approach, three dimensions of language use are distinguished: a descriptive dimension, a subjective dimension, and an intersubjective dimension. On the descriptive dimension, at the level of 'objects of conceptualisation', language is analysed as a referential tool, i.e., language is seen as a linguistic means for exchanging information about the world. Ducrot's (1996) example below (cited by Verhagen, 2005, p. 11) is, in this sense, a purely descriptive expression, which can be described truth-conditionally, i.e., knowing the meaning of [(1)] equals knowing under which conditions the sentence is true (see section 2.3), i.e., knowing when there are indeed seats in the room.

(1) There are seats in the room. (Ducrot, 1996, p. 42)

As Jackendoff (2002, p. 294) argues, such an approach sets out to 'explain how linguistic expressions say things about the world'. While it cannot be denied that this is an important function of language, cognitive linguists have questioned whether the descriptive dimension can truly provide the semantics of linguistic items. Moreover, describing the world may not be the primary function of language use.

Cognitive linguists starting with Lakoff (1987) have pointed out that, instead of expressing 'things about the world', linguistic utterances tell us how the speaker conceives of, or construes, the world. Taking into account this subjective dimension of language use, i.e., the level of 'subjects of conceptualisation', one and the same situation in reality, such as that of seats being in a room, may be presented in different ways, using different words or grammatical constructions, as in (2) and (3), presenting only two of many alternatives.

(2) Seats are standing in the room.

(3) The room has seats.

It is hard to see how these alternative phrasings of (1) correspond to different truth-conditions, and yet one would like to be able to represent the semantics of the presentative *there*-construction in (1), the effect of adding a progressive construction and a posture verb in (2), and the effect of taking the room rather than the seats as a 'starting point' for the sentence in (3). In the words of Langacker (2008, p. 55), 'every symbolic structure construes its content in a certain fashion'. In line with the account presented in chapter 2, we can see how such meaning aspects can be described in terms of conventional, albeit non-truth-conditional meanings. Such meanings of linguistic elements, then, are to be identified with different construals of the world rather than with

[5] For an extension of the approach incorporating multiple viewpoints of speaker, hearer and other relevant agents, see van Duijn and Verhagen (2019).

references to that world (Langacker, 1991, pp. 1–2). This type of analysis thus shifts from focusing on reference and truth-conditions at the level of objects of conceptualisation, to construal and subjectivity at the level of subjects of conceptualisation.

When one thinks about the reasons for spending cognitive effort on producing linguistic expressions, however, neither a descriptive, nor an exclusively subjective analysis will suffice. Why would a speaker present her description or conceptualisation of (a) reality, as in (1), to a hearer in a linguistic utterance, if not to achieve certain effects with that utterance? This was also the point made by Ducrot (1996) in his discussion of the example in (1), and in view of this question, Verhagen (2005) proposes a modified version of Langacker's account, in which, next to the descriptive and the subjective dimension of language, an intersubjective dimension is included. On this dimension, a linguistic usage event consists of the speaker inviting the hearer to change his cognitive system by drawing inferences evoked by the linguistic utterance used, and to adjust the common ground accordingly. This 'cognitive coordination', in other words, views uttering a linguistic expression as an invitation from a speaker to a hearer to construe an object of conceptualisation in a certain way (cf. Langacker, 1987), and consequently offers an incentive to update the common ground with the inferences that follow from this specific conceptualisation of reality. Such inferences at the subjective level (S), rather than the linguistically coded, descriptive content of the utterance, at descriptive or objective level (O), constitute the point of the utterance. In the argumentative approach to language as developed most notably by Anscombre and Ducrot (1989) and Ducrot (1996), the intersubjective relation between speaker and hearer is said to be of an argumentative nature, because utterances are meant primarily to invite the hearer to draw certain conclusions. Utterances are thus conceived of as arguments for conclusions, or as means to invite the discourse participant to draw certain inferences. Intersubjectivity, in this view, relates to the participants in linguistic communication and consists of the mutual influence they exert on each other's cognitive systems (cf. Verhagen, 2005, p. 26).

Verhagen (2005) adds to this view a specific linguistic perspective, and shows how grammatical phenomena such as negation and complementation can operate directly on the intersubjective dimension (i.e., 'constructions of intersubjectivity'). When language is seen as a social instead of an informational tool, the focus of analysis automatically shifts from its referential properties and its subjective, perspectival properties to its intersubjective dimension: a speaker expresses (1) not to describe a room containing seats, or only subjectively to construe this situation, as exemplified in (2) and (3), but to invite an interlocutor to draw inferences about, for instance, the comfort provided in the room. Many grammatical constructions exhibit an argumentative orientation restricting the inferences the hearer is supposed to make, and an argumentative strength providing weaker or stronger arguments for these conclusions, an idea prominent also in the stylistic approach to language and argumentation (see e.g., van Leeuwen, 2012; Stukker & Verhagen, 2019; Boogaart,

Jansen & van Leeuwen, 2021; van Haaften & van Leeuwen, 2021). Boogaart and Reuneker (2017) show how this approach can be extended to modality and conditional constructions, and with respect to the latter, we can now fill in some of the details, to see how this could come to fruition in future research.

### 7.4.3 An argumentative approach to conditionals

In the analysis of conditionals in terms of material implication as discussed in chapter 2, the truth value of proposition $q$ expressed in the consequent depends on that of proposition $p$ expressed in the antecedent. In example (4) from chapter 2 repeated below, this warrants logically valid conclusions like *modus ponens*, as in (5), and *modus tollens*, as in (6).[6]

(4) If it rains, the road is wet.
$p \rightarrow q$

(5) 'It rains. Therefore, the road is wet.'
$p \therefore q$

(6) 'The road is not wet. Therefore, it does not rain.'
$\neg q \therefore \neg p$

This truth-conditional analysis concerns the descriptive or objective dimension of language as discussed above. However, as the analysis in chapter 2 showed, it prohibits any conclusions for which additional information is needed, i.e., information beyond the information expressed in propositions $p$ and $q$. The conclusions in (5) and (6) must therefore be seen in terms of the dependence of the truth value of $q$ on that of $p$ ($p$ is sufficient and non-necessary for $q$), i.e., as purely logical conclusions. As this dependency does not concern any connection between $p$ and $q$, such as a causal connection between rain and the road being wet, one can readily infer from the example in (4), the argument would be equally valid for an example in which $p$ stands for 'Paris is the capital of France', and $q$ stands for 'two is an even number' (cf. Sweetser, 1990). Limiting an analysis to this level results, as we saw in chapter 2, in discrepancies between what conditionals mean from a logical perspective, and how they are used in natural language.

By using a conditional, a speaker conventionally expresses unassertiveness and connectedness, and licenses further, more specific implicatures. Implicatures of unassertiveness, such as uncertainty in (7) below, or counterfactuality in (8), are used in reference to situations in the world, but the stance towards these situations is implicated by the speaker, which shifts these meaning aspects from the sole level of objects of conceptualisation, towards the subjective level of language use.

[6]For a recent experimental account showing that people make significantly more modus tollens inferences in case of conditionals whose consequents appear obligatory rather than 'factual' (i.e., not obligatory), see Cramer, Hölldobler and Ragni (2021).

(7) If it rains, the road is wet.
$\widehat{\approx}$ $p$ is not asserted.
+> 'It may or may not be raining.'

(8) If it were raining, the road would be wet.
$\widehat{\approx}$ $p$ is not asserted.
+> 'It is not raining.'

Whereas the uncertainty implicature in (7) is still closely related to the O level, it can be argued that the counterfactual implicature licensed by *were* in (8) may be more closely situated at the S level, as it expresses epistemic distancing of the subject from the objects described or construed.

Implicatures of connectedness can be analysed in a similar fashion. For example, in (9), we see a temporal ( $M_4$+>) and a causal implicature ( R+>), and an implicature of conditional perfection ( +>).

(9) If it rains, the road will be wet.
$\widehat{\approx}$ $p$ is not asserted.
+> 'It may or may not be raining.'
$\widehat{\approx}$ $p$ and $q$ are connected.
$M_4$+> 'Rain precedes the road getting wet.'
R+> 'Rain causes the road to get wet.'
+> 'Only rain causes the road to get wet.'

These implicatures are licensed by grammatical form, world-knowledge and context, and therefore, they rely on the shared knowledge of the subjects of conceptualisation (i.e., the common ground; see above). The connection itself, however, still directly concerns the O level, or the world referred to. When compared to, for instance, an inferential connection, as in (10), we see how the implicature of connectedness is less directly related to the objects of conceptualisation.

(10) If he is a bachelor, he must be male.
$\widehat{\approx}$ $p$ is not asserted.
+> 'He may or may not be a bachelor.'
$\widehat{\approx}$ $p$ and $q$ are connected.
$M_4$+> 'Knowing he is a bachelor precedes knowing he is male.'
R+> 'Knowing he is a bachelor enables the conclusion that he is male.'

In this type of conditional, described as the 'true type' of conditional in accounts by the ancient Greeks (cf. Kneale & Kneale, 1962; see section 2.3), as the 'ideal conditional' or 'completely determinate conditional' (cf. Gildersleeve, 1882; Johnson-Laird, 1986; see section 3.2), the consequent necessarily follows from the antecedent. On a purely descriptive level, as was the case with the examples above, the connection between $p$ and $q$ is one of sufficiency, (i.e., $p$ is sufficient, but not necessary for $q$), but in terms of the construction used, lexical meaning and shared world knowledge, the speaker presents the antecedent

as connected to the consequent, and implicates that knowing an individual being is a bachelor is an argument for concluding that he must be male. In such epistemic conditionals, the relation between antecedent and consequent is less direct, and primarily construed at the level of subjects of conceptualisation. The degree of intersubjectivity is higher in this case, as the speaker construes a train of thought by construing one object of conceptualisation (knowledge of the concept 'bachelor') as an argument for another object construed as a conclusion ('he must be male'), and, consequently, the connection depends on shared knowledge to a greater extent. Comparing (9) and (10), then, shows how implicatures of connection between antecedent and consequent can be situated at different levels of intersubjectivity. Not only causal and inferential implicatures of connectedness can be accounted for this way, but also those types 'getting short shrift' in formal analyses (see references above and in section 2.2), such as the speech-act conditional in (11) below.

(11) If you need any help, my name is Ann. (Dancygier & Sweetser, 2005, p. 113)
$\approx$ $p$ is not asserted.
+> 'You may or may not need any help.'
$\approx$ $p$ and $q$ are connected.
$M_4$+> 'Needing help precedes the relevance of (indirectly) offering help by mentioning my name.'
R+> 'Needing help provides the context for the indirect offer of help.'

As this example implicates a pragmatic connection between the antecedent and the consequent, which is concerned with the discourse situation by definition, the connection depends strongly on the intersubjective level, that is, relating a felicity condition in the antecedent to a speech act in the consequent or commenting on the linguistic form of an utterance.[7]

The example in (11) also shows how, at the intersubjective level of language use, it may be feasible to include in the model not only the individual propositions $p$ and $q$, and the implicatures of unassertiveness and connectedness already mentioned, but also entirely context-dependent particularised implicatures such as in (12).

(12) A: (looking out of the window) It is raining!
B: If it rains, the road is wet.
...
+> 'Let's drive home now before the road gets too slippery.'

The implicature in (12) depends strongly on context, and constitutes, as discussed above, the very goal of uttering the conditional, i.e., B's utterance is seen, at the speech-act level, as an invitation to the discourse participant to draw the inference that 'driving home now' is the desired action. In this respect, all examples of conditionals in this section operate on this dimension.

[7]Note, however, that boundaries between dimensions of language use should be drawn with caution; see also section 6.2.

When conditionals are seen as complete utterances, they form arguments for drawing certain conclusions, i.e., they are seen in light of what what the speaker is trying to communicate. In line with the hypothesis by Mercier and Sperber (2011, 2019), the evolutionary roots of reasoning, including the use of conditionals, may be primarily argumentative in this sense. This also reflects the findings by Fillenbaum (1986) and Evans (2005), who show that conditionals are often interpreted as inducements or advice, and as such are understood primarily by their perlocutionary effect (cf. Austin, 1962). Moreover, from the perspective of theories of argumentation, the conditional used by speaker B in (12) clearly has the status of a 'connecting premise' (see e.g., van Eemeren and Snoeck Henkemans, 2017, pp. 50–51; see also section 1.1 and references therein), motivating why 'it rains' counts as an argument for driving home now. This suggests that further integration of semantic, pragmatic and argumentative approaches to conditionals may not only be possible, but also beneficial for our understanding of these crucial devices in human reasoning and argumentation.

The argumentative approach to grammatical constructions proposed by Verhagen (2005) may, in future research, enable us to combine the truth-conditional with the non-truth-conditional analyses discussed in chapter 2 by taking into account both the descriptive and the subjective dimension of language use. Whereas the truth-conditional analysis of conditionals pertains to the object level, the generation of implicatures of unassertiveness and connectedness resides at at different positions on the subjective dimension, given the specific types of unassertiveness and connectedness implicated. Furthermore, as the subjective dimension is expanded into the intersubjective dimension of language use, this approach includes not only the construal of objects of conceptualisation by the subjects, but also the interactional relation between subjects of conceptualisation, at which implicatures are licensed by the uttering of a conditional as whole. This approach can only be sketched here as a possible, yet promising approach for future research on conditionals, of which the first step should be, in line with this dissertation, to test its merits on actual language data.

### 7.4.4 Conclusion

What I attempted to show in this section is an illustration of an approach in which it is possible to move beyond the descriptive and the subjective dimension of language by adding an intersubjective dimension. This may in turn be fruitful in reconciling fundamentally different analyses by combining the levels of both objects and subjects of conceptualisation. As we saw before in section 1.3, Israel (2011, p. 19) argues that formal semantics may have paid too little attention to non-truth-conditional meaning aspects, whereas cognitive linguistics may have done the same with objective and referential aspects of meaning, while 'both perspectives may benefit from the insights of the other'. As such, an intersubjective approach to conditionals may, in future research, include both truth-conditional contributions, and pragmatic notions such as 'desirability'

(Akatsuka, 1986), the speaker's control over the consequent (Newstead, 1997; Ohm & Thompson, 2004; Verbrugge et al., 2004), causal notions of consequence (Schulz, 2011), various speech acts, such as promises and threats, performed using conditionals (Fillenbaum, 1986; Haigh et al., 2011), persuading and dissuading (Thompson, Evans & Handley, 2005), conditional probability (Evans, Handley & Over, 2003), and the overall 'social and communicative function of conditional statements' (Evans, 2005). Different conditional constructions, from *if* and *unless* (Declerck & Reed, 2000) to conditional pseudo-imperatives (Clark, 1993; Fortuin & Boogaart, 2009) and conditional use of prepositional phrases (Reuneker, 2016), may, in these terms, form their own 'communicative niches' specialising in certain implicatures on various levels of the intersubjective dimension of language use. In contrast to focusing solely on antecedents, consequents, and their connections, this approach enables the analysis of a conditional construction as a whole, including their functions in discourse.

Given that this section provided only a rough sketch of an argumentative approach to conditionals, several questions remain. It remains unclear for instance whether and at what level of the model the notion of different types of implicature can be accommodated exactly. Furthermore, I suggested placing the types of connections on a continuum between objects and subjects of conceptualisation, and it deserves further attention to what extent the degrees of what was called 'semantic integration' in chapter 3 can indeed be mapped onto these dimensions. I hope, however, that this tentative outlook may serve as a starting point for further analysis, and I hope to have at least made plausible that, rather than viewing truth-conditional and usage-based or functional analyses as separate and incompatible accounts, the proposed approach to conditionals may accommodate both. Although subfields will undoubtedly continue in their own directions, such a combined perspective may enable a next step in the analysis of conditionals as constructions used in actual linguistic communication.

## 7.5 Final remarks

This dissertation focused on conditionals in Dutch, and the relation between their grammatical form and implicatures of unassertiveness and connectedness. It provided insights not only into the form and meaning of conditionals, but it also provided a usage-based account of conditionals as used in spoken and written language from different registers. The annotation of language data was discussed in detail and the resulting guidelines and procedures contribute to corpus linguistics in general, and to the data-driven study of conditional constructions in particular. Furthermore, this dissertation has provided overviews of classifications of conditionals into several types, and of the feature distributions of conditionals in Dutch. Finally, this dissertation has presented a novel approach to researching conditionals as grammatical constructions by using and evaluating several types and implementations of cluster analysis.

As mentioned at the start of this dissertation, and repeated at the start of this chapter, conditionals are important means for expressing our thoughts about possible states of the world. They enable us to look ahead, plan actions, think back and formulate alternative scenarios. Further study of conditionals is important for increasing our understanding of these cognitive and communicative abilities. With this study, I hope to have contributed to this pursuit by providing insight into the ways language users express conditional thoughts, and into the role of semantics, pragmatics and grammar.