

English conditionals and counterfactuality

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February 2005

1. Introduction to conditionals.

1.1. Definition. Types of conditionals.¹

Conditionals are linguistic expressions that make the occurrence of one circumstance or event dependent on the occurrence of another. They are characteristically expressed by means of syntactically complex forms which consist of a main clause, the *if*-clause (called *protasis*) expressing the condition, and a subordinate clause (called *apodosis*), which expresses the dependent circumstance or event. Conditional sentences are therefore typically introduced by *if* (*If you come, you will be able to see the new DVD player I have bought*), although there may be other constructions with conditional meanings (e.g. *You will be able to see the new DVD player when you come*).

Celce-Murcia and Larsen-Freeman (1999: 540-570) draw our attention to the fact that conditional sentences tend to be characterized in grammar books by reference to labels based mainly on the consideration of grammatical structure, oversimplifying instruction and introducing three rigid forms that fall under the simple traditional labels of “type 1”, “type 2, and “type 3”, corresponding to *future conditional* (*If I have time, I will go on holiday*), *present conditional* (*If I had time, I would go on holiday*) and *past conditional* (*If I had had the money, I would have gone on holiday*). Alternatively, they propose a classification based on the main semantic relationships that can be expressed by conditionals. These are *factual* (which can be *timeless*, i.e. generic or habitual, or

¹ Conditionals and conditionality in language has been studied from many perspectives before. In this section I give a quick overview of the most representative approaches, but we should not forget others. Athanasiadou and Dirven (1995: 610) remind us how conditionality has been studied by both logicians (Hilpinen 1981, Harper 1981) and linguists (Schachter 1971, Lauerbach 1979, Davies 1979, Traugott *et al.* 1986), or studied in connection with causality (Geis and Zwicky 1971), temporal reference (Comrie 1986), and pragmatics (Haiman 1978, Haegeman 1984, König and Van der Auwera 1988). More concretely, there has been emphasis on a perspective that is not truth-conditional but linguistic and pragmatic (Akatsuka 1986), and there has been interest in the discourse function of conditionals (Traugott *et al.* 1986), conditionals as topics (Haiman 1978), conditionals as threats and promises or as concessives (Van der Auwera 1986), conditionals as warnings and threats, pieces of advice, extorsions and negotiations, offers and proposals (Wunderlich 1977), etc. The main collective volumes dealing with conditionals up to now are Traugott *et al.* (1986), the special issue of the *Journal of Pragmatics* number 7 (1983), and Athanasiadou and Dirven (1997a).

time-bound, with implicit or explicit temporal reference), *future* or *predictive* (with strong condition and result, or with different degrees of probability of condition or result), and *imaginative* or *subjunctive* (either *hypothetical* or *counterfactual*, both being possible in the present or in the past).² While this classification seems to be more adequate for rendering the semantic diversity of conditionals, it still seems to be insufficient as a comprehensive list of categories, since it falls short of taking into account the peculiar pragmatic functioning of many conditionals. In this respect, a more adequate classification would be Sweetser's (1990: 113-144) proposal.

Sweetser distinguishes three main types of conditionals: *content conditionals*, *epistemic conditionals* and *speech-act conditionals*. The three types are illustrated by the examples in (1).

[1]

- a. If Mary goes, John will go. (Sweetser 1990: 114)
- b. If she's divorced, (then) she's been married. (Sweetser 1990: 116)
- c. If it's not rude to ask, what made you decide to leave IBM? (Sweetser 1990: 118)

Content conditionals, as in (1a), are conditionals in which the realization of the event or state of affairs that is presented in the protasis is a sufficient condition in the real world for the realization what is expressed in the apodosis. These conditionals take place in a content or "real-world" domain. *Epistemic conditionals*, on the other hand, as in (1b), take place in an epistemic domain: they deal with knowledge, not with real-world facts. In this type of conditional, the knowledge of the truth of what is expressed in the protasis is a sufficient condition for asserting the truth of the event or state of affairs presented in the apodosis. Finally, in *speech-act conditionals*, as in (1c), what is expressed in the protasis is a necessary condition for the speech act performed in the apodosis.

² Another classification on semantic grounds is proposed in Leech and Svartvik (1975), with two types of conditionals:

- (a) *Open conditionals* (e.g. If prices go down, I'll buy a new car)
 - (b) *Hypotheticals* (e.g. If prices had gone down, I would have bought a car)
- (a) would correspond to conditionals of traditional type 1, and (b) to conditionals of traditional types 2 and 3. This classification has fewer distinctions and is therefore of little use for our purposes.

A classification of conditionals that seems more suitable for our purposes is the one presented by Athanasiadou and Dirven (1996, 1997, 2000), which distinguishes again three main types that do not correspond closely to those put forward by Sweetser. These are *hypothetical conditionals*, *course-of-events conditionals*, and *pragmatic conditionals*. In *hypothetical conditionals* what is expressed in the apodosis is fully dependent on the realization of what is expressed in the protasis. In *course-of-events conditionals*, based on the observation of the course of events in the real world, the dependence is not so strongly established as a causal relation, and the two events referred to are construed as co-occurring. These two types focus on the actual content of the conditional construction. *Pragmatic conditionals*, however, are more concerned with establishing conditions that relate to some aspect of the actual speech situation.

If we look at the examples in (2), (2a-b) are hypothetical conditionals, (2c-e) course-of-event conditionals, and (2f-i) pragmatic conditionals.

[2]

- a. If it rains, we'll stay at home. (Athanasiadou and Dirven 2000: 1)
- b. If I was bald now, I would shoot myself. (Athanasiadou and Dirven 1997a: 73)
- c. If there is a drought, the eggs remain dormant. (Athanasiadou and Dirven 2000: 1)
- d. If a child has a fever with a skin infection (...), the infection is spreading seriously and should be considered a real emergency. (Athanasiadou and Dirven 1995: 623)
- e. If there is more than one contributor, either sort out separate responsibilities of pool the family income. (Athanasiadou and Dirven 1995: 626)
- f. If there was one thing Julie couldn't be doing with, it was anonymity. (from COBUILD corpus; Athanasiadou and Dirven 2000: 9)
- g. If Arthur Williams was involved in the fraud or the murder, then he too had another identity. (from Brown corpus; Athanasiadou and Dirven 2000: 10)
- h. If you're hungry, there's food in the fridge. (Athanasiadou and Dirven 2000: 14)
- i. If I may say so, that's a crazy idea. (Sweetser 1990: 118)

This examples are characteristic of the different subtypes that Athanasiadou and Dirven identify: Concerning *hypothetical conditionals*, (2a) is an example of a *potentially real hypothetical conditional* and (2b) is an example of an *unreal hypothetical conditional* (i.e. a counterfactual conditional). As regards *course-of-event conditionals*, (2c) is an example of a *descriptive conditional*, because it contains a reference to or a description of two observed events, (2d) is an example of an *inference conditional*, i.e. a conditional which consists of “a descriptive *if*-clause and a main clause which is based on inference rather than on observation, but which also ‘implies’ an actual situation” (Athanasiadou and Dirven 1995: 623), and (2e) is an example of an *instructive conditional*, in which the main clause denotes an instruction dependent on the occurrence of what is denoted in the subclause.

Examples (2f) to (2i) are *pragmatic conditionals*, of which there are four subtypes. (2f) is an *identifying conditional*, because it has one part which is the identifying description and another one which is the identifier, (2g) is an *inferential pragmatic conditional*, because there is an inferential link between the two parts, (2h) is a *discourse conditional*, since it links the consequent to a pragmatic factor in the conversation which is normally hearer-oriented, and (2i) is a *metacommunicative conditional*, because it points out under what circumstances the speech-act force in the antecedent is relevant. For Athanasiadou and Dirven (1997a) identifying and inferential pragmatic conditionals can be grouped together as *logical conditionals* and discourse and metacommunicative conditionals together as *conversational conditionals*.

A characteristic feature of Athanasiadou and Dirven’s classification of conditionals is the gradation that can be established along the different types and subtypes. Hypothetical conditionals have the highest degree of dependency between the *antecedent* (protasis) and the *consequent* (apodosis), and meta-communicative pragmatic conditionals show the lowest degree. In between there is a scale of progressive dependency, which we show in Figure 1:

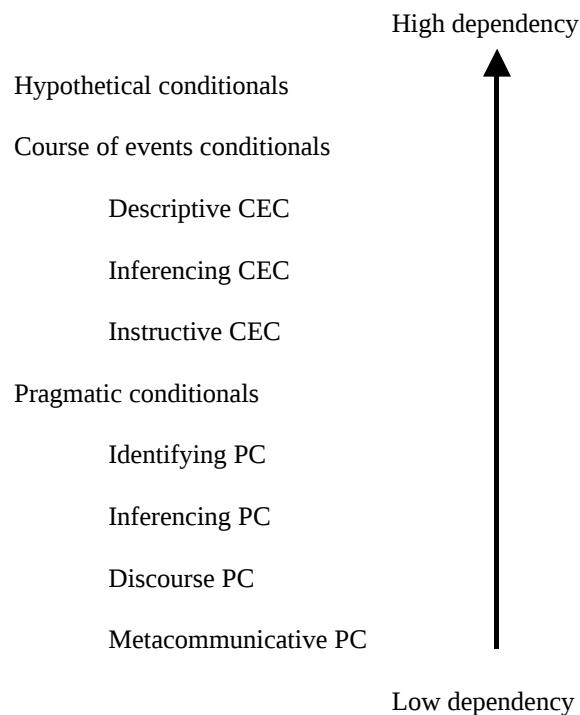


Fig. 1. Scale of dependency between antecedent and consequent in conditionals (adapted from Athanasiadou and Dirven 2000: 7, Table 2)

1.2. The development of *if*-conditional structures in English.

From a historical point of view, it is interesting to consider what kind of conditional clauses we have in Medieval English. Concerning Old English, Mitchell and Robinson (1992) make a classification based on three types: (1) Conceded and denied conditions, (2) open conditions, and (3) unfulfilled or rejected or imaginary conditions. All three types are characterised formally by the use of *gif* 'if'. However, *þær* 'if, there, where' can be used for type 3 conditionals.

The examples below show the differences among them:

[3]

- a. Ne þurfe we us spillan, gif ge spedað to þam. (*The Battle of Maldon*, l. 34)
- b. Gyf þu þat gerædest, þe her ricost eart,
(...)

- we willaþ mit þam sceattum us to scypte gangan,
- c. on flot feran, and eow friþes healdan. (*The Battle of Maldon*, l. 36-41)
 - d. sec, gif þu dyre. (*Beowulf*, l. 1379)
 - e. ac hit wære to hrædlic, gif he ða on cild-cradole acweald wurde (...)

(3a) and (3b) belong to type 1. Both clauses have the indicative. (3c) may belong to type 2 (although it could be used as a type 1 clause), and here the ‘if’ clause uses the subjunctive because this is one of those cases in which the main clause is imperative or expresses a wish in the subjunctive. More concretely, in (3c) *sec* is an imperative. (3d) belongs to type 3 and has a preterite subjunctive in both clauses, as is usual in this type of conditionals.

There were also other means to express conditionality in Old English, as in present-day English (uses of *būtan*, *nymþe*, *nemne* or *nefne*, formulas for expressing ‘on condition that’, VS order, hypothetical comparisons, etc. cf. Mitchell and Robinson 1992: pp. 98-99), as is the case in present-day English, but they were far less used. There have always been alternative connective devices for the expression of conditionality. Traugott (1997) mentions how *but* (< OE *butan*) could have that function in Old English and Middle English, and then *unless* took over as an alternative form. In any case, the prototypical conjunction for the conditional construction has always been *if* (< OE *gif*).

Mitchell and Robinson’s classification does not seem to be very useful on semantic grounds if we compare it to the classifications that we have shown here, but it can nonetheless be interesting because it pays attention to the mood of the verb, and especially to whether the subjunctive should be used or not instead of the indicative. The subjunctive mood is normally related to hypotheticality, but in present-day English the subjunctive is no longer operational, especially in the past, which means that modality can be a valid alternative resource for the expression of hypotheticality. Type 3 conditionals need to express hypotheticality, which is the reason why they used the subjunctive mood and why they could use a different conjunction, *þær*, based on a spatial metaphor.

2. Frameworks for the study of conditionals

2.1. Logic and conditionals

2.1.1. Branching paths and conditional logic

The interpretation of conditionals in logical systems can be very different from what we normally find in the everyday use of language. Traditionally, a conditional is assumed to be any sentence of the form If A (then) B, where A is the antecedent and B the consequent. Here are three examples:

[4]

- a. If there was war food became scarce.
- b. If there had been war, food would have become scarce.
- c. If there is war, food will become scarce.

Logicians have always tried to determine under what conditions a conditional is true. A and B must have some sort of truth value, and it is somehow assumed that the conditions for the truth³ of the conditional are those of material implication, where A materially implies B just in case A is false or B true ($A \rightarrow B$ if $\neg A \vee B$).

According to this interpretation, most arguments receive an adequate interpretation. However, there may be some strange cases. If we interpret ‘if’ as material implication, the argument whose premiss is ‘I did not open the door’ and whose conclusion is ‘If I opened the door my house would burn’ is valid. Some philosophers say that this does not show that the conditional is false, but rather that we should not assert it, since it suggests something false. The opening of the door is not necessarily connected to the burning of the house in the real world.

There is also another approach that appeals to possible worlds: the truth of a conditional is the truth-value of its consequent at the possible world most similar to the

³ The truth-conditions of an indicative sentence are the conditions under which it would be true, or false: e.g. ‘I’m tired’ is true if the speaker is at the time of speaking tired, and false otherwise. The truth-conditions of a word or phrase are its contribution to the conditions under which an indicative sentence containing it would be true, or false: e.g. any sentence ‘John is tired’ is true if ‘John’ in it refers to somebody who is tired, and false otherwise.

actual world in which its antecedent is true (see next section for a more detailed explanation). In this case, the burning of the house is false even if I do not open the door, since, in the most similar world to the one in which I do not open the door, the house does not burn.

There is also another way of interpreting these cases. In this approach, the criterion is acceptability rather than truth: If A then B is acceptable provided that the conditional probability of B given A is sufficiently high. It can be objected that the law of contraposition - If A then B entails If not-B then not-A - fails. Contraposition poses no problems in examples like (4a), which is not the case with examples. In this respect, Dudman (1990) tells us that the only real conditionals are (4b) and (4c). However, they are not made of propositions. They are simple messages: they have a subject and their conditional clauses are constituents of their predicates, rather than propositions. They cannot be analysed in terms of true or false values. (4a), on the other hand, is a compound message and follows logical laws. In fact, it is an example of a sentence classified by Athanasiadou and Dirven as a course-of-events conditional.

2.1.2. Modal logic and possible worlds

A logical approach that has been very useful in the interpretation of conditionals is the notion of *possible world*. The notion is an intuitively clear one: there are multiple possible worlds, with counterparts of all the entities of this world, so that whenever we postulate a hypothetical situation, then that situation is true in one of the alternative worlds. This approach explains hypothetical conditionals and epistemic probability very easily. Hypotheticality has to do with situations that are true in other worlds. Whenever we set up a hypothetical condition, we are assigning truth to that condition in another world.

The notion of possible world is normally credited to Leibniz, but it was further developed by Saul Kripke and others, as a device for the semantic interpretation of modal logic. Modal logic uses the basic vocabulary of logic, but it adds to it two other symbols: \diamond , which is read as ‘possibly’ or ‘it is possible that’, and \Box , read as ‘necessarily’ or ‘it is necessary that’, so that, for instance, $p \Box \rightarrow q$ is to be read as ‘ p necessarily implies q ’. In the logical approach to conditionals, there has been extensive usage of explanations based on modal logic. However, *conditional* is synonym to

*counterfactual*⁴ in this context, something that we should remember when we examine natural-language counterfactuals later on. The classical studies of logicians (Lewis, 1973, 1979; Stalnaker, 1968) normally refer to conditionals as counterfactuals, and they approach their study appealing to similarity relations between possible worlds. Stalnaker explicitly mentions a *selection function* f , “which takes a proposition and a possible world as arguments and a possible world as its value (...). The assertion which the conditional makes, then, is that the consequent is true in the world selected. A conditional is true in the actual world when its consequent is true in the selected world” (Stalnaker, 1968: 103). It was also “required that the world selected differ minimally from the actual world” (Stalnaker, 1968: 104), so that the selection was made according to an ordering of possible worlds based on their resemblance to the base world.

Lewis’s approach to ‘counterfactuals’ is also based on the similarity across possible worlds. The notion of similarity is postulated in Lewis (1975) in terms of a system of spheres, so that, for any possible world, all other possible worlds can be placed on spheres that are centred on that world. The differences in size of the different spheres reflect different distances between other worlds and the central world, which can be considered to be a measure of similarity. As Tooley (2002: 2) argues, the ordering that Lewis proposes is based on overall similarity, but similarity is judged by intuitive standards. Tooley presents the examples in [5], which were presented by Bennett (1974) and Fine (1975) as examples of how this approach could assign wrong truth-values.

[5]

a. If Oswald had not killed Kennedy, someone else would have.

(Bennett, 1974: 395)

b. If Nixon had pressed the button, there would have been a nuclear holocaust.

(Fine, 1975: 452)

Lewis (1986: 52) however, reacted to these examples rejecting the idea that similarity was judged in an intuitive manner. It needed a more detailed procedure. Tooley (2002)

⁴ A counterfactual is a conditional in which the antecedent is false. For modal logicians, all hypothetical conditionals can be counterfactuals because there is always the possibility of the antecedent being false. In a linguistic analysis, however, it seems more reasonable to take as counterfactuals only those conditionals which are most likely to have an antecedent that is false.

is an interesting attempt at explaining how this can be done, but it is only interesting from a logical point of view. For an analysis of natural language examples it is more useful to adopt a more flexible approach. We will therefore examine some proposals that go beyond the limitations of the logicians' paradigm, more precisely Fauconnier's mental spaces and Werth's text worlds (in section 2.2).

2.1.3. Logical inference and pragmatic conditionals.

Athanasiadou and Dirven (1997) suggested that graded truth-evaluation of conditionals (epistemic evaluation in terms of probability of occurrence) is only possible with course-of-events conditionals and hypothetical conditionals. Our position (Inchaurralde, 2002) is that at least some pragmatic conditionals are also analysable in epistemic terms. The argument runs as follows: Athanasiadou and Dirven (1997: 73) use the following diagram for course-of-events conditionals (on top) and hypothetical conditionals (below), showing different degrees of commitment to the realisation of the situation, from real to unreal, and different attitudes towards the likelihood of occurrence of the situation, from factual to highly unlikely. These two scales are only applicable to these two types of conditionals. Pragmatic conditionals cannot be put in this scale. However, at least identifying and inferential pragmatic conditionals can also be explained in logical terms.

<i>Type of Conditional</i>	<i>Commitment to the Realisation of the situation</i>	<i>Attitude towards likelihood</i>		
Course-of-Events Conditional	REAL	factual	1) If he goes on Fridays, I go too	
myself Hypothetical Conditional	Un-marked	close to factual	2) If he goes, as is usually the case, I will go too	
		distancing from factual	3) If I go bald, I will shoot myself	
		POTENTIALLY	4) If I do go bald, I will shoot myself	
	Marked	POTENTIALLY	not likely	5) If I went bald, I would shoot myself
		REAL	less likely	6) If ever I went bald, I would shoot myself
		UNREAL	a bit more likely	7) If I did go bald, I would shoot myself
			even less likely	8) If I should go bald, I would shoot myself
			highly unlikely	9) If I were to go bald, I would shoot myself
				10) If I was bald now, I would shoot myself
			11) If I had gone bald, I would have shot myself	

Conditionals and (non-) commitment to reality

(Athanasiadou & Dirven, 1997: 73)

In Inchaurrealde (2002), we suggested that we could use implication formulas for several types of conditionals, as shown below, in connection with the examples of [5]:

[6]

- a. *If you heat water, it boils.*
- b. *If the weather is good, we will go to the beach.*
- c. *If you know the answer, I am the king of France*
- d. *If there is somebody who knows the answer, that is me*
- e. *If the computer doesn't work well now, then there is something wrong with the configuration.*

6a. Course-of-events conditionals [CEC]:

$(A \rightarrow B) \ \& \ \exists A$

Certainty (Habitual)

‘A implies B, and not A’

Heating water (A) implies its boiling (B).

6b. Hypothetical conditionals [HC]:

$(A \rightarrow B) \& (\exists A \vee \neg \exists A)$ Probability

‘A implies B and there exists some A or there exists no A’

The weather being good (A) implies our going to the beach (B), but the weather may be good ($\exists A$) or not ($\neg \exists A$).

6c. Counterfactual conditionals:

$(A \rightarrow B) \& \neg \exists A$ Impossibility

‘A implies B and there exists no A’

Your knowing the answer (A) implies my being the king of France (B), but you don’t know the answer ($\neg \exists A$). In this case, it is a logical deduction from $\neg \exists B$, since B is impossible (I cannot be the king of France, for several reasons: there is no king in France, and I am no king).

6d-6e. Pragmatic conditionals [PC]:

6d. Identifying conditionals:

$(A \rightarrow B) \& \exists! B$ Certainty (unique instance of B)

‘A implies B and there exists only one B’

Somebody knowing the answer (A) implies that that somebody is me (B) and that that somebody exists as a unique instance ($\exists! B$).

6e. Inferential conditionals:

$(A \longleftrightarrow B) \& (\exists A \vee \neg \exists A)$ Bi-directional implication

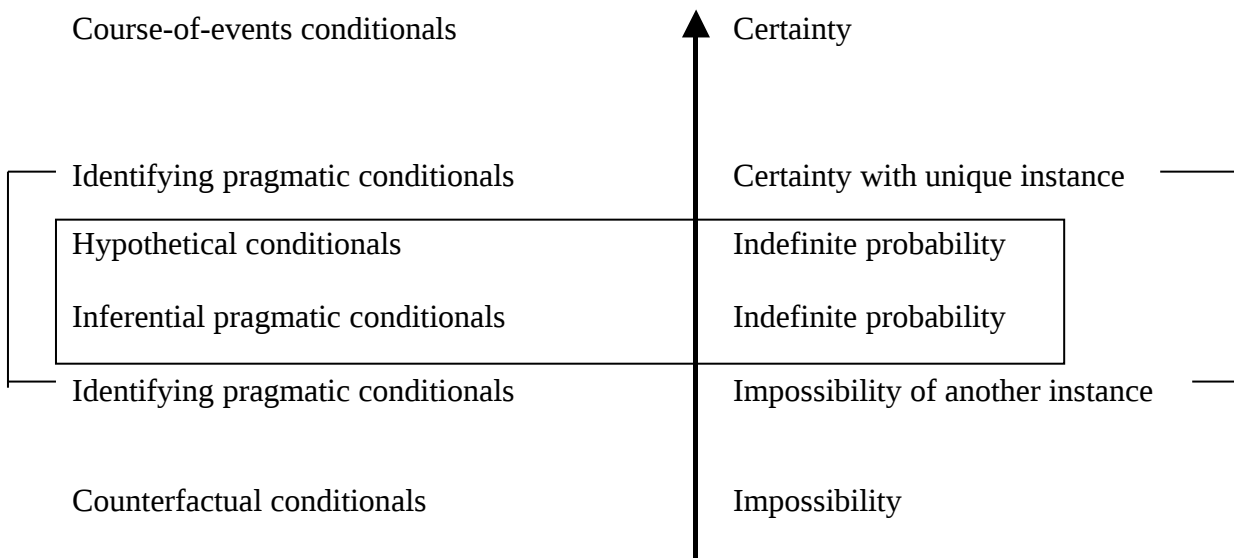
‘A implies and is implied by B and there exists some A or there exists no A’

$(A \leftarrow B) \& (\exists A \vee \neg \exists A)$ Probability

‘A is implied by B and there exists some A or there exists no A’

The computer not working (A) implies and/or is implied by there being something wrong with the configuration (B), and that is the case (\exists A) or is not ($\neg\exists$ A).

According to all this, it is possible to reformulate the scale, assigning probability to identifying and inferential pragmatic conditionals, in these terms:



Of course, this formulation can also be argued against, since there is more in pragmatic conditionals than just logical relations holding between clauses, but it helps to put identifying and inferential pragmatic conditionals in the picture, which makes comparison with other types possible in terms of epistemicity.

2.2. Mappings across spaces

2.2.1. Mental spaces

An interesting theory which can help us in analyzing conditionals is Fauconnier's (1994a, 1997) approach to discourse construction, based on *mental spaces*. For this author, "a language expression E does not have a meaning in itself; rather, it has a meaning potential, and it is only within a complete discourse and in context that meaning will actually be produced" (Fauconnier, 1997: 37). Discourse is developed as a

succession of cognitive configurations, and each gives rise to the next, pressed by context and grammar. These configurations undergo pragmatic elaboration, and the information they contain is relativized with respect to different domains or *spaces*, which are connected in a subordination relation. As a result, the spaces set up by a discourse are organized into a partially ordered lattice, similar to the branching paths that we obtain when we consider the different possibilities on the time-line. However, this space lattice does not necessarily follow a temporal path. At any given time, one of the spaces is the *base* for the system, and another space is *in focus*. Any of these two can be the reference space for constructing a new space (Fauconnier, 1997: 38). This procedure of analysis can be applied to conditionals. In the example

[7] If I were a rich man I would buy a yacht.

There exists a base space in which I exist and I am not a rich man. Another space is then built in which I am a rich man. The first space is the base space (a), and the second space is in focus (a'). Lastly, a third space is created that is related temporally to the second one (in its future), in which I buy a yacht (a''). This sentence can be represented by this diagram:

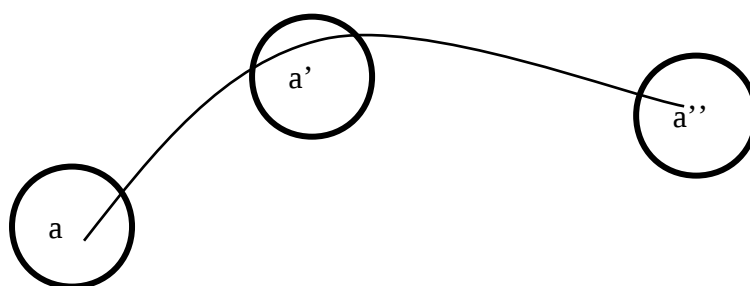


Fig. 1. Space connections.

In the example just mentioned, we used “If” in order to create a new space. This is a special grammatical device used for cognitive construction, an instance of a *space builder*. *Space builders* (Fauconnier 1997: 40-41) are grammatical expressions that open a new space or shift focus to another space; they comprise prepositional phrases (*in London, in 1989*), adverbials (*certainly, hopefully*), conjunctions (*if, when, while, since*),

subject-verb constructions (*I think...*, *Mary hopes...*), etc. Other devices used for cognitive construction are *names* (*Peter, Plato, Bill Clinton*), *descriptions* (*the postman, the man who was sitting nearby, a black cat*), *presuppositional constructions* (definite descriptions, aspectuals, clefts, pseudo-clefts, etc.) that assign cognitive structure in the form of a presupposition, *trans-spatial operators* (copulative verbs such as *be, become, remain* may work as connectors between spaces), and *identification of elements* (carried out by means of the *Access Principle*, which states that the expression designating an entity can be used for accessing a counterpart of that same entity in another space⁵). Another grammatical device for cognitive construction which Fauconnier mentions is the use of *tenses* and *moods*, which “play an important role in determining what kind of space is in focus, its connection to the base space, its accessibility, and the location of counterparts used for identification” (1997: 41). We shall come back to the consideration of tenses as space builders later on.

Once new spaces are created and linked, discourse starts to unfold and build up meaning. The construction and linkage of mental spaces is based on the following assumptions (Fauconnier, 1997: chapters 2 and 3, summary in pp. 111-112):

- There exists some background knowledge that is available to both speaker and hearer in any communicative exchange. This background knowledge may have the form of frames, idealized cognitive models, cultural models, folk theories, etc.
- There is information available that allows us to frame locally and pragmatically the content of the linguistic message. This information has to do with the genre of the exchange, as well as with the setting (where and when it takes place) and the participants of the exchange (who talks and to whom).
- Discourse construction starts from an “origin” or “current discourse” (Langacker, 1991: 97), in the form of a *base space*, from which different spaces related to each other are created.
- The new spaces that are created are used to set up information and cognitive structure pertaining to many different kinds of things: time periods (Dinsmore 1991, Cutrer 1994,

⁵ “If two elements a and b are linked by a connector $F(b = F(a))$, then element b can be identified by naming, describing, or pointing to its counterpart a” (Fauconnier 1997: 41)

Lansing 1992), beliefs, points of view (Cutrer 1994, Sanders and Redeker 1996), geographical locations (Van Hoek 1996), cultural constructions (Rubba 1996), as well as quantifications and hypothetical or counterfactual situations.

- The currently activated space is said to be “in focus”. Only one space is allowed to be in focus at a given time. Focus is switched by means of several grammatical and pragmatic devices.

- There are two main ways of connecting spaces: (1) by means of an ordering relation, in which each space is introduced relative to another, and (2) by means of connectors linking elements across spaces. When two spaces are connected by means of the procedure mentioned in (1), the space that is in focus introduces a new space, the old space then becomes a “father” space and the new one a “child” space. On the other hand, the usage of connectors in (2) should be made in accordance with the Access or Identification Principle (see below).

- Structure is transferred across spaces in many ways, such as *optimization*, *access*, *projection* of frames, *matching conditions* for certain spaces, or *upward floating* of presuppositions (Fauconnier, 1997: 112).

2.2.2. Tense, aspect and modality as cognitive mappings

Time is an important notion for our understanding of reality and it is typically expressed in natural language by means of the grammatical categories of tense and aspect, but time is frequently conceptualized as a special kind of space, which bears many similarities with physical space. Time may rightly be claimed to “be” also space, as it is expressed in natural languages (cf. Radden, 1997), and it has been suggested that space and time relations can be analysed using similar parameters. There are many notions that can be used for the parametrization of both space and time: length (duration), path, interruption, location, starting point, ending point, limit, anteriority, posteriority, etc. And this is not a fact unknown to any serious (cognitive) linguist nowadays. The fact that space concepts can substitute for time concepts is clearly seen in the large number of spatial metaphors used for expressing time (cf. Lakoff, 1990: 55 ff.). Motion through time can be seen as motion through space, and there are certain metaphors in which the

passing of time is seen as movement. Lakoff distinguishes two different sets of metaphors for talking about time. In the first set, the time-line is a fixed path or fixed moments on the time-line, and there is an observer that moves. Here we have examples like:

[8]

- a. We are approaching Christmas.
- b. We are moving to a promising future.

In the second set of metaphors, the observer is fixed, and it is time that moves. Here we have examples like:

[9]

- a. The time for action has come.
- b. Time passes by.

In both cases, Lakoff is describing everyday language metaphors by showing how the mapping between a source domain and a target domain is taking place. However, a similar kind of underlying domain is present in the tense system of natural languages even when considering it from a purely grammatical perspective. This in turn may lead us to think that perhaps the manner in which tense (and also aspect and modality, as they will be commented later on) is structured has been motivated by certain organizational schemata that have their roots in our perception and experience of the external world.

More precisely, when we consider tense there seem to exist certain elements: a path along which time moves, an observer or viewer that is watching time from different perspectives, and certain regions or areas within the path which can be examined by the viewer or used as reference areas.

Reichenbach's description (see note 8) was too formalized to capture cognitive mappings in the grammatical expression of time, and it was not easy to see there the path, the viewer or the areas in the path, but we have similar descriptions in more accessible terms from a cognitive linguistics approach. Describing tense and aspect,

Fauconnier (1997) uses the metaphor of the viewer watching spatial movement. In this metaphor, there is always a path along which some motion takes place, an observer which is placed at a certain viewpoint, and different regions or areas partitioning the path. By using different spaces to describe tense and aspect, Fauconnier is following an approach similar to Reichenbach's, but in this case the approach has a better fit with cognitive assumptions. His model deals with intervals (not with points), and the terminology he uses follows more closely the metaphor:

“(...) any space configuration will include a Base, a Viewpoint, and a Focus. To these three discourse primitives, we add a fourth, Event. These primitives are assigned to the discourse spaces dynamically (...). Informally, the Base space is an anchor for the configuration, often the space we start in, and one we can easily come back to. A Viewpoint space is the one from which other spaces are currently being built or accessed. The Focus space, as explained by Dinsmore, is where content is currently being added, and the Event space (often but not always the same as the Focus) corresponds to the time of the event or state being considered.” (Fauconnier, 1997: 73)

This framework lends itself to visual representation much better than Reichenbach's, which makes it more suitable for an approach which relies less on logical formulations and more on imagistic representations. Fauconnier also assumes that there is a relationship among verbal tense and a *realis-irrealis* dimension, as already pointed out by other authors before (e.g. Givón, 1993: 171)⁶, and introduces the notions of *fact* and *prediction*, borrowed from Cutrer (1994), as relevant terms in his model:

“(...) Cutrer (1994) proposes putatively universal semantic tense-aspect categories, with language specific means of expressing some of their combinations. She also introduces a crucial distinction: New structure introduced into spaces may be marked as FACT or as PREDICTION, depending on the semantic tense-aspect.” (Fauconnier, 1997: 75)

The different tenses are defined as follows according to Fauconnier (1997):

⁶ Givón (1993: 171) mentions the following correlations in English:

Past → R-assertion (or presupposition)

Perfect → R-assertion (or presupposition)

Present → R-assertion

Future → IRR-assertion

Habitual → IRR-assertion

PAST applied to space N indicates that:

- (1) N is in Focus
- (2) N's parent is Viewpoint
- (3) N's time is prior to Viewpoint
- (4) Events or properties represented in N are FACT (in relation to the parent Viewpoint space)

PRESENT applied to N indicates that:

- (1) N is in Focus
- (2) N or N's parent is Viewpoint
- (3) The time frame represented in N is not prior to Viewpoint/Base
- (4) Events or properties in N are FACT

FUTURE applied to space K indicates that:

- (1) K is in Focus
- (2) K's parent is Viewpoint
- (3) The time frame for K is posterior to Viewpoint
- (4) Events or properties in K are PREDICTION (from Viewpoint)

PERFECT applies to an Event space N and indicates that:

- (1) N is not in Focus
- (2) N's parent is Viewpoint
- (3) N's time is prior to Viewpoint

Fauconnier's resort to a viewpoint (assuming a certain viewing perspective) and to a reality/irreality dimension (through the terms FACT and PREDICTION) can be better understood if we realize that tense alone can also be used to refer to the probability of occurrence of facts. Taking again the spatial metaphor, we can say that tense normally expresses temporal distance, but it can also express *epistemic distance*. Fauconnier (1997: 93) mentions this possibility in conditionals when he says "When a conditional space is set up, the speaker can mark the degree to which the 'hypothesis' made in that space is likely or unlikely to hold in its parent space. In English, the past tense is a general distal form which can be used to mark prior time, but also greater epistemic distance." In this respect, consider the following example:

[10] If you came to the wedding tomorrow, we would be very glad.

We have here that the past tense does not involve past time (we are talking about what could happen ‘tomorrow’) but rather possibility in the future. Tense in the protasis of conditionals does therefore constitute a grammatical marker not only for time but also for epistemic distance, so that the condition can then be set up with different degrees of tentativeness.

However, there are also other means to express epistemic distance. One of them is *mood*, and the characteristic mood for greater epistemic distance is the subjunctive. As we mentioned above (see section 1.2) the subjunctive mood was operational in Old English. However, nowadays, there are only a few forms and idiomatic expressions which still make use of that possibility. We can see one of them in the example below:

[11] If I were a rich man I would buy a yacht.

In this case, ‘were’ is the subjunctive form. However, the indicative form ‘was’ can also be used.

In English there is another grammatical resource that can be used for the expression of epistemic distance: modality.⁷ The interplay of temporal distance and epistemic distance expressed by tense, mood and modality can be represented together by means of a two-axis schema in which there are a vertical axis, representing time (the temporal axis), and a horizontal one, representing possible worlds or possible states of affairs (the hypothesis/reality axis). This kind of representation can show, in a very visual way, different paths for the courses of events, and the interplay can be formalizable in terms of a combination of temporal and possible-worlds logic, with truth evaluation taking place at an index with two components (cf. van Benthem, 1988: 32). However, an adequate linguistic analysis does not need this. The same phenomena can be represented without any need to resort to logical formulas of any kind⁸.

⁷ Elliott (2000) makes the point that the dimension *realis/irrealis* does not necessarily coincide with modality, since there are also other grammatical notions involved. However, since epistemic modality seems to rely heavily on this dimension, we will assume their equivalence (to some extent) here.

⁸ This is the approach that we have followed in previous work (Inchaurrealde, 1996). In this perspective there is a closed present that comes from a single path of events already fixed in the past. The future, however, is open to parallel possible paths. Reality may be fixed in the past; but, when we talk about events, we talk about our knowledge or belief about those events, so that we can express degrees of uncertainty even in the past. In order to represent these facts we use a double-cone configuration with a coordinate system for time and hypothesis. There are areas of possibility with gradation (inside the cones)

2.2.3. Conditionals as cognitive mappings

As we have seen in the previous sections, conditionals are characterized by the expression of a required condition in the protasis whose satisfaction leads to the fact expressed in the apodosis. The condition may be far or near the current speaker's situation both in time (temporal distance) and in actuality (epistemic distance). Fauconnier's (1994, 1997) cognitive mappings provide a good framework for studying conditionals. However, there are some additional tools that we can use.

First, we have already mentioned the two-axis model for integration of temporal distance and epistemic distance. Now we must introduce the notion of knowledge structures represented in tabular form.

Fauconnier uses this example in several publications (e.g. Fauconnier 1990, 1997) to illustrate analogical counterfactuals:⁹

[12] In France, Watergate wouldn't have done Nixon any harm.

Fauconnier (1997: 106-110) explains it using frames. There is a triggering frame F that might include things like:

“F (“Western Democracy Frame”):

country has a **president** elected by **citizens**;

president is **head** of **political party** competing with others for leadership of **country**;

president's actions are constrained by **laws, public reaction, ...**;

action brings harm to president if:

-it triggers negative **public reaction**

and areas of impossibility.

Both tense and modality can use a three-parameter general scheme for locating events. Verbal tenses can be classified according to three temporal points: time of event (E), time of reference (R), and time of speech (S) (following Reichenbach, 1947). These points are ordered on the time-line. Verbal modality will use three points on the realis-irrealis (horizontal) dimension: reality of event (Er), reality of reference (Rr), reality of speech (Sr). In this case, the ordering goes from impossibility or uncertainty (in the space outside the cones) to certainty or highest probability (at the central axis of the cones), with intermediate values expressing possibility (in the space inside the cones).

⁹ Counterfactuals are expressions whose semantics is ‘counter to facts’, that is, contrary to facts. They are impossible in truth-evaluation terms because one of their premises cannot be satisfied. Analogical counterfactuals are counterfactuals which are based on some sort of analogy or blend.

-it is unlawful and **president** is punished;
etc., etc.” (Fauconnier, 1997: 106)

There is an initial space B with frame F and values for the different roles (in bold characters above). Space B also includes another frame, which Fauconnier calls “break-in” frame:

“(“Break-in”)

president secretly orders **break-in**; **break-in** fails and it is discovered that the **president** was the instigator.” (Fauconnier, 1997: 107)

Such frames, Fauconnier argues, are part of an idealized cognitive model (ICM), which is a very large knowledge structure containing information about all the entities and events linked to a given situation. ICMs were introduced by Lakoff (1987).¹⁰

The different roles involved are satisfied like this:

Frame F:

president → Nixon

country → United states

citizens → Americans

law → no break-ins

punishment → impeachment

Frame BI:

president → Nixon

break-in → Watergate

Additional frame:

public reaction → outrage

punishment → impeachment

¹⁰ An ICM is one of many possible denominations for knowledge structures. Other names that have been used include *frames* (Minsky 1975, 1977; Fillmore 1982), *scripts* (Schank and Abelson 1977), *goals* and *plans* (Lehnert 1981), *scenarios* (Sanford and Garrod 1981), etc.

The counterfactual effect in sentence [12] is achieved thanks to different instantiations of values in the frames. Fauconnier (1997: 107) explains that the sentence starts with the space builder *in France*, which opens space G, in which the frames have values referring to the situation in France. Space B refers to the situation in the United States. A third space, counterfactual focus space C, is created in which it is possible to identify counterparts of the values *Nixon* and *Watergate*, and all the other information in this space is inherited from the first space G. Thus, in space C we would have the following values:

Frame F:

president → counterpart of Nixon

country → France

citizens → French

etc.

Frame BI:

president → counterpart of Nixon

break-in → counterpart of Watergate

Additional frame:

We can infer either

public reaction → outrage

punishment → none

or

public reaction → none or mild

punishment → none

Counterfactuality arises because of the use of the conditional form of the verb but also because of the use of contradictory information and a new space. The sentence could be paraphrased “If it had happened in France, Watergate wouldn’t have done Nixon any harm”. We are dealing with a hypothetical conditional with a high degree of epistemic distance, but also with a *blend* and counterparts.

2.2.4. Our proposal for counterfactual mappings. Mappings of database structures.

We can approach Fauconnier’s usage of frames in a practical, computational manner by resorting to some notions from relational database theory (REFS). Relational database theory is a prescriptive theory that provides guidelines for the representation and manipulation of data in computer systems. It has a referential nature and can be formalized, providing a more “objectivist” perspective of how frames work. In relational theory, the basic notion is that of *relation*, which consists of two separate parts, a heading or *intension* (fixed set of attributes A_1, \dots, A_n , corresponding each to only one domain D_1, \dots, D_n), and a body or *extension* (a set of of tuples $\langle A_1:v_1, \dots, A_n:v_n \rangle$, such that each v_i is a value from the domain D_i corresponding to the attribute A_i).

In every relation there is always at least one attribute, or a combination of attributes, that we can use to identify that relation. We call that attribute a *key* (characterized by the properties of *uniqueness*, i.e. no two tuples of the relation have the same value for a given attribute, and *minimality*, i.e. all attributes in the combination are necessary for the uniqueness to hold). When there are several, they are possible *candidate keys*, of which the one we choose for a particular implementation is a *primary key*. A further definition that we need here is that of *foreign key*. This is an attribute (or combination of attributes) in a certain relation R_2 with the same values as those of the primary key of another relation R_1 . Foreign keys’ values in R_2 must match those of the primary key in R_1 . Otherwise, *referential integrity* is threatened. Since there is always a tendency to preserve the integrity and consistency of content in language and thought, frame matching in conditionals can be very well represented within this relational database framework.

Let us take Fauconnier’s example again. We have three relations, with the following attributes and keys:

Relation A (Frame F):

Primary key	Country
Foreign key (to B)	President
	Citizens
	Law
Foreign key (to C)	Punishment

Relation B (Frame BI):

Primay key	President
	Break-in

Relation C (Additional frame):

Primay key	Punishment
	Public reaction

In our knowledge database we have the following information:

Relation A		Relation B	
Country	United States	President	Nixon
<u>President</u>	Nixon →	Break-in	Watergate
Citizens	Americans	Relation C	
Law	no break-ins	Punishment	impeachment
<u>Punishment</u>	impeachment →	Public reaction	outrage

If we go to our example in [12], when we hear “In France,…” we activate the following entry:

Relation A	
Country	France
<u>President</u>	(not Nixon)
Citizens	French
Law	no break-ins
<u>Punishment</u>	(?)

But then, when we hear “...Watergate wouldn't have done Nixon any harm” we then activate

Relation B

President	Nixon
Break-in	Watergate

And

Relation C	
Punishment	none
Public reaction	(?)

The final configuration would then be:

Relation A		Relation B	
Country	France	President	Nixon
President	(Not Nixon) → COUNTERFACTUAL NIXON	Break-in	Watergate
Citizens	French	Relation C	
Law	no break-ins	Punishment	none
Punishment	NONE →	Public reaction	(?)

The only way to go round the inconsistency in the data is to create a counterpart of Nixon, a “counterfactual Nixon”, and the slot for “Punishment” gets automatically filled with the data provided (“none”).

This provides an alternative explanation to the mapping of domains that takes place. In addition, this explanation can be applied in computational systems of natural language processing, because it is based on relational database structures. In fact, both Fauconnier’s explanation and ours are descriptions of the unification process that takes place when matching knowledge structures that are contradictory or incompatible. According to schemata theories (see note 10), we tend to process new information using the information structures that we already have in our mind and we either incorporate new information to the structures that we already have or change it if there was discrepancy with previous knowledge (provided the new information is accepted, of course).

2.3. Conditionals and discourse (Werth)

2.3.1. Remoteness and epistemicity

Werth's (1997) approach to conditionals is based on the assumption of an expression of remoteness in the protasis and another of epistemicity in the apodosis, and this is the case for all kinds of conditionals, except for those which only express habituality (e.g. habitual readings of "If prices go up, I sell my car" or "If prices went up, I sold my car"). He also studies conditionals within the framework of a discourse theory which he calls *text world theory* (Werth, 1995). This model shares many ideas with the mental spaces framework.

Concerning remoteness and epistemicity, Werth (1997: 248-249) argues that the protasis is normally assumed to have the function of setting up a situation, defined as a conceptual space of more or less abstractness. Several deictic systems can be used here, but physical space seems to be the most fundamental. As we have already mentioned in another section, time is also possible as a system that mimics the behaviour of space, and Werth explicitly presents here this possibility (also in Werth 1981, 1992, 1995). A third system that he examines is epistemic space as physical space, and an explicit reference is made (Werth, 1997: 250) to our model (Inchaurrealde, 1996). In any case, he concludes that in any protasis falls into one of two possibilities: a proposition denoting a situation (*so, the former, etc.*), or a remoteness marker (with *if* as its unmarked form, but inverted modals and auxiliaries are also common). According to this, conditional *if*-sentences mark remoteness with the help of *if*. In addition, the verb tense chosen also expresses remoteness. As Werth (1997: 263) clearly states, "in English, remoteness is a paratetical tense form based on the past. (...) Remoteness has therefore come to be signalled by superimposing pastness upon the ordinary non-remote tense form". This means that present forms in the apodosis express remoteness with respect to the future, past forms express remoteness with respect to the present, and past perfect forms express remoteness with respect to the past, as shown in the examples below:

[13]

- a. If I find this book, I will buy it.
- b. If I found this book, I would buy it.
- c. If I had found this book, I would have bought it.

In (13a), if I ever find the book, this will be done in the future (present tense is used for the expression of future). In (13b), the possibility of finding the book is a hypothesis

located in the present (past tense is used for the expression of present). In (13c), I have not found the book, but I could have found it in the past (past perfect tense is used for the expression of past).

The apodosis, on the other hand, expresses a consequence, which means that there must be probability of some degree and the apodosis should be an *epistemic* expression (Werth, 1997: 252). The simple future in the apodosis is therefore a high-force epistemic, and the simple conditional and perfect conditional are lower-force epistemics. If the protasis is considered to be the part of the conditional construction in which, according to Werth's text world theory, a certain sub-world is being built, then the apodosis is the part in which we find a function-advancing element. Since the notions of sub-world, world building and function advancing are linked to the text world model put forward by Werth (1995) and they have not been explained here up to now, it is useful at this stage to present the most important assumptions of this model.

2.3.2. Text world theory

Text world theory is based on the notion of conceptual space. Other theories that draw upon similar notions are Johnson-Laird's (1983) mental models or Fauconnier's (1985) mental spaces.¹¹ In these models, a mental or conceptual space is "a functional conceptual gestalt, defined by a set of deictic parameters" (Werth, 1997: 252).

According to text world theory (Werth, 1995), there are several spaces that can be identified in any discourse. First of all, there is an interaction space, or "discourse world", in which the *participants* are the producer and the recipient of the discourse itself. At the next level there is what Werth calls the "text world". This is the world that is depicted in the text, and it is based on viewpoint and referentiality as its deictic framework, time and place being therefore important elements. The equivalents of the participants at discourse world level are the *characters* at text world level. Characters are sentient thinking entities, like the participants at discourse world level, and sometimes they are also their counterparts in the text world. *Objects* are the other kind of entities in this world. All the elements mentioned are *world-building* elements, and they are supplemented with *frame-knowledge*, which consists of additional information details about them.

Apart from world building there is also another process at text world level, which is *function advancing*. This process moves the world on towards new states in which the initial world-building elements are revised constantly by means of an *incrementation* of the deictic parameters. The movement is carried out in accordance with the purposes that motivate the function of the text (narration, description, instruction, etc.).

Werth's model still has a third level, that of the *sub-world*. Sub-worlds are created by thoughts, intentions, utterances, etc. of characters and are characterized by world building structure and function advancing structure, as it was the case in the matrix text world. All this is summarized in Figure 2:

¹¹ These models, as Werth (1997: 252) reminds us, also have conceptual links with some theories from logical approaches, like Possible World Theory (Kripke, 1972; Lewis, 1968, 1972; Bradley and Swartz, 1979) and model-theoretic semantics (Montague, 1974; Partee, 1975, 1976; Dowty, Wall and Peters, 1981).

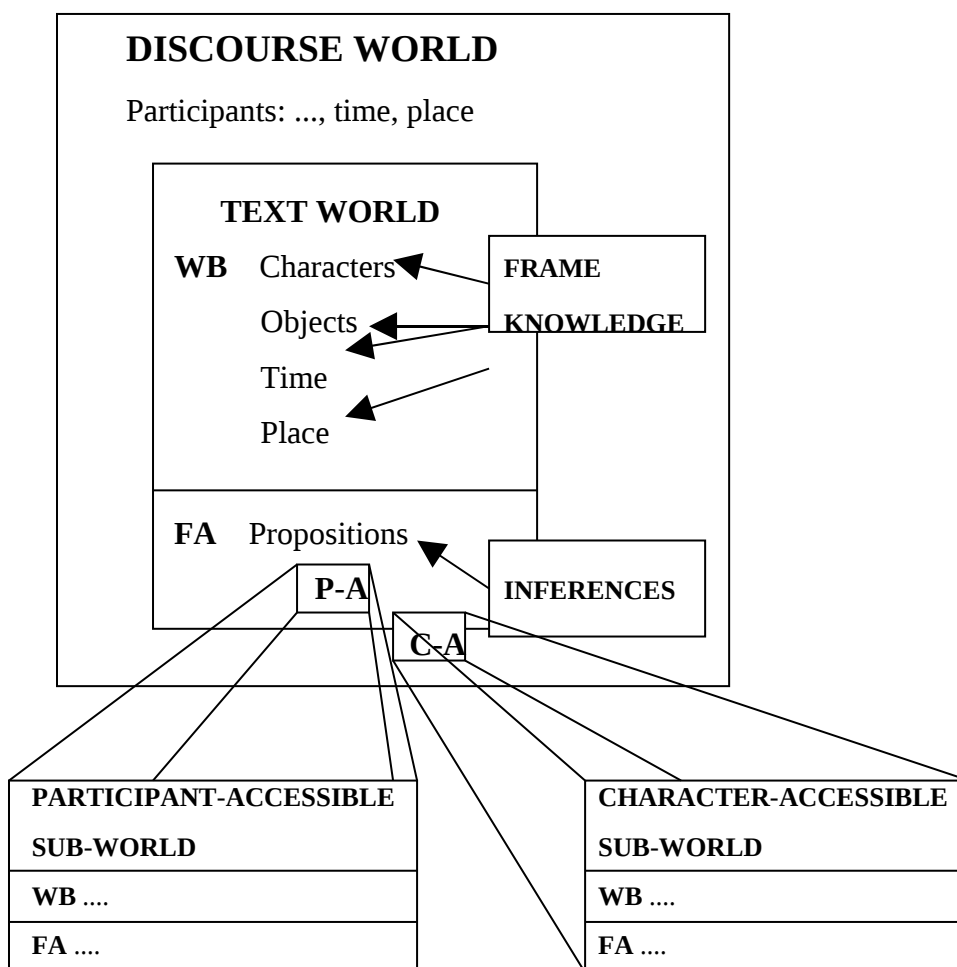


Figure 2. Levels in text world theory (adapted from Werth, 1997: 258)

An important consideration in text world theory is which patterns of accessibility across world boundaries are possible. Characters in the text world (as well as some characters in their sub-worlds) are accessible to participants, but participants in the discourse world are not accessible by any character in the text world or any of the sub-worlds. Characters in the sub-world may or may not be accessible by other characters.

2.3.3. Conditionals as sub-worlds. The notion of epistemic stance.

As we stated in the previous section, following Werth (1997), the protasis sets up a situation, marking it as remote. The apodosis is then a function-advancing proposition within an epistemic sub-world. Its epistemic status is expressed through epistemic modality, and the default epistemic modal is *will*. However all the other modals

expressing different degrees of epistemic probability can also be used. As Werth (1997: 264) correctly argues, root modals (which denote many kinds of meaning like intention, permission, ability, etc.) can always express epistemic probability through pragmatic inference (that is, if something is intended, or something is allowed, or there is the ability to do something, then there is more probability of that something happening). This epistemic probability has different degrees, since there are also different degrees of volition, permission, ability, etc.

The apodosis therefore sets up a probabilistic situation that is stated as prediction. If we take the traditional distinction between Class 1 (present in the protasis), Class 2 (simple past in the protasis), and Class 3 (past perfect in the protasis) conditionals, we can see the following pattern for the expression of epistemic probability:

Class 1 – Epistemic probability is expressed by means of an epistemic modal or by inference from the meaning of a root modal.

[14]

a. If I get one one million euros, I will buy a new house.

[default epistemic modal *will*]

b. If I get one million euros, I can buy a new house.

[root modal *can*]

In these sentences, a remote future sub-world (present), in which I get one million euros, is presented in the protasis. The apodosis presents epistemicity with respect to that remote future sub-world.

Class 2 – Epistemicity is expressed using “remote” forms of modals (would, could, might).

[15]

a. If I got one one million euros, I would buy a new house.

b. If I got one million euros, I could buy a new house.

In these sentences, a remote present sub-world (simple past), in which I got one million euros, is presented in the protasis. The apodosis presents epistemicity with respect to that remote present sub-world.

Class 3 – Epistemicity is expressed using past remote modal forms (would have, could have, might have, etc.).

[16]

- a. If I had got one one million euros, I would have bought a new house.
- b. If I had got one million euros, I could have bought a new house.

In these sentences, a remote past sub-world (past perfect), in which I had got one million euros, is presented in the protasis. The apodosis presents epistemicity with respect to that remote past sub-world.

This notion of conditionals as ‘sub-worlds’ is congruent with the approach put forward by Fauconnier (1985, 1994a, 1997) in his *mental spaces*. Werth’s sub-world approach, however, is more explicit with respect to the agreement between verbal tenses in the protasis and the apodosis. He also gives us the notion of ‘remoteness’ as an alternative to ‘past’, which is helpful to understand the meaning of many conditionals and can be used to see the way in which English modals interact with other elements in conditional sentences.

Finally, another notion that we are going to use in the study of conditionals is the notion of *epistemic stance*. For Werth (1997a: 261) an epistemic stance concerns “the probability of some situation being true”. However, this definition depends on which sub-world we are dealing with, because it can only be applied to sub-worlds that are created within the text world and are accessible to some of the characters. Instead, the manner in which we are going to use the term ‘epistemic stance’ is closer to Fillmore’s (1990) view. For him, the epistemic stance is something related to the speaker’s attitude towards the truth of the proposition expressed in the subordinate clause of any conditional construction. When the speaker accepts this truth, then it is *positive*. When

he/she does not accept it, it is *negative*. When he/she neither accepts it nor rejects it, then it is *neutral*.

3. Counterfactuals and conditionals in English. A corpus-based study

In this section we will approach the study of counterfactuality in English conditionals based on searches carried out on the British National Corpus, which is a corpus of English texts totalling over 100 million words (cf. Aston and Burnard, 1998). Our first approach to the study of the formal characteristics of conditionals has been based on the whole corpus. Later on, we have studied the expression of counterfactuality in a subcorpus of 500 random sentences with *if*-conditionals of the same corpus.

3.1 Conditionals within a real-language corpus

3.1.1. Data concerning the form of sentences

Some preliminary data can be obtained by carrying out searches of the British National Corpus using only form. The most important are the following:

Occurrences of *if* and *if* + subject in the BNC:

if	253679	100%
if I	14856	5,85 %
if you	50423	19,87 %
if he	14877	5,86 %
if she	7283	2,87 %
if it	17180	6,77 %
if we	12332	4,86 %
if they	16323	6,43 %
<i>other cases</i>	120405	47,46 %

This table shows that approximately one half of the occurrences of *if* in the corpus do not have a personal pronoun immediately afterwards. Although personal pronouns are the most important way of denoting a subject in the protasis the difference with respect to other cases is not very significant.

Occurrences of *if* in first position (.If) or in second position (.if). Usage of *should* with inversion:

. If	53804	21,20 %
, if	33407	13,16 %
. Should	1344	
, should	3275	

This table shows two things: there are many alternative ways of using *if* (only one third of all *if* cases have been identified by the search pattern used here), and initial *should* as an alternative to *if*-constructions is not a very common pattern (only 1,82 % of the number of *if*-constructions).

Occurrences of *even if*, *even though* and *unless* in the whole corpus:

Even if	8573
Even though	5753
Unless	10838

These alternative forms are also very uncommon if compared to the number of occurrences of plain *if*.

Occurrences of *have* forms (many of which for present perfect) and *had* forms (many of which for past perfect) in the protasis:

if _ have/has	(2,61 %) 6635	if _ had	(3,6 %) 9156
(if _ have)	5161		
(if _ has)	1474		
if I have	396	if I had	1105
if you have	3395	if you had	824
if he has	402	if he had	1728
if she has	146	if she had	1016
if it has	312	if it had	1078
if we have	408	if we had	554
if they have	702	if they had	1007
<i>other cases</i>	874	<i>other cases</i>	1844

According to some authors (e.g. Declerck and Reed 2001), counterfactuals correspond only to type 3 conditionals (that is, conditionals with past perfect; see in 3.1.2 the three

canonical patterns). In this case, counterfactuals amount to only 3,6 % of all occurrences of all *if*-constructions.

Conditionals with present perfect in the protasis amount to no more than 2,61 % of all occurrences.

Occurrences of protases with *should*, *ought to*, *may* and *might*:

if _ should	552
if _ ought to	37
if _ may	448
if _ might	464

Protases with these modal auxiliaries are very unusual, as can be seen in the low number of occurrences. However, they are possible.

Occurrences of protases with *can* and *could*:

if _ can	(2,20 %) 5592	if _ could	(1,66 %) 4232
if I can	936	if I could	812
if you can	2058	if you could	876
if he can	288	if he could	621
if she can	83	if she could	414
if it can	288	if it could	184
if we can	896	if we could	449
if they can	479	if they could	404
<i>other cases</i>		<i>other cases</i>	

Protases with *can* or *could* are more common, although not so common as protases with present or past perfect.

Occurrences of protases with *will* and *would*:

if _ will	(1,55 %) 1120	if _ would	(0,81 %) 2064
if I will	22	if I would	151
if you will	241	if you would	710
if he will	517	if he would	285
if she will	31	if she would	152

if it will	53	if it would	193
if we will	21	if we would	56
if they will	59	if they would	202
<i>other cases</i>	176	<i>other cases</i>	315

There are some cases, but the use of *will* or *would* in the protasis is not very common either.

3.1.2. Possible tense combinations.

The main tense combinations are reflected in the three types of conditionals mentioned in traditional grammars. Declerck and Reed (2001) use these three patterns for their study of conditionals, which they call the three canonical tense patterns:

[17]

Pattern 1: *If she comes I will tell her everything.*

Pattern 2: *If she came I would tell her everything.*

Pattern 3: *If she had come I would have told her everything.*

(Declerck and Reed 2001: 231)

However, there are more possibilities. All the tense combinations below are found in the corpus (we have excluded patterns with modal auxiliaries in the protasis, which are also possible). Most of them are fairly common. For all of them we provide two or three examples:

Past-Past:

[text CRS, line 68] ...they had to fight hard for mainstream provision if this was their choice.

(protasis at the end)

[text K4T, line 3560] If they did not make it they were excluded from the event.

Present-Present:

[text G2T, line 1606] If you work from home, you are also running a business.

[text EF5, line 233] If this is tomorrow's generation, Britain has little to fear in the years to come.'

Present (with future meaning)-Present (or imperative):

[text G36, line 1881] If balancing is difficult hold on to a chair.

Present-Future: [Canonical pattern 1]

[text AHC, line 1052] If you do decide to buy from a private bazaar you will be expected to haggle.

[text KCT, line 13487] ... me and you gonna fall out if you keep being cheeky.

(going to with future meaning; protasis at the end)

Present Perfect-Future:

[text A0J, line 1860] If a builder has already worked with you to obtain the above, he will also give you an estimate for the work.

Present-Conditional:

[text K97, line 6754] There had been hopes that the workforce would agree not to press ahead with the step if management agreed to reprieve 70 jobs until next April.

(protasis at the end)

Past-Present:

[text CH4, line 3624] If damage was caused, then it is only right that we should be sent a bill for the repairs.

[text CU0, line 373] QUOTE: IF THAT was out then I'm a Dutchman.

[text EF1, line 769] No, if Michael was set up then it's obvious the killer wants him alive.

Past-Future: (not very frequent)

[text FNW, line 3012] If something stopped the star going in, it'll stop us.

[text H8S, line 2909] If they were all your sales staff, I'll eat a copy of the Sex Discrimination Act.'

Present-Past: (very unusual)

[text GVP, line 2545] No, if there's anything in the golf-club theory, (it's more likely) the victim was merely stunned.'

[text ADG, line 788] If they think I'm pretty, that's nice, I'm complimented; but if they don't think I am, I haven't put myself on the line.

Present (fut.)-Past: (not common, but possible)

[made up] If he comes tomorrow, (that means that) you were wrong.

Past Perfect – Perfect Conditional:

[text FR5, line 1161] If I had gone into labour a couple of days earlier, I would have been on my own, down the block, with no nurse, nobody.

Past-Conditional: [Canonical pattern 2]

[text H8B, line 2345] 'But would she tell you if she did know?

[text GWH, line 1540] 'But my father says you would love me best if you were my wife, so that would be better.'

(protasis at the end in both examples)

Past (fut.)-Conditional (fut.) :

[text GUF, line 515] ' If someone was in his way, Charlie, he'd be capable of anything.'

Past-Future: (extremely unusual)

[text H8S, line 2909] If they were all your sales staff, I'll eat a copy of the Sex Discrimination Act.'

Past Perfect-Conditional: [Canonical pattern 3]

[text BNN, line 154] Perhaps it would have been better for them if they had gone straight to hostels or agricultural training camps.

[text CJF, line 13000] I wouldn't have recognized it, the difference, even if it had been there.

[text CEK, line 2352] I'd have been more excited if it had been Shirley Bassey, Miss Horrocks, 28, tells me.

(protasis at the end in the three examples)

Past Perfect-Conditional (fut.):

[text ED4, line 1411] If she had had an accident, she'd go mad, yet she didn't seem to want to try.

Past Perfect-Simple Past:

[text BPA, line 2599] If it had been Piphros, it was encouraging.

Past (pres.)-Conditional (fut.):

[text AEA, line 909] If he had, she hoped her gift would placate him.

Interrogative conditionals

Normally, conditional sentences are affirmative. However, it is also possible to have interrogative conditionals. In all these cases, the normal pattern is having the protasis at the end of the sentence:

Yes-no questions:

[text KBK, line 5330] Would it have been better if it had not been a corner ball?

Information questions:

[text F9R, line 616] What would he have had if he'd played the stoic?

[text CBC, line 3098] What do you do if you see a spaceman?

[text FP3, line 1094] 'How do you know this if she never speaks?'

Imperative:

Imperative forms are also possible in the apodosis:

[text ASE, line 742] Don't tell me, my dear, if it upsets you.

[text APR, line 390] Forgive me if don't care what he wrote in his Vico.

[text CH4, line 1204] If you're selling raffle tickets I don't want any.

3.1.3. Alternative space builders for conditionals.

Apart from *if*, there are also other conditional connectives that can be found in the corpus. In some cases, the conditional meaning is combined with concessive or adversative readings.

Unless¹²

[text ALH, line 1158] I don't like old people unless they are still children.

[text J16, line 265] The secretary of state is averse to use his powers of call-in unless important non-local issues are involved, even if the permission is highly contentious.

¹² Many authors have studied the different meanings of *unless*: Brée (1985), Dancygier (1985), Declerck and Reed (2000), Geis (1973).

[text K97, line 15089] They will sink unless they make positive moves to arrest the slide.

In case

[text BM5, line 1450] In case it hasn't been said before, I shall say it now: a Bentley is one of the least demanding cars to drive.

[text G28, line 1175] The bureau must be available in case the scheme broke down.

G01 242 This is a prison, in case you'd forgotten.

Lest

[text ALH, line 752] So I'll hide with the cake, lest they wander this way.

[text C94, line 1141] Wary sufferers will have learned to suffer silently lest they raise stifled giggles rather than sympathy.

[text ADM, line 2201] I sidled into the room, scarcely daring to breathe lest I harm the recording.

Even if¹³

[text BOU, line 2200] Quite apart from that, and even if the lights are fused properly, it will take double the time on the night itself.

[text EF4, line 957] Next, even if it were secure in itself, it would not work.

[text FUA, line 610] Even if you cannot freeze frame, the pause facility is one to exploit.

Only if¹⁴

[text CRC, line 1191] Mr Brown says that he will consider it only if 500,000 people sign up.

[text EVV, line 232] That is, a question involving calculation was deemed to be practical only if it involved a real-life situation.

[text ABH, line 1939] They are likely to do so only if the perceived benefits exceed the expected costs.

¹³ *Even if* has in many cases a concessive meaning. *Even if* is the topic of Declerck and Reed (2001a). Concessives are studied in connection with conditionals in Dancygier (1988a), Fraser (1969), König and Van der Auwera (1988).

¹⁴ *If and only if* (iff) is the topic of Horn (2000).

Whether ... or ...

[text CPV, line 183] Asked whether raising new capital was sufficient to put Olivetti back onto an even keel, he said We must be very clear.

[text CMJ, line 661] He wondered sadly aloud to Anna whether experience could finally make one more robust.

[text HPU, line 979] So surveys could be used to predict behaviour, for example, how the electorate would vote or whether people would buy a new product.

Supposing / assuming

[text G10, line 529] You'll have to be inside the spell and out of here into the Time Chariot so fast you couldn't say caterpillar's boots, always supposing you wanted to say such a ridiculous thing, which I don't suppose you do.

[text GVJ, line 533] Supposing we are in C major we can modulate (taking in turn relative degrees of sharpness) to G, D (or D minor), A (or A minor), and E (or E minor), still with the prospect of an easy return to C; B would be too far.

[text A14, line 198] Assuming licensees and magistrates act sensibly in seeking and granting approval, I cannot see any strong objection to this.

3.2. Counterfactuals within our corpus

3.2.1. Definition

Counterfactual conditional sentences are best explained in logical terms. A counterfactual conditional sentence is a sentence with the form p implies q , in which the antecedent p is false. This definition, which is very straightforward from a logical point of view, has a difficult application in many instances of natural language. This is so because there are usually many possible interpretations of the truth-value of a given statement. Costello and McCarthy (1999), in their explanation of counterfactual conditional sentences, give the following example of a counterfactual conditional:

[18] If another car had come over the hill when you passed that car, there would have been a head-on collision.

This sentence, which out of context may be more adequately classified as a hypothetical conditional in which the protasis expresses a certain hypothesis of something happening, should therefore be normally evaluated as true, in which case it is not a counterfactual. However, the driver of the car hearing this statement may also consider its antecedent as being possibly false (because it was impossible if, for instance, no cars were coming in the opposite direction due to the road being closed at some point), in which case the sentence is a counterfactual. This is Costello and McCarthy's (1999: 3) argument, but this explanation is a subjective evaluation of the truth value of the sentence. Certainly, in this case, the truth evaluation of the situation in the antecedent depends a great deal on our experience with the world surrounding us.

Better examples of counterfactual sentences are the following:

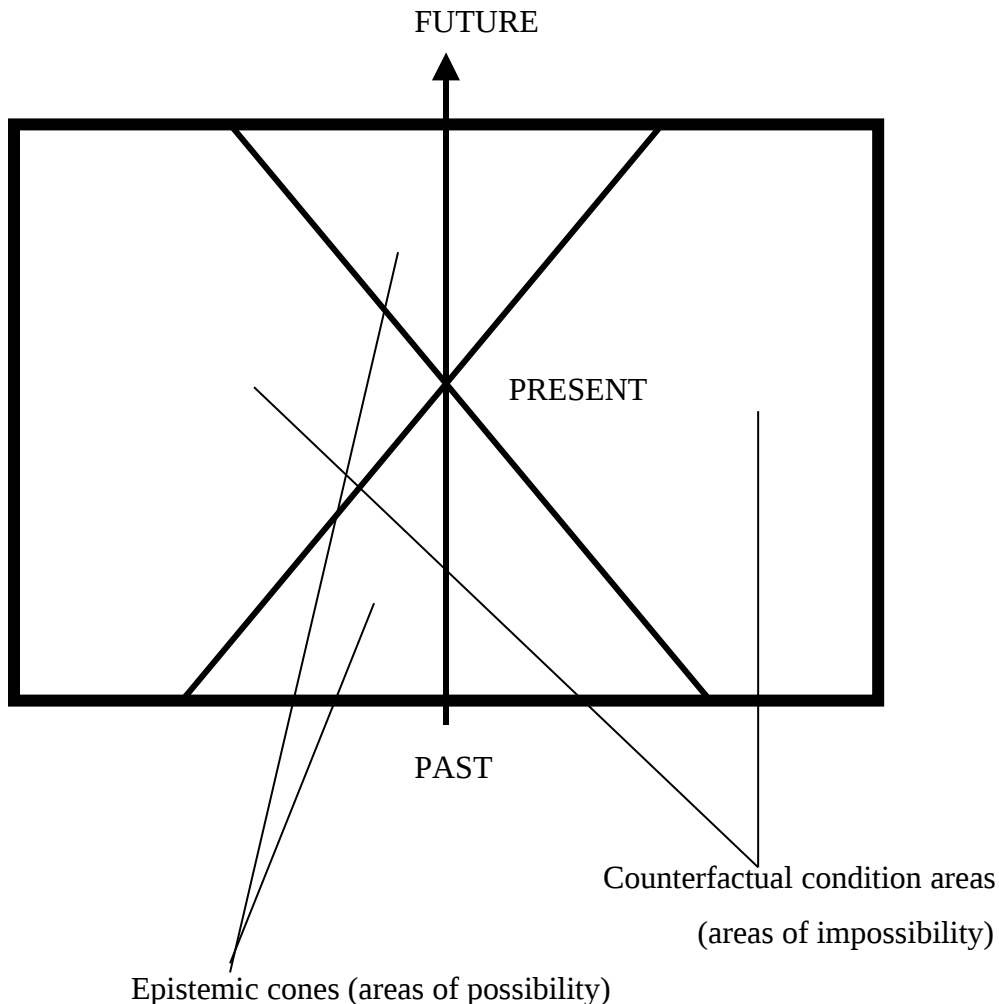
[19]

- a. If $1+1=3$, then London is the capital of France.
- b. If the king of France comes to Spain, I will give up smoking
- c. If Cleopatra's nose had been shorter, history would have changed completely.

In all three examples of [19] the antecedent (i.e. the protasis) is something impossible, which renders the consequent (i.e. apodosis) impossible too. However, there are different kinds of impossibility, which are qualitatively different, and this means that the interpretation of what is stated in the conditional may be significantly different. More concretely, sentence (19a) seems to imply the complete impossibility of London being the capital of France, (19b) seems to imply a more or less complete impossibility of the speaker's giving up smoking, and (19c) seems to imply that history could have been changed under certain circumstances. Thus, there are some counterfactuals that seem to be more impossible than others, and this is something that needs to be analysed too. As we will see in the analysis that follows, there are three main factors that have an influence on this: the verb tenses used, the kind of impossibility in the protasis, and the accessibility of the text world (or 'possible world') created in the protasis.

If we use the space-time cones that I presented as a model for the description of modality in Inchaurrealde (1996), we can say that a counterfactual conditional is a conditional in which the condition falls outside the epistemic cones. This suggests the

hypothesis, which I want to examine in the following pages, that remote future and remote past in counterfactuals require that the condition should be very far away in the horizontal dimension (that is, along the hypotheticality dimension).



3.2.2. Our classification of counterfactuals

From our analysis of conditional sentences in the corpus, it is possible to establish a classification based on the type of impossibility of the antecedent. This impossibility can be imposed by the speaker or be inferred. There are several options: The antecedent may be impossible only under certain evaluations of the situation (*subjective impossibility*), the antecedent may be impossible only when there is access to certain pieces of information (*information gaps*), the antecedent may be impossible in a natural objective world (*objective impossibility*), the antecedent may be impossible because it is

a logical contradiction (*logical impossibility*), or the antecedent may be impossible because of the impossibility of the consequent in all cases (*reversed counterfactuality*). This latter case can also be due to different kinds of impossibility of the consequent (subjective, information-dependent, objective and logical).

3.2.2.1. Subjective impossibility

This is the case of the example from Costello and McCarthy (1999) that we have commented. This kind of counterfactuality only depends on the evaluation that the speaker, hearer or researcher makes of the given sentence under a given situation, and it is therefore relative, which makes it difficult to use it as an objective guiding principle for the classification of counterfactuals.

However, linguists may have a completely different view of counterfactuality. For Declerck and Reed (2001), for instance, what counts is the counterfactuality of what is mentioned in the protasis. If it is not a fact in the real world, it is counterfactual, and the whole conditional is therefore counterfactual. This is characteristic of all pattern 3 conditionals and many pattern 2 conditionals (concerning this classification see section 3.1.2. above). Coming back to Costello and McCarthy's example:

[20]

If another car had come over the hill when you passed that car, there would have been a head-on collision.

This is a pattern 3 conditional, and the situation referred to in the protasis has not taken place. Accordingly, it is a counterfactual conditional.

However, we want to emphasize here the importance of semantic interpretation according to our knowledge of the world and the context of the actual communicative situation.

In our corpus, we have found conditional sentences that are not semantically counterfactual but which express an unlikely situation according to our world knowledge. For instance, sentences like

[text A5X, line 209] Don't make firm plans: Your ticket bears a warning that you are 'subject to removal if a confirmed passenger arrives before actual flight departure'.

[text A62, line 1094] Conversely, if the press swung heavily to the left, television would have to reorient its coverage and redress the balance by leaning to the right.

In both cases, the idea expressed in the protasis seems to be felt as unlikely. However, it could very well become true, so they are not counterfactuals strictly.

There are also cases in which the factual status of the protasis is suggested, although apparently in the real world it is not true, in order to give emphasis to an idea or produce a stylistic effect:

[text ANU, line 1560] If it was intended to provoke the Palestinians and the Muslims into armed conflict, it certainly succeeded.

However, in any of these cases, impossibility of the protasis is just the result of inference and it depends on interpretation of the situation.

3.2.2.2. Information gaps

This is a special case of subjective impossibility. Since language deals more with beliefs and knowledge than with facts themselves, what is counterfactual for one person may be factual for another one that has different information about the world. It is interesting to mention the following example, which we quote from Edgington (1997: 95):

“I am driving to the airport to catch a 9 o'clock flight to Paris. The car breaks down on the motorway. I sit there, gnashing my teeth, waiting for the breakdown service. 9 o'clock passes: I've missed my flight. More time passes. “If I had caught the plane, I would have been half way to Paris now”, I say to the repairman who eventually shows up. “Which flight were you on?” he asks. I tell him. “Well you're wrong”, he says. “I was listening to the radio. It crashed. If you had caught that plane, you would be dead by now”.

This example is more focused on the impossibility of what is referred to in the apodosis, so it is not exactly the kind of counterfactuality that we are considering. However, it is easy to think of a situation in which the man catching the plane would have been impossible without him knowing of that impossibility.

3.2.2.3. Objective impossibility

This is the kind of counterfactuality with which we are mostly concerned. We have the following types of objective impossibility:

Objective impossibility due to the structure of the world

[21]

- a. If Cleopatra's nose had been shorter, history would have changed completely.
- b. If the king of France comes to Spain, I will give up smoking
- c. If you are an expert in mathematics then pigs fly.

In (21a), the protasis requires a change in the structure of a fact that is well-known: Cleopatra was told to have a peculiar nose. Changing this fact would have allowed to change history. However, as it is a well-entrenched piece of knowledge, it is difficult to imagine that possibly happening. Counterfactuality is expressed by the impossibility to change what is assumed to be true whatever the circumstances. Cleopatra with a different nose would have required to think of a different reality.

In (21b), the impossibility of the king of France coming to Spain is due to the fact that there is no king in France. The existence of a king in France would require a different structure of reality (and a different development of historical events).

In (21c), which is also a reversed counterfactual (see below), the condition for the interlocutor's being an expert in mathematics is the ability of pigs to fly. Pigs do not fly in this world. Therefore, the interlocutor is not an expert in mathematics. The structure of this world does not allow the sentence to be true.

In all these cases, counterfactuality derives from the fact that there are some facts that cannot be changed. Of course, if the context of use of the conditional sentence changes, these counterfactual conditionals could become factual. In tales, stories, novels

or any piece of fiction, the structure of the world can be different. If (21c) is used in a world in which pigs fly, then the interlocutor would be an expert in mathematics (However, in such a case, it would not be relevant to use such a sentence; the role of relevance in these sentences deserves to be explored too).

We have found many instances of this kind of factuality in our corpus and it corresponds in many cases to standard counterfactuality in formal grounds. For Declerck and Reed (2001), type 3 conditionals are always counterfactuals, since the past perfect refers to something that could have taken place but which has not. Many of these cases reflect facts contrary to the known structure of the world.

A typical case in this respect is the change of historical facts in the protasis:

[text AC0, line 244] Or imagine the scene at a Labour Conference about fifty years ago if a certain Oswald Mosley had turned up to see his former party colleagues.

[text AD2, line 853] The people of Northern Ireland naturally and rightly reason that if what they have suffered at the hands of the southern-spawned IRA, they have suffered while a majority, how much greater would that persecution not be if they ever entered a state in which they were a perpetual minority.

However, of course, it is possible to use type 2 conditionals. This is the case with alternatives to what we have now. In the example below, the protasis refers to changing the proportions of one's own body, which is of course impossible in the actual world:

[text ADG, line 1031] If they were in proportion with the rest of my body, it would be better, then I wouldn't look top-heavy.

Other conditionals have a weaker counterfactual status, because it depends on the context for interpretation (which means that there is an overlap here with our category of *subjective impossibility*). The following sentence cannot be considered counterfactual in certain protestant settings. However, within a catholic country the protasis has to be consider contrary to fact:

[text AT9, line 91] What if a parish or cathedral already has a woman in priest's orders on its staff?

It is a question, therefore the apodosis is not in the sentence, since it is elicited.

The next sentence is also a question and contrary to fact in a normal setting (although we can think of possible settings for interpretation of the protasis as possible, since it is possible to see a spaceman at a training base, for instance; again, there is overlap here with our category of *subjective impossibility*),

[text CBC, line 3098] What do you do if you see a spaceman?

Counterfactuality related to distortion of the actual structure of facts in our real world can also be used for stylistic effects. The next sentence is not a counterfactual, since anybody can ‘want to travel in space’, but it is based on counterfactuality, since for most of us it is impossible to travel in space. If we want to do it, we can obtain a similar experience in JAL’s new executive class:

[text CFV, line 627] IF YOU WANT TO TRAVEL IN SPACE, TRY JAL'S NEW EXECUTIVE CLASS

In this case, counterfactuality causes a change in expectations and therefore in the interpretation of the message.

Context can be important for the interpretation of counterfactuals based on distortion of the structure of the world. Conditionals that are not counterfactual can become counterfactual if the immediate linguistic context provides information that is relevant for their interpretation as counterfactuals (this is not the same case as when relevant information is provided by non-linguistic context, because the latter is more relative and dependent on factors linked to knowledge of the world and the actual communicative situation). An example of this kind of counterfactual in our corpus is the following:

[text A70, line 126] Luckily for Sandra and her two children, Anne, 16 and John, 11, not all the clocks are in proper working order, Otherwise, she says, ‘the noise would be incredibly deafening if they all chimed at once!’

Since we are told that “not all the clocks are in proper working order”, the conditional sentence in the last line has an impossible protasis (and is, therefore, counterfactual).

An apparent case of this type of counterfactuality is present in conditionals that use metaphorical expressions in the protasis. This is the case in the following sentence, where “bread and circuses” refer to food and entertainment:

[text HTY, line 731] If the military could provide them with bread and circuses, then the people would be content.

In the following sentence, “100 horses in front of us” has a hyperbolic effect. It stands for ‘any problem’:

[text AL3, line 401] ‘It won't matter if there are 100 horses in front of us,’ he said — and launched Nijinsky's challenge from a perilously long way back.

These two other cases use exaggeration in the apodosis, also for a hyperbolic effect:

[text HA3, line 1583] ‘He says he'll skewer your liver if you move,’ Rincewind translated freely.

[text HTG, line 2229] ‘And if you laugh at me, you bastards, the coffee will be laced with arsenic.’

All these cases are apparent counterfactuals. They should not be considered counterfactuals on semantic grounds because their literal meaning is not their actual meaning.

Logical objective impossibility

[22] If $2+2=5$, then Paris is the capital of France.

The protasis is impossible on logical grounds. Therefore, the whole conditional is impossible to fulfil. This is the strongest case of counterfactuality, since logical rules are the most difficult to change. However, there are also possibilities of different readings, counterfactual and factual, according to the context. If we say:

[23] If $1+1=10$, then London is the capital of France.

1+1 is false in a decimal system. However, it is true in a binary system. In that case, the condition is satisfied. Nevertheless, London is not the capital of France, which makes the clause contrary to fact according to the structure of the world. Thus, this sentence is counterfactual anyway (It could not have been the case with ‘Paris’ instead of ‘London’).

No examples of this kind of impossibility in the protasis were found in our subcorpus. However, it is obvious that it can be used in conditional sentences.

3.2.2.4. Mapping of cognitive domains

Another type of semantic counterfactuality is due to the use of cognitive blendings. This is the kind of counterfactuality that is shown in Fauconnier’s examples. This type would correspond to examples like the following:

[24]

- a. If wishes were horses, beggars would ride.
- b. In France, Watergate wouldn’t have done Nixon any harm.
- c. If Watergate had happened in France, it wouldn’t have done Nixon any harm.

The kind of analysis suggested by Fauconnier or our analysis based on database structures (see 2.2.4) is suitable for these sentences. A typical case in the corpus is the use of counterparts of the type “If I were you...” and similar constructions:

[text GWH, line 1540] ‘But my father says you would love me best if you were my wife, so that would be better.’

[text KPG, line 6022] If I was you wearing that and he asked you to do that

In these two conditionals there are alternative domains where counterparts of ‘you’ and ‘I’ with different properties are created.

There are some special cases of domain mapping in the corpus which we have not found commented anywhere else. This suggests that the possibilities for domain-mapping are even more complex than what is being hinted at by Fauconnier’s examples. The following example shows a conditional with parallel structures based on an in-out opposition (which is a schema on which many metaphors are based):

[text ARG, line 282] If sexual intimacy mirrors our inner life, then family life mirrors our outer life.

This is a conditional based on conceptual similarity. Since there are no facts involved, we cannot consider it a counterfactual.

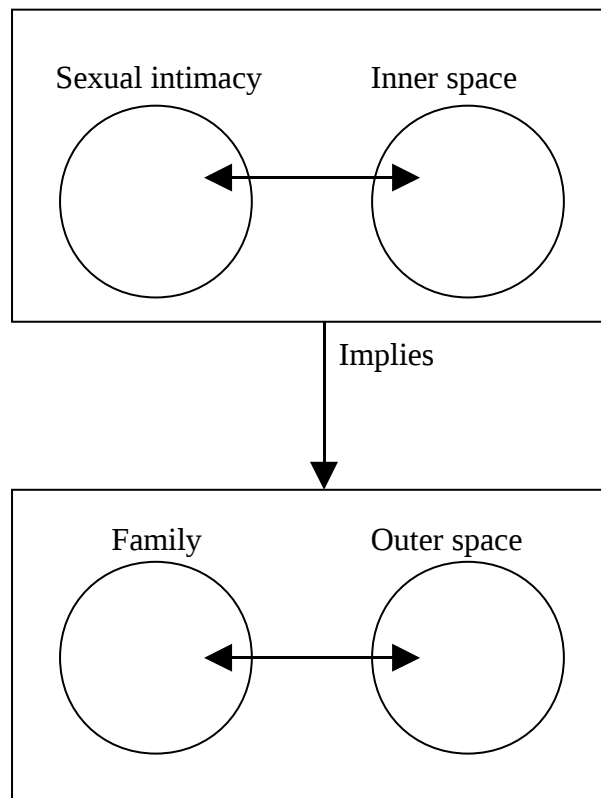


Fig. 3. “If sexual intimacy mirrors our inner life, then family life mirrors our outer life”

The next example is apparently similar. However, the cognitive-domain mappings work differently:

[text G0X, line 2223] If the land was a graven image then Angharad was its priestess.

In this case, if we do not have access to any further context, we can only know that the entity denoted by the apodosis is part of the domain denoted by the protasis. Again, there is no counterfactuality involved, because ‘graven’ is a qualification for which we need to know the actual situation or place the speaker is referring to.

The domains involved are the following:

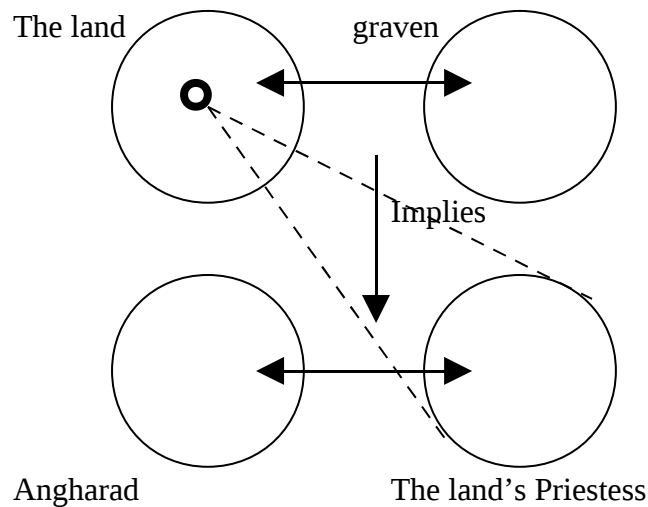


Fig. 4. “If the land was a graven image, then Angharad was its Priestess.”

Another apparently similar case is the following, but again it has a different configuration:

[text H0N, line 504] If beauty was sovereign for Greece, it was sovereign everywhere.

In this case, the conditional is a logical deduction, assuming the premise that “whatever is sovereign for Greece, is sovereign everywhere else”. There is a metonymical relationship involved.

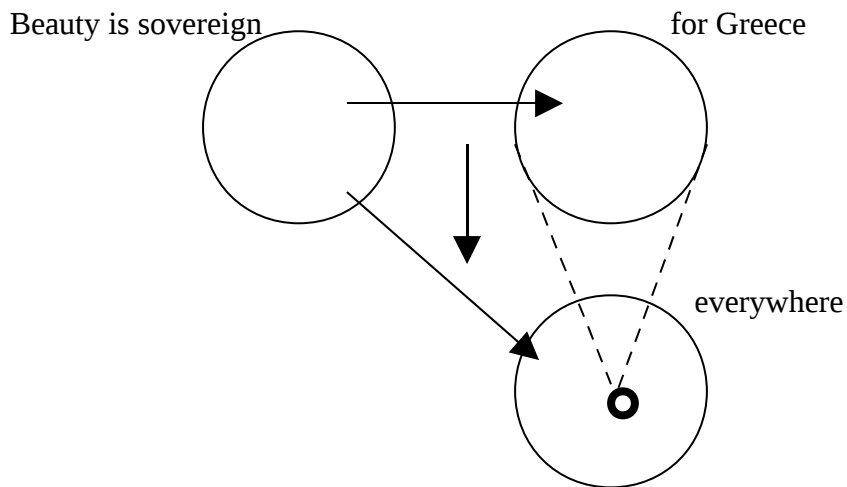


Fig. 5. “If beauty was sovereign for Greece, it was sovereign everywhere.”

This last example also involves domain mapping, but in this case it is possible to check the truth of the protasis against the real world and assess whether it is possible or impossible. If it turns out that it is impossible (because it has not been true), then we have a counterfactual conditional:

[text AHT, line 164] If owning a horse (or part of a horse — only a minority of owners own a whole horse) has been a lousy investment, racehorse ownership is also a form of conspicuous consumption and the 1980s were good years for that.

3.2.2.5. Reversed counterfactuals

Lastly, some conditionals have an impossible fact in the apodosis. Since they are impossible to fulfil, impossibility is inferred for the protasis too. These cases are what we term reversed counterfactuals. Although no instances were found in the subcorpus, it is easy to make them up and realize that they are possible in natural language. Some examples:

[25]

- a. If you are an expert in mathematics then I am the king of France.

b. If you are an expert in mathematics then pigs fly.

Clearly, in this case it is not possible to find auxiliary modals in the apodosis, because explicit reference to probability of facts would destroy impossibility. In all other cases of counterfactuals it is possible to have auxiliary modals in the apodosis.

3.3. Discussion of findings

In this section there are several facts to be mentioned. Our corpus-based study attests the importance of the *if*-construction as the most important one for the expression of conditionality, although there are many possible alternatives for the expression of conditionality (*unless, in case, lest, even if, only if, supposing, assuming, whether...or...*). It has also been verified in the corpus that the possibilities for tense combinations are many. However, the most important part of the study that we have carried out concerns the conclusions that can be inferred from the expression of counterfactual meaning in conditionals. Since we assume that counterfactual conditionals are conditionals whose protasis expresses an impossible fact, it is also logical to find as many types of counterfactual conditionals as it is possible to find types of impossible facts. The classification that we have made according to the examples found starts with subjective impossibility of the protasis (impossibility depending on subjective evaluation) and ends up with objective impossibility of the protasis. In general terms, it is not unreasonable to think of this distinction as a scale which reflects a gradation from relative impossibility to absolute impossibility. It would be something like this:

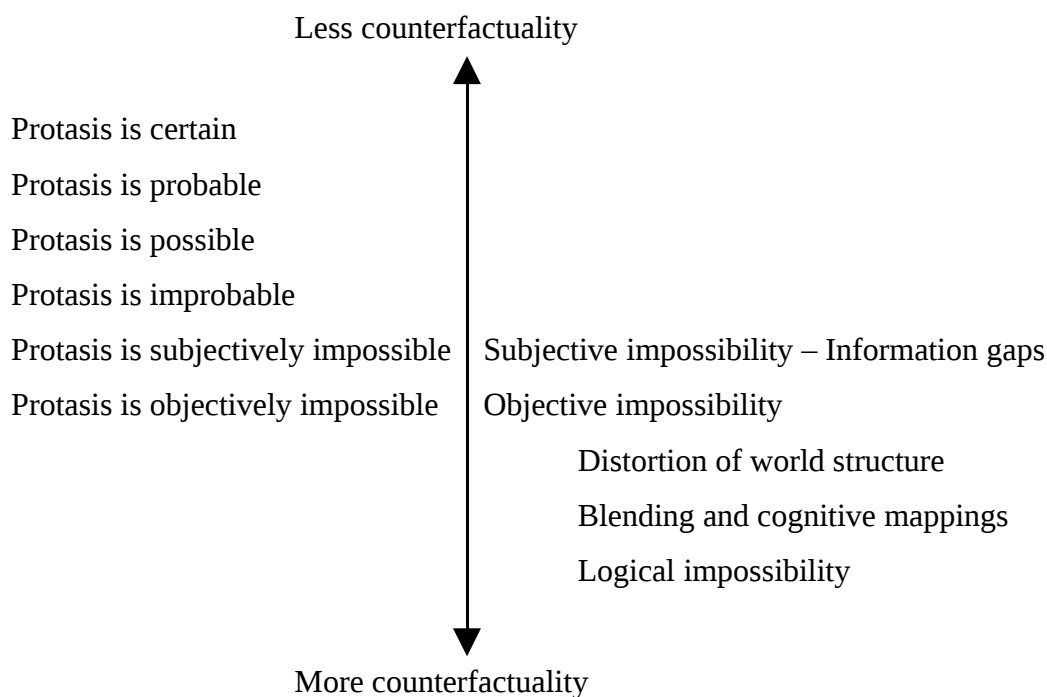


Fig. 6. Our counterfactuality scale.

4. Summary and conclusion

In this piece of research we have tackled different questions concerning English conditionals in general and more concretely the expression of counterfactuality in English conditionals. This has been carried out in two different stages:

First, a general discussion about the framework for the study of conditionals has taken place, comparing different approaches and proposing new reformulations in different areas. There has been mention of the classifications by Leech and Svartvik (1975), Celce-Murcia and Larsen-Freeman (1999), Sweetser (1990), Athanasiadou and Dirven (1996) and Declerck and Reed (2001) and we have assumed that Athanasiadou and Dirven's is the most complete on semantic and pragmatic grounds, although Declerck and Reed's is practical on formal grounds. Since we were more concerned with meaning in this study, we have taken Athanasiadou and Dirven (1996, 1997, 2000) as our starting point, although we have suggested a reformulation of the epistemicity scale that they propose (see 2.1.3).

In the following section we have pointed out certain peculiarities of conditionals from a conceptual point of view. More concretely, Fauconnier's approach has been chosen as the most suitable for the explanation of cognitive mappings that take place in

many conditionals, especially in counterfactual conditionals (Fauconnier 1997). Werth's notion of *text world* and its usefulness for the explanation of conditionals in discourse has also been examined (Werth 1997a). In these sections there has also been examination of the manner in which these authors explain the peculiar behaviour of verbal tenses and modality within conditionals. There have also been suggestions and criticism concerning some points of their respective theories and our own approach to tense and modality. We have also suggested a different way of dealing with domain mapping from a computational point of view (see 2.2.4).

In the second part of this work we have carried out a corpus-based study of the different kinds of conditionals according to the form of the protasis, the different configurations of tenses that are possible within conditionals, the different alternative space builders (connectives) that can be used for conditionals, and the different types of counterfactual meaning that can be found in conditionals. Since the main purpose has been to explain counterfactuality in English conditionals within a general framework study about conditionals, the last part is the most revealing. Different types of counterfactual conditionals have been identified based on semantic criteria with categories like subjective impossibility of the protasis, information gaps, and objective impossibility of the protasis, which can be based on the distortion of the structure of the world, logical impossibility, and blending of cognitive domains. All these types can be combined and reflect different degrees of impossibility for the protasis as a defining characteristic of counterfactuality.

References and essential bibliography on English conditionals

- Akatsuka, Noriko. 1986. "Conditionals are discourse-bound". In: Elizabeth C. Traugott, Alice ter Meulen, Judy S. Reilly and Charles A. Ferguson (eds.), *On Conditionals*. Cambridge: Cambridge University Press, 333-351.
- Akatsuka, Noriko. 1991. "Dracula conditionals in discourse". In: Carol Georgopoulos and Roberta Ishihara (eds.), *Interdisciplinary Approaches to Language: Essays in Honor of S.-Y. Kuroda*. Dordrecht / Boston / London: Kluwer Academic Publishers, 25-37.
- Akatsuka, Noriko. 1997. "Negative conditionality, subjectification, and conditional reasoning". In: Angeliki Athanasiadou and René Dirven (eds.), *On Conditionals Again*. Amsterdam / Philadelphia: John Benjamins, 323-354.
- Aston, Guy and Lou Burnard. 1998. *The British National Corpus Handbook*. Edinburgh: Edinburgh University Press.
- Athanasiadou, Angeliki and René Dirven. 1995. "Typology of if-clauses". In: Eugene Casad, (ed.), *Cognitive Linguistics in the Redwoods*. Berlin/New York: Mouton de Gruyter, 609-654.
- Athanasiadou, Angeliki and René Dirven (eds.) 1997a. *On Conditionals Again*. Amsterdam: Benjamins.
- Athanasiadou, Angeliki and René Dirven. 1997b. "Conditionality, hypotheticality, counterfactuality". In: Angeliki Athanasiadou and René Dirven (eds.), *On Conditionals Again*. Amsterdam: Benjamins, 61-98.
- Athanasiadou, Angeliki and René Dirven. 2000. "Pragmatic conditionals". In: Ad Foolen and Frederike van der Leek (eds.), *Constructions in Cognitive Linguistics*. Amsterdam: Benjamins, 1-26.
- Austin, John L. 1961. "Ifs and cans". In: J. O. Urmson and G. J. Warnock (eds.), *Philosophical Papers*. Oxford: Oxford University Press, 153-180 (3rd. edition, 1979).
- Austin, John L. 1962. *How To Do Things With Words*. London: Oxford University Press.

- Bailey, Charles-James N. 1989. "Classifying the English Conditionals". *American Speech* 64: 275-280.
- Baker, C. L. 1970. "Problems of polarity in counterfactuals". In: Jerry Sadock and Anthony L. Vanek (eds.), *Studies Presented to Robert B. Lees by His Students*. Edmonton: Linguistic Research, Inc. 1-15.
- Beck, Sigrid. 1997. "On the Semantics of Comparative Conditionals". *Linguistics and Philosophy* 20: 229-271.
- Bennett, J. 1974. "Counterfactuals and possible worlds". *Canadian Journal of Philosophy* 4: 381-402.
- Berent, Gerald P. 1985. "Markedness considerations in the acquisition of conditional sentences". *Language Learning* 35 (3): 337-372.
- Bowerman, Melissa. 1986. "First steps in acquiring conditionals". In: E. C. Traugott (ed.), *On Conditionals*. Cambridge: Cambridge University Press, 285-307.
- Bradley, Raymond and Norman Swartz. 1979. *Possible Worlds: an Introduction to Logic and its Philosophy*. Oxford: Blackwell.
- Brée, David S. 1982. "Counterfactuals and causality". *Journal of Semantics* 1: 147-185.
- Brée, David S. 1985. "On the semantics of *unless*". In: G. A. J. Hoppenbrouwers, Pieter A. M. Seuren and Anthonius J. M. Weijters (eds.), *Meaning and the Lexicon*. Dordrecht: Foris, 309-316.
- Celce-Murcia, Marianne and Diane Larsen-Freeman. 1999. *The Grammar Book*. 2nd ed. Boston: Heinle & Heinle Publishers.
- Close, R. A. 1980. "Will in if-clauses. In: Sidney Greenbaum, Geoffrey Leech and Jan Svartvik (eds.), *Studies in English Linguistics for Randolph Quirk*. London: Longman.
- Coates, Jennifer. 1983. *The Semantics of the Modal Auxiliaries*. London/Canberra: Croom Helm.
- Comrie, Bernard. 1976. *Aspect*. Cambridge: Cambridge University Press.
- Comrie, Bernard. 1982. "Future time reference in the conditional protasis". *Australian Journal of Linguistics* 2: 143-152.
- Comrie, Bernard. 1985. *Tense*. Cambridge: Cambridge University Press.

- Comrie, Bernard. 1986. "Conditionals: a typology". In: Elizabeth C. Traugott, Alice ter Meulen, Judy Snitzer Reilly and Charles A. Ferguson (eds.), *On Conditionals*. Cambridge: Cambridge University Press, 77-99.
- Costello, Tom and John McCarthy. 1999. "Useful counterfactuals". *Linköping Electronic Articles in Computer and Information Science* 3 (2).
<http://www.ep.liu.se/ea/cis/1999/002/>. July 1, 1999.
- Cutrer, M. 1994. *Time and Tense in Narratives and Everyday Language*. Ph.D. dissertation. University of California, San Diego.
- Dancygier, Barbara. 1985. "If, unless and their Polish equivalents". *Papers and Studies in Contrastive Linguistics* 20: 65-72.
- Dancygier, Barbara. 1988a. "Conditionals and concessives". *Papers and Studies in Contrastive Linguistics* 24: 111-121.
- Dancygier, Barbara. 1988b. "A note on the so-called indicative conditionals". *Papers and Studies in Contrastive Linguistics* 24: 123-131.
- Dancygier, Barbara. 1992. "Two metatextual operators: negation and conditionality in English and Polish". *Proceedings of the Eighteenth Annual Meeting of the Berkeley Linguistics Society*, 61-75.
- Dancygier, Barbara. 1993. "Interpreting conditionals: Time, knowledge and causation". *Journal of Pragmatics* 19: 403-434.
- Dancygier, Barbara and Eve Sweetser. 1996. "Conditionals, distancing, and alternative spaces". In: Adele Goldberg (ed.), *Conceptual Structure, Discourse and Language*. Stanford, Cal.: CSLI Publications, 83-98.
- Dancygier, Barbara & Eve Sweetser. 1997. "Then in Conditional Constructions". *Cognitive Linguistics* 8-2: 109-136.
- Dancygier, Barbara. 1998. *Conditionals and Prediction: Time, Knowledge, and Causation in Conditional Constructions*. Cambridge: Cambridge University Press.
- Dancygier, Barbara and Ewa Mioduszevska. 1984. "Semantico-pragmatic classification of conditionals". *Studie Anglica Posnaniensia* 17: 121-133.
- Dancygier, Barbara and Eve Sweetser. 1997. "Then in conditional constructions". *Cognitive Linguistics* 8: 109-136.

- Dancygier, Barbara and Eve Sweetser. 2000. "Constructions with *if*, *since* and *because*: Causality, epistemic stance, and clause order". In: E. Couper-Kuhlen and Bernd Kortmann, B. (eds), *Cause, Condition, Concession, Contrast; Cognitive and Discourse Perspectives*. Berlin/New York: Mouton de Gruyter.
- Davies, E. 1979. *On the Semantics of Syntax: Mood and Condition in English*. London: Croom Helm & Atlantic Highlands, N. Y.: Humanities Press.
- De Cornulier, Benoit. 1983. "*If* and the presumption of exhaustivity". *Journal of Pragmatics* 7: 247-249.
- Declerck, Renaat. 1990. "Tense, time and temporal focus". *Journal of Literary Semantics* 21: 80-94.
- Declerck, Renaat. 1991. *Tense in English: Its Structure and Use in Discourse*. London: Routledge.
- Declerck, Renaat and Ilse Depraetere. 1995. "The double system of tense forms referring to future time in English". *Journal of Semantics* 12: 269-310.
- Declerck, Renaat and Susan Reed. 2000. "The semantics and pragmatics of *unless*". *English Language and Linguistics* 4: 205-241.
- Declerck, Renaat and Susan Reed. 2001a. "Some truths and nontruths about even *if*". *Linguistics* 39: 203-255.
- Declerck, Renaat and Susan Reed. 2001b. *Conditionals. A Comprehensive Empirical Analysis*. Berlin/New York: Mouton de Gruyter.
- Dik, Simon C. 1990. "On the semantics of conditionals". In: Jan A. Nuyts, Machtelt Bolkestein and Co Vet (eds.), *Layers and Levels of Representation in Language Theory: a Functional View*. Amsterdam / Philadelphia: John Benjamins, 233-261.
- Dinsmore, J. 1991. *Partitioned Representations*. Dordrecht: Kluwer.
- Dowty, David, Robert Wall and Stanley Peters. 1981. *Introduction to Montague Semantics*. Dordrecht: D. Reidel Publishing Co.
- Dudman, V. H. 1984. "Conditional interpretations of *if*-sentences". *Australian Journal of Linguistics* 4: 143-204.
- Dudman, V. H. 1990. "Grammar, semantics and conditionals". *Analysis* 50: 214-224.

- Dudman, V. H. 1991. "Interpretation of if-sentences". In: Frank Jackson (ed.), *Conditionals*. Oxford: Oxford University Press.
- Edgington, Dorothy. 1997. "Commentary". In: Michael Woods, *Conditionals*. (Edited by David Wiggins, with a commentary by Dorothy Edgington). Oxford: Clarendon Press, 95-137.
- Edgren, Eva. 1971. *Temporal Clauses in English*. Uppsala: Almqvist and Wiksell.
- Eilfort, William H. 1987. "A unified analysis of initial *if*-clauses in English". In: Barbara Need, Eric Schiller and A. Bosch (eds.), *Papers from the 23rd Regional Meeting Chicago Linguistic Society*. Chicago: Chicago Linguistic Society, 56-63.
- Ejerhed Braroe, Eva. 1974. *The Syntax and Semantics of English Tense Markers*. Stockholm: University of Stockholm, Institute of Linguistics.
- Fauconnier, Gilles. 1985. *Mental Spaces: Roles and Strategies*. Cambridge, Mass.: MIT Press.
- Fauconnier, Gilles. 1994a. *Mental Spaces: Aspects of Meaning Construction in Natural Language*. Cambridge University Press.
- Fauconnier, Gilles. 1997. *Mappings in Thought and Language*. Cambridge: Cambridge University Press.
- Fauconnier, Gilles and Mark Turner, M. 1994b. *Conceptual Projection and Middle Spaces*. Technical Report no. 9401. Department of Cognitive Science, University of California, San Diego.
- Fauconnier, G. 1996. "Analogical counterfactuals". In: Gilles Fauconnier and Eve Sweetser (eds.), *Spaces, Worlds and Grammar*. Chicago / London: The University of Chicago Press, 57- 90.
- Fauconnier, Gilles. 1997. *Mappings in Thought and Language*. Cambridge University Press.
- Fillenbaum, Samuel. 1986. "The use of conditionals in inducements and deterrents". In: Elizabeth Closs Traugott, Alice ter Meulen, Judy Snitzer Reilly, and Charles A. Ferguson (eds.), *On Conditionals*. Cambridge: Cambridge University Press, 179-195.

- Fillmore, Charles. 1982. "Frame semantics". In: Linguistic Society of Korea (eds.), *Linguistics in the Morning Calm*. Seoul: Hanshin.
- Fillmore, Charles. 1986. "Varieties of conditional sentences". *Eastern States Conference on Linguistics* 6: 163-182.
- Fillmore, Charles. 1990. "Epistemic stance and grammatical form in English conditional sentences". *Papers from the Twenty-sixth Regional Meeting of the Chicago Linguistic Society*, 137-162.
- Fine, K. 1975. "Critical notice of Lewis 1973". *Mind* 84: 451-58.
- Ford, Cecilia E. 1997. "Speaking conditionally: Some contexts for *if*-clauses in conversation". In: Angeliki Athanasiadou and René Dirven (eds.), *On Conditionals Again*. Amsterdam: John Benjamins, 387-413.
- Fraser, Bruce. 1969. "An analysis of concessive conditionals". In: Robert I. Binnick, Alice Davison, Georgia M. Green and Jerry L. Morgan (eds.), *Papers from the Fifth Regional Meeting of the Chicago Linguistics Society*. Chicago: Chicago Linguistics Society, 66-75.
- Fulcher, Glenn. 1991. "Conditionals revisited". *ELT Journal* 45 (2): 164-168.
- Funk, Wolf-Peter. 1985. "On a semantic typology of conditional sentences". *Folia Linguistica* 19: 365-413.
- Geis, Michael L. 1973. "If and unless. In: Braj B. Kachru, Robert B. Lees, Yakov Malkiel, Angelina Petrangeli and Sol Saporta (eds.), *Issues in Linguistics: Papers in Honor of Henry and Renée Kahane*. Urbana: University of Illinois Press, 231-253.
- Geis, Michael L. and Arnold Zwicky. 1971. "On invited inferences". *Linguistic Inquiry* 2: 561-566.
- Gibbard, Allan. 1981. "Two recent theories of conditional sentences." In: William L. Harper, Rover Stalnaker and Glenn Pearce (eds.), *Ifs: Conditionals, Belief, Decision, Chance and Time*. Dordrecht: Reidel, 211-247.
- Givón, Talmy. 1993. *English Grammar*. Amsterdam: John Benjamins.

- Grice, H. Paul. 1991. "Logic and conversation". In: Frank Jackson (ed.), *Conditionals*. Oxford: Oxford University Press, 155-175. (first published in: Peter Cole and Jerry Morgan (eds.), *Syntax and Semantics*, Vol. 3. Academic Press, 1975)
- Haegeman, Liliane. 1984. "Pragmatic conditionals in English". *Folia Linguistica* 18: 485-502.
- Haegeman, Liliane and Herman Wekker. 1984. "The syntax and interpretation of futurate conditionals in English". *Journal of Linguistics* 20: 45-55.
- Haiman, John. 1978. "Conditionals are topics". *Language* 54: 564-589.
- Haiman, John. 1986. "Constraints on the form and meaning of the protasis". In: Elizabeth Closs Traugott, Alice ter Meulen, Judy Snitzer Reilly, and Charles A. Ferguson (eds.), *On Conditionals*. Cambridge: Cambridge University Press.
- Hancock, Cecily Raysor. "If he would have and if he didn't". *American Speech* 68: 241-252.
- Harder, Peter. 1996. *Functional Semantics: A Theory of Meaning, Structure and Tense in English*. Berlin / New York: Mouton de Gruyter.
- Harper, W. L., R. Stalnaker and G. Pearce (eds.) 1981. *Ifs: Conditionals, Belief, Decision, Chance, and Time*. Dordrecht: Reidel.
- Hegarty, M. 1996. "The role of categorization in the contribution of conditional then: comments on Iatridou". *Natural Language Semantics* 4: 111-119.
- Hilpinen, R. 1981. "Conditionals and possible worlds". In: G. Floistad and G. H. von Wright (eds.), *Contemporary Philosophy*. Vol. 1. The Hague: Nijhoff, 299-335.
- Horn, Laurence. 2000. "From *if* to *iff*: conditional perfection as pragmatic strengthening". *Journal of Pragmatics* 32: 289-326.
- Huddleston, Rodney. 1979. "Would have become: empty or modal will". *Journal of Linguistics* 15: 335-340.
- Iatridou, Sabine. 1991. "If then, then what?" *Proceedings of the Annual Meeting of the North Eastern Linguistics Society* 22: 211-225.
- Iatridou, Sabine. 1994. "On the contribution of conditional then". *Natural Language Semantics* 2: 171-199.

- Iatridou, Sabine. 2000. "The grammatical ingredients of counterfactuality". *Linguistic Inquiry* 31: 231-270.
- Inchaurrealde, Carlos. 1995. "Modals and modality in English". *Miscelánea. A Journal of English and American Studies* 11. Zaragoza: Universidad de Zaragoza, 165-187.
- Inchaurrealde, Carlos. 1996. "Space and movement in the English verb system". In: Martin Pütz and René Dirven (eds.), *The Construal of Space in Language and Thought*. Berlin/New York: Mouton de Gruyter, 167-195.
- Inchaurrealde, Carlos. 1997. "Big time, small time: Aspect in natural language and cognition". In: Birgit Smieja and Meike Tasch (eds.) *Human Contact through Language and Linguistics*. Frankfurt: Peter Lang, 55-67.
- Inchaurrealde, Carlos. 2002. "Sobre la identificación y la inferencia en las construcciones condicionales pragmáticas en inglés". Unpublished paper presented at the 3rd AELCO Conference, Valencia.
- Jackson, Frank (ed.). 1991. *Conditionals*. Oxford: Oxford University Press.
- Jackson, Frank. 1998. *Mind, Method and Conditionals*. London: Routledge.
- Jacobsson, Bengt. 1984. "Notes on tense and modality in conditional *if*-clauses". *Studia Linguistica* 38: 129-147.
- James, Francis. 1986. "Semantics and pragmatics of the word *if*". *Journal of Pragmatics* 10: 453-480.
- Johnson-Laird, Philip N. 1986. "Conditionals and mental models". In: Elizabeth C. Traugott, Alice ter Meulen, Judy S. Reilly and Charles A. Ferguson (eds.), *On Conditionals*. Cambridge: Cambridge University Press, 55-75.
- Karttunen, Laurie. 1971. "Counterfactual conditionals". *Linguistic Inquiry* 2: 566-569.
- Kay, Paul. 1990. "Even". *Linguistics and Philosophy* 13: 59-111.
- König, Ekkehard and Johan Van der Auwera. 1988. "Clause integration in German and Dutch conditionals, concessive conditionals, and concessives". In: John Haiman and Sandra Thompson (eds.), *Clause Combining in Grammar and Discourse*. Amsterdam: John Benjamins.

- Kratzer, Angelika. 1986. "Conditionals". In: Anne M. Farley, Peter T. Farley and Karl-Erik McCullough (eds.), *Papers from the Parasession on Pragmatics and Grammatical Theory at the Twenty-Second Regional Meeting of the Chicago Linguistic Society*. Chicago: Chicago Linguistic Society, 1-15.
- Kripke, Saul . 1972. "Naming and necessity". In: Davidson, Donald and Gilbert Harman (eds.), *The Semantics of Natural Language*. Dordrecht: D. Reidel Publishing Co.
- Lakoff, George. 1987. *Women, Fire and Dangerous Things*. Chicago: University of Chicago Press.
- Lakoff, George. 1990. "The invariance hypothesis: is abstract reason based on image-schemas?" *Cognitive Linguistics* 1 (1): 39-74.
- Langacker, Ronald W. 1991. *Foundations of Cognitive Grammar*. Vol. 2. Stanford, Cal.: Stanford University Press.
- Langacker, Ronald W. 1997. "Generics and habituals". In: Angeliki Athanasiadou and René Dirven (eds.), *On Conditionals Again*. Amsterdam / Philadelphia: John Benjamins, 191-222.
- Lansing, J. 1992. "Mental spaces and the English progressive". University of California, San Diego. Manuscript.
- Lauerbach, Gerda. 1979. *Form und Funktion englischer Konditionalsätze mit "if". Eine konversationslogische und sprechakttheoretische Analyse*. Tübingen: Niemeyer.
- Lawler, John M. 1975. "Elliptical conditionals and/or hyperbolic imperatives: some remarks on the inherent inadequacy of derivation". In: Robin E. Grossman, L. James San and Timothy J. Vance (eds.), *Papers from the 11th Regional Meeting of the Chicago Linguistic Society*. Chicago: Chicago Linguistic Society, 371-382.
- Leech, Geoffrey. 1971. *Meaning and the English Verb*. London: Longman.
- Leech and Svartvik
- Lehnert, W. G. 1981. "Plot units and summarization". *Cognitive Science* 4: 239-331.
- Levinson, Stephen. 2000. *Presumptive Meanings: The Theory of Generalized Conversational Principles*. Cambridge, Mass.: MIT Press.
- Lewis, David. 1968. "Counterpart theory and quantified modal logic". *Journal of Philosophy* 65: 113-126.

- Lewis, David. 1972. "General semantics". In: Davidson, Donald and Gilbert Harman (eds.), *The Semantics of Natural Language*. Dordrecht: D. Reidel Publishing Co.
- Lewis, D. K. 1973. *Counterfactuals*. Oxford: Blackwell.
- Lewis, D. K. 1975. "Languages and language". In: K. Gunderson (ed.), *Language, Mind and Knowledge*. Minneapolis: University of Minnesota Press, 3-35.
- Lewis, D. 1979. "Counterfactual dependence and time's arrow". *Noûs* 13: 455-76.
- Lewis, David. 1986. *On the Plurality of Worlds*. Oxford: Blackwell.
- Lewis, David. 1997. "Counterfactual dependence and time's arrow". In: Frank Jackson (ed.), *Conditionals*. Oxford: Oxford University Press, 46-75.
- Linde, Charlotte. 1976. "Constraints on the ordering of *if*-clauses". *Proceedings of the Annual Meeting of the Berkeley Linguistics Society* 2: 280-285.
- Lycan, W. G. 1991. "Even and even *if*". *Linguistics and Philosophy* 14: 115-150.
- Maule, David. 1988. "'Sorry, but if he comes, I go': Teaching conditionals". *ELT Journal* 42 (2): 117-123.
- Mayes, Patricia. 1994. "Conditionals and the logic of desirability: An interview with Noriko Akatsuka". *Issues in Applied Linguistics* 5 (2): 449-461.
- McCawley, James D. 1981. *Everything that Linguists Have Always Wanted to Know About Logic but Were Ashamed to Ask*. Chicago: The University of Chicago Press.
- McCawley, James D. 1988. "The comparative conditional construction in English, German and Chinese". *Proceedings of the Annual Meeting of the Berkeley Linguistics Society* 14: 176-187.
- Minsky, Marvin. 1975. "A framework for representing knowledge". In: P. H. Winston (ed.). *The Psychology of Computer Vision*. New York: McGraw-Hill.
- Minsky, Marvin. 1977. "Frame-system theory". In: N. P. Johnson-Laird and P. C. Wason (eds.). *Thinking: Readings in Cognitive Science*. Cambridge: Cambridge University Press.
- Montague, Richard. 1974. *Formal Philosophy: Selected Papers of Richard Montague* (edited by R. H. Tomasen). New Haven: Yale University Press.

- Nieuwint, Peter. 1986. "Present and future in conditional protases". *Linguistics* 24: 371-392.
- Palmer, Frank R. 1983. "Future time reference in the conditional protasis: a comment on Comrie". *Australian Journal of Linguistics* 3: 241-243.
- Palmer, Frank R. 1986. *Mood and Modality*. Cambridge: Cambridge University Press.
- Palmer, Frank R. 1990. *Modality and the English Modals*. London: Longman.
- Partee, Barbara Hall. 1975. "Montague grammar and transformational grammar". *Linguistic Inquiry* 6: 203-300.
- Partee, Barbara Hall (ed.) 1976. *Montague Grammar*. New York: Academic Press.
- Pelç, Jerzy. 1985. "Conditionals and intensionality". In: Herman Parret and Hans-George Ruprecht (eds.), *Aims and Prospects of Semiotics: Essays in Honor of Algirdas Julien Greimas*. Amsterdam: John Benjamins, 53-72.
- Podlesskaya, Vera Isaakovna. 1997. "Syntax and semantics of resumption: Some evidence from Russian conditional conjuncts". *Russian Linguistics* 21 (2): 125-155.
- Radden, G. 1997. "Time is space". In: Birgit Smieja and Meike Tasch (eds.), *Human contact through Language and Linguistics*. Frankfurt: Peter Lang, 147-166.
- Ramsey, Frank P. 1978. "General propositions and causality". In: Frank Ramsey, P. and David H. Mellor (eds.), *Foundations: Essays in Philosophy, Logic, Mathematics and Economy*. London: Routledge and Kegan Paul.
- Rubba, J. 1996. "Alternate grounds in the interpretation of deictic expressions". In: Gilles Fauconnier and Eve E. Sweetser (eds.), *Spaces, Worlds, and Grammar*. Chicago: University of Chicago Press.
- Rutherford, William E. 1970. "Some observations concerning subordinate clauses in English". *Language* 46: 97-115.
- Sampson, Geoffrey. 1971. "Subordinate future deletion and hyperclauses". *Linguistic Inquiry* 2: 587-589.
- Sanders, J. and G. Redeker. 1996. "Perspective and the representation of speech and thought in narrative discourse". In: Gilles Fauconnier and Eve E. Sweetser (eds.), *Spaces, Worlds, and Grammar*. Chicago: University of Chicago Press.

- Sanford, David H. 1989. *If P, then Q: Conditionals and the Foundations of Reasoning*. London: Routledge.
- Sanford, Anthony J. and Simon C. Garrod. 1981. *Understanding Written Language*. New York: Wiley.
- Schachter, J. 1971. *Presupposition and Counterfactual Conditional Sentences*. PhD. Dissertation, University of California at Los Angeles.
- Schank, Roger C. and R. P. Abelson. 1977. *Scripts, Plans, Goals and Understanding*. Hillsdale, N. Y.: Lawrence Erlbaum.
- Schiffrin, Deborah. 1992. "Anaphoric *then*: aspectual, textual, and epistemic meaning". *Linguistics* 30: 753-792.
- Smith, Neil V. 1983. "On interpreting conditionals". *Australian Journal of Linguistics* 3: 1-24.
- Stalnaker, R. C. 1968. "A theory of conditionals". In: N. Rescher (ed.), *Studies in Logical Theory*. Oxford: Blackwell, 98-112.
- Sweetser, Eve E. 1990. *From Etymology to Pragmatics. Metaphorical and Cultural Aspects of Semantic Structure*. Cambridge University Press.
- Sweetser, Eve E. 1996. "Mental spaces and the grammar of conditional constructions. In: Eve Sweetser and Gilles Fauconnier (eds.), *Spaces, Worlds and Grammar*. Chicago: The University of Chicago Press, 318-333.
- Taylor, John R. 1997. "Conditionals and polarity". In: Angeliki Athanasiadou and René Dirven (eds.), *On Conditionals Again*. Amsterdam / Philadelphia: John Benjamins, 289-306.
- Tedeschi, Philip J. 1997. "Complementizers and conditionals". In: Woodford A. Beach, Samuel E. Fox and Shulamith Philosoph (eds.), *Papers from the 13th Regional Meeting of the Chicago Linguistic Society*. Chicago: Chicago Linguistic Society, 629-639.
- Tedeschi, Philip J. 1981. "Some evidence for a branching-futures semantic model". In: Philip J. Tedeschi and Annie Zaenen (eds.), *Syntax and Semantics 14: Tense and Aspect*. New York: Academic Press, 239-269.

- Thiersch, Craig. 1982. "The harder they come...: a note on the double comparative construction in English". In: Werner Welte (ed.), *Festschrift für Alfred Wollmann*. München: Hueber, 47-65.
- Tooley, Michael. 2002. "Backward causation and the Stalnaker-Lewis approach to counterfactuals". *Analysis* 62 (3): 1-7.
- Traugott, Elizabeth C. 1985. "Conditional markers". In: John Haiman (ed.), *Iconicity in Syntax*. Amsterdam / Philadelphia: John Benjamins, 289-310.
- Traugott, Elizabeth C. 1997. "Unless and but conditionals: a historical perspective". In: Angeliki Athanasiadou and René Dirven (eds.), *On Conditionals Again*. Amsterdam / Philadelphia: John Benjamins, 145-167.
- Traugott, Elizabeth Closs, Alice ter Meulen, Judy Snitzer Reilly, and Charles A. Ferguson (eds.). 1986. *On Conditionals*. Cambridge: Cambridge University Press.
- Tregidgo, Philip S. 1980. "Tense-patterns in conditional sentences". *English Language Teaching Journal* 34: 186-191.
- Van Benthem, Johan. 1988. *A Manual of Intensional Logic*. Stanford: CSLI.
- Van der Auwera, Johan. 1983. "Conditionals and antecedent possibilities". *Journal of Pragmatics* 7: 297-309.
- Van der Auwera, Johan. 1986. "Conditionals and speech acts". In: Elizabeth Closs Traugott et al. (eds.), *On Conditionals*. Cambridge: Cambridge University Press, 197-213.
- Van der Auwera, Johan. 1997. "Conditional perfection". In: Angeliki Athanasiadou and René Dirven (eds.), *On Conditionals Again*. Amsterdam / Philadelphia: John Benjamins, 169-190.
- Van Hoek, K. 1996. "Conceptual locations for reference in American sign language". In: Gilles Fauconnier and Eve E. Sweetser (eds.), *Spaces, Worlds, and Grammar*. Chicago: University of Chicago Press.
- Von Stechow, Kai. 1991. "Exceptive conditionals: the meaning of unless". *Proceedings of the Annual Meeting of the North Eastern Linguistics Society* 22: 135-148.
- Von Stechow, Kai. 1997. "Bare plurals, bare conditionals, and only". *Journal of Semantics* 14: 1-56.

- Wakker, Gerry. 1996. "Conditionals at different levels of the clause". In: Betty Devriendt, Louis Goossens and Johan van der Auwera (eds.), *Complex Structures: A Functionalist Perspective*. Berlin: Mouton de Gruyter, 179-199.
- Werth, Paul. 1995. *Text Worlds: Representing Conceptual Space in Discourse*. London: Longman.
- Werth, Paul. 1997a. "Conditionality as cognitive distance". In: Angeliki Athanasiadou and René Dirven (eds.), *On Conditionals Again*. Amsterdam / Philadelphia: John Benjamins, 243-271.
- Werth, Paul. 1997b. "Remote worlds: the conceptual representation of linguistic *would*". In: Jan Nuyts and Eric Pederson (eds.), *Language and Conceptualization*. Cambridge: Cambridge University Press, 84-115.
- Whitaker, S. F. 1971. "Unless". *English Language Teaching Journal* 24: 154-161.
- Wierzbicka, Anna. 1997. "Conditionals and counterfactuals: conceptual primitives and linguistic universals". In: Angeliki Athanasiadou and René Dirven (eds.), *On Conditionals Again*. Amsterdam / Philadelphia: John Benjamins, 15-59.
- Woods, Michael, 1997. *Conditionals*. (Edited by David Wiggins, with a commentary by Dorothy Edgington). Oxford: Clarendon Press.
- Wunderlich, Dieter. 1977. "Assertions, conditional speech acts, and practical inferences". *Journal of Pragmatics* 1: 13-46.