

*Discourse connectives: what do they link?**

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Abstract

Discourse connectives (eg. *but, moreover, therefore, so*, etc.) have been analysed within the coherence theory framework as linking units of discourse; within the relevance-theoretic framework they are seen as linking a unit of discourse and a context, which may be consisting of prior discourse but often is not. These two approaches are discussed and evidence, drawing on the syntactic and semantic properties of connectives as well as tests on conditions of usage, is provided in support of the relevance-theoretic analysis.

1 Introduction

In this paper I will discuss the semantics of connectives, i.e. little words like *whereas, but, moreover*, etc, and investigate the way they contribute to utterance interpretation. I will briefly review and compare the relevance-theoretic approach to connectives and, what I will call, the coherence-based approach. There are, as we will see, important differences as well as some striking similarities between the two accounts. The discussion here will focus on a question which receives quite different answers in the two accounts: What do connectives link? Do they link the utterance they introduce with previous discourse units, as coherence theorists believe, or do they link that utterance with a context, which may be verbal but often is not, as relevance theorists argue? And what are the implications of taking one or the other view for building an adequate account of the role of connectives in communication?

I will often be referring to 'the relevance-theoretic approach' to connectives and the 'coherence-based approach' to connectives, without mentioning specific works. So, let me start by explaining which people and what kind of work I have in mind in each case. Within relevance theory the most influential work on connectives is Diane Blakemore's

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book *Semantic Constraints on Relevance*, published in 1987 and followed by a series of articles, where she puts forward an account of connectives based on relevance-theoretic assumptions about communication and, crucially, introduces the idea, about which more shortly, that connectives encode procedural, rather than conceptual information. This line of investigation has since been very fruitful (for references see Wilson and Sperber 1993 and Sperber and Wilson 1995).

Within coherence theory, on the other hand, people discuss the role of connectives from rather different angles; what brings their work together is a number of background assumptions: that texts are coherent, that there is a definable set of coherence relations, and that the recovery of such coherence relations are essential for comprehension. The set of connectives I will be considering here are among the so-called 'cue words' whose function is to make such coherence relations explicit. Here I want to mention in particular the work by Mann and Thompson (1986), Knott & Dale (1994), Sanders, Spooren and Noordman (1993), Fraser (1990), and Hovy (1994).

2 Relevance theory, coherence theory and connectives

Relevance theory and coherence theory take very different views on communication and that has consequences for the analysis of connectives suggested by each of these frameworks. I will not give here a detailed review of each position but rather I will focus on one similarity in the way the two accounts analyse connectives and one important difference.

Coherence theorists assume that the most important property of texts, crucially involved both in text generation and in text comprehension, is that texts are coherent. Coherence is analysable in terms of a set of coherence relations, i.e. a set of implicit relations that bind/hold the text together. Examples of coherence relations are CAUSE, SEQUENCE, CONDITION, EVIDENCE, ELABORATION, etc. Now, text comprehension crucially hinges on the recovery of such relations. So, to take a famous example from Mann and Thompson (1986: 60), a coherence-based analysis of the discourse in (1) would go roughly like this:

(1) I'm hungry. Let's go to the Fuji Gardens

(1) is a coherent piece of discourse. The two utterances are somehow held together. To understand this discourse the hearer has to, among other things, recover the coherence

relation between the two discourse units. Mann and Thompson propose that the relation in question here is SOLUTIONHOOD. So, to interpret (1) the hearer has to recover a relational proposition like (2):

(2) Our going to the Fuji Gardens is a partial solution to my problem of being hungry

Where do connectives come in in this account of utterance interpretation? For coherence theorists connectives may be used to make the implicit coherence relations explicit — hence, the term 'cue words/ phrases'. For example, *but* in (3) makes explicit the relation of CONTRADICTION (Ivir et al. from Hovy 1994):

(3) He votes Tory but I trust him

where CONTRADICTION is defined in the following way: 'The discourse structure relation implies that S2 is not an expected consequence of S1'.

Let me now turn to the relevance-theoretic account. I will not here outline the basic assumptions of relevance theory. I will only briefly mention two issues that have a prominent role in the relevance-theoretic account of utterance interpretation and which are crucial for the relevance-theoretic account of connectives. The first one has to do with the selection and role of context, the second one has to do with the importance of processing effort considerations in interpreting an utterance.

Usually a speaker has a specific interpretation of her utterance in mind and expects the hearer to arrive at that interpretation. To arrive at the intended interpretation of an utterance the hearer must process that utterance in the right, i.e. the intended context. The selection of context is governed by considerations of optimal relevance. Now, the speaker may have reason to believe that the hearer will choose the appropriate contextual assumptions and draw the appropriate conclusions without any extra help from her, or she may decide to direct the hearer towards the intended interpretation by making a certain set of assumptions immediately accessible. Connectives is one of the linguistic devices the speaker may use to that effect. According to Blakemore (1987:77, 1989:21)

Their sole function is to guide the interpretation process by specifying certain properties of context and contextual effects. In a relevance-based framework, where the aim is to minimise processing costs, the use of such expressions is to be expected.

Recall that accessing the context in which an utterance is to be interpreted involves a cost, and that the greater the processing effort required to arrive at an interpretation the less relevant that interpretation is. The presence of one connective or another guides the hearer towards the intended contextual assumptions and effects; in other words the speaker gives a clear indication as to how she intends her utterance to achieve relevance and thus she saves the hearer some processing effort in arriving at the intended interpretation.

On Blakemore's account the analysis of (3) would go like this: The speaker uses *but* to indicate that the proposition it introduces is relevant as a denial of an expectation created by the proposition expressed by the first clause. She utters the *but*-clause because she believes that the first utterance has given rise to a contextual implication, namely that the speaker does not trust 'him', which she wants to deny. Note that if *but* was not there the hearer could construe the second proposition in a different way: possibly, as evidence or an explanation for the first one. The speaker uses *but* in order to exclude these ways of establishing the relevance of the second utterance.

Having looked at the two accounts briefly what is interesting to note is that there is a striking similarity in the way the relevance-theoretic and the coherence-based approach analyse the role of connectives in utterance interpretation. On both accounts connectives have a constraining function. For coherence theorists connectives constrain the relational propositions which express the coherence relations the hearer needs to recover in order to interpret a discourse. For relevance theorists connectives constrain the interpretation process by guiding the hearer towards the intended context and contextual effects. On both accounts connectives play a facilitating role. However, the facilitating role of connectives is very well integrated in the relevance-theoretic account, following naturally from the basic relevance-theoretic assumption that the speaker aims to ensure the intended interpretation, making the hearer's job as easy as possible. On the other hand, there is nothing in coherence theory that might provide any motivation for the existence of such linguistic devices like discourse connectives. There is no psychological explanation, in other words, why a speaker would try to indicate the right coherence relation by choosing a connective.

The most important difference between the relevance-theoretic and the coherence-based approach to connectives is this. For coherence theorists, as we saw, connectives indicate specific coherence relations (or sets of them). Now, coherence relations are expressed by relational conceptual representations, like the one in (2). It follows that the meaning of connectives is representational. According to relevance theorists, on the other hand,

connectives encode procedural meaning. According to Blakemore (1987:144), the theory of linguistic semantics is non-unitary:

On the one hand, there is the essentially conceptual theory that deals with the way in which elements of linguistic structure map onto concepts, i.e. onto constituents of propositional representations that undergo computations. On the other, there is the essentially procedural theory that deals with the way in which elements of linguistic structure map directly onto computations themselves, i.e. onto mental processes.

The distinction between conceptual and procedural meaning, two different types of linguistically encoded meaning, has been explored further in recent writings and lectures by Deirdre Wilson and Dan Sperber (Wilson and Sperber 1993, Wilson 1990, 1991, 1994a,b). This distinction echoes earlier philosophical distinctions: Austin's distinction between describing and indicating and Grice's distinction between saying and conventionally implicating, but is designed to reflect a more fundamental cognitive distinction between representation and computation. Roughly, words with conceptual meaning contribute to the content of assertions and are analysed as encoding elements of conceptual representations. Words with procedural meaning, on the other hand, encode information about how these representations are to be used in inference, they tell you how to 'take' these representations. So, in the case of connectives, the claim is that connectives do not contribute to the proposition expressed by an utterance or to any other conceptual representation the utterance may communicate; rather they point the hearer to the context in which he is expected to process the utterance and the conclusions he should be drawing from it.

Note that the recognition of two types of encoded meaning, conceptual and procedural, fits very well with the relevance-theoretic view of communication, i.e. that communication is an essentially inferential process. Linguistic decoding provides the input for this process which surely involves the construction and manipulation of mental representations. It is, therefore, to be expected that linguistic expressions may encode two types of information: information which contributes directly to the construction of conceptual representations, i.e. concepts, and information on how to manipulate these representations, i.e. procedures. I will return to the conceptual-procedural distinction later.

3 What do connectives link?

Let me now turn to the issue I want to discuss in more detail in this paper. For coherence theorists connectives link two discourse units, usually understood as two consecutive clauses. (I will for now leave out the issue of global coherence). For relevance theorists, on the other hand, connectives link an utterance and a context or contextual effects. The context that a particular connective suggests may be verbal (for instance, the previous utterance) but it doesn't have to.

To evaluate these claims, we need to look at connectives introducing utterances which initiate discourse. When I say that the utterance introduced by a connective occurs discourse initially, I mean that there is no prior deliberate stimulus (say another utterance or a gesture or a facial expression) intended to attract the speaker's attention and that might cause a reaction on her part; so I am talking about the outset of an instance of intentional communication. In Sperber & Wilson's terms, there is no prior ostensive stimulus. Unfortunately for coherence theorists, most connectives seem to occur happily discourse initially:

- (4) a. (Context: Peter is weighing a portion of muesli)
Mary: I should pay some attention to my diet *too*
- b. (Context: Peter is back from jogging)
Mary: *So* you're trying to keep fit
- c. (Context: Peter comes home from work at 3.00)
Mary: *But* you had to work late shift today
- d. (Context: Peter is browsing through a PC magazine)
Mary: We should be thinking of buying a computer *indeed*
- e. (Context: Peter has his leg in plaster)
Mary: *Even* a small child would have seen that manhole

Such examples suggest that the fact that *but*, *also*, *too*, etc. often connect two utterances is in some sense accidental; what is crucial, say for *but*, is that it indicates that the proposition it introduces denies some other contextually manifest proposition, which may

have been verbally expressed but does not have to. So, such examples provide good support for the relevance-theoretic account of connectives.

On the other hand, there is no way, as far as I can see, that the coherence-based approach could account for these examples. Remember that what it says is that connectives connect two discourse units/segments — well, there is only one here. In fact I've never seen such examples being discussed in the coherence-based literature and yet these are the most common uses of connectives. Notice that in none of these contexts does Peter intend Mary to react at his weighing muesli, returning from jogging, entering the house, etc. So, there is no way you could argue that Peter's sentence is simply omitted here. You may perhaps try to argue that Mary's utterance in each case is the continuation of another sentence she could have uttered but did not. But then, you need an account of the conditions under which speakers may felicitously do this and I've never seen one in the coherence theoretic literature. Moreover, it will not be simple to provide one given the fact, to which we are now turning, that certain connectives cannot occur discourse intially:

- (5) a. (Context: Peter is eating a burger)
Mary: *Whereas your wife only eats salads and fruit
- b. (Context: Peter is cleaning the bathroom)
Mary: *Moreover, you did the washing up
- c. (Context: Peter is checking the tires of the car)
Mary: *However/*Nevertheless, you never check the oil
- d. (Context: Peter comes in laden with parcels)
Mary: *Therefore, you've spent all your money

The coherence-based approach can explain the infelicity of these examples: connectives link two discourse units and here there is only one. Within the relevance-theoretic account, however, which so far seems more promising, some explanation has to be given for such examples. And this is what I will aim to do in the rest of this paper. The hypothesis I want to investigate is that whether a connective may occur discourse intially depends on its syntactic and/or semantic properties.

One of the things that is not usually discussed in accounts of discourse connectives is their syntactic status. There is little doubt that the study of pragmatic markers in general would profit significantly if we had a better understanding of their syntactic properties.

With respect to the problem I am discussing here I will show that syntactic considerations do provide us often with (at least) a partial solution.

Some of the connectives under discussion here are conjunctions, i.e. they can only occur at the beginning of the clause they introduce: *but* is the prototypical example in this category. Other connectives have more of an adverbial nature, for instance *after all*, *indeed*, *also*. Among the connectives that cannot occur discourse initially *whereas* is a conjunction; *therefore*, *moreover*, *however*, *nevertheless*, on the other hand, are adverbials, behaving a lot like parentheticals: they may occur utterance initially, finally or in mid-sentence position:

- (6) a. The house is beautiful. However, it is too expensive
 It is too expensive, however
 It is, however, too expensive
- b. The house is not beautiful. Moreover, it is too expensive
 It is, moreover, too expensive
 It is too expensive, moreover

Now, conjunctions may link two clauses paratactically, for instance the coordinator *and*; or, they may be subordinators, i.e. subordinating the clause they introduce to another clause, for instance *because*. The hypothesis I am going to investigate with respect to *whereas* is that it is a subordinating conjunction and as such cannot introduce a clause discourse initially (where there is no main clause): its syntactic nature requires that the sentence it introduces is embedded. This hypothesis finds some initial support in the fact that clearly subordinating conjunctions like *because*, *after*, *in order to*, etc cannot occur discourse initially:

- (7) a. (Context: Mary knows that Jane's boyfriend beats her and that she wants to split up; Jane walks in covered in bruises)
 Mary: *Because you threatened to leave him
- b. (Context: Jane walks in in her black dress)
 Mary: *In order to go to Peter's party
- c. (Context: Peter is sitting on the couch watching the news. Mary walks in)
 Mary: *After you watched football

This suggests the following way of determining whether *whereas* is a subordinator: In the following dialogues consider whether the second utterance has to be understood as a continuation/completion of the first one (i.e. no other interpretation is possible). A positive answer suggests that the utterance under consideration is introduced by a subordinating conjunction:

- (8) a. Peter: I'm not going to return any of the money I borrowed from you
Mary: Because I don't want to live with you any more
- b. Peter: Lucy eventually found her suitcase
Mary: After she spent two hours looking for it
- c. Peter: I'll be home this evening
Mary: And I'll cook supper
- d. Peter: Sound investments like mine never endanger the company
Mary: Whereas unsound ones like mine always do

The utterances introduced by *because*, *after* and *whereas* have to be understood as continuing the previous utterance; this suggests that *whereas* is a subordinator like *because* and *after*. By contrast, Mary's utterance in (8c) introduced by the coordinator *and* may be understood either as completion of the previous utterance or as Mary's independent assertion.

Also, there are syntactic tests to determine whether an utterance introduced by a certain connective is subordinate to the previous utterance or not (Warner 1979, Green 1976, Hoeksema and Napoli 1993). The most convincing of these tests is the one based on binding considerations: If the second clause is syntactically subordinated to the first, then a quantifier or quantified NP including *any* in the first clause can bind a pronoun in the second clause (but not vice versa). In paratactic structures binding is not permitted.

- (9) a. Anyone_i would say that he_i likes Mary
b. Paul didn't hire any ballerina_i because he liked her_i looks
c. *Everybody_i left and he_i went home
d. Every ballerina_i got pregnant whereas she_i should have chosen not to

On the basis of this test *whereas* is clearly a subordinating conjunction.

Another test is this: negative NP preposing is not possible in subordinate clauses:

- (10) a. *I knew that not a bite had he eaten
 b. *We'll have to leave because not a bite has he eaten
 c. *John ate a lot whereas not a bite did Jane eat
 d. He was terribly hungry but not a bite did he eat

Again, the clause introduced by *whereas* comes out as subordinate.

Another test has to do with the possibility of a connective to cooccur with *and*: in a conjunction 'P and Q' P and Q must be the same sort of constituents, i.e. main clauses. So, if there is a connective in Q it must enforce paratactic linking.

- (11) a. *Mary resigned and because her boss insulted her
 b. *Mary would resign and unless her boss apologised
 c. *John ate a lot and whereas Mary didn't eat a thing

Again, *whereas* seems to pattern with subordinating conjunctions.

Finally, embedded truncations are generally bad:

- (12) a. ? *I know that I wanna go
 b. ? *I'd better get my coat because I wanna leave now
 c. Suzie got a hamster and/but I wanna get a rabbit
 d. ? Mary wants to go skiing whereas I wanna go fishing

The conclusion is that *whereas* is a subordinating conjunction. It is not surprising then that an utterance introduced by *whereas* cannot occur discourse initially by itself: the subordinating nature of *whereas* requires that the sentence it introduces is embedded.

Next, I will consider *therefore*. In contrast to *so*, *therefore* cannot occur discourse-initially. According to Blakemore, the reason is the particular semantic properties of *therefore*: it marks the proposition it introduces as the conclusion of a proof — premises are always explicit in a proof:

a speaker can't be said to be proving something if he doesn't present the proof (1992:139)

Another consideration is this. In addition to its inferential use discussed by Blakemore and exemplified in (13), *therefore* has a causal use as shown in (14):

- (13) He is a philosopher; he is, therefore, brave
(from Grice 1975)
- (14) Bill hit Mary and therefore she was covered in bruises
(from Kempson 1975:214)

When *therefore* expresses a causal connection, it is best paraphrased as 'as a result of this' and it makes a contribution to the truth-conditions of the utterance. The fact that the inferential *therefore* cannot occur discourse initially suggests that *therefore* retains its anaphoric nature in its non-truth-conditional use as well.

Let's turn to *moreover* now. The first thing to notice here is that the situation with respect to *moreover* is not clear: some of my informants accept it discourse initially, others find it somewhat odd (they would have preferred *also* or *too*), and others find it unacceptable (and this is the largest group). It would be nice if this could be reflected in the explanation one offers for this connective.

There are two basic differences between *also* and *too*, on the one hand, and *moreover*, on the other. First, *moreover* can only be used for parallel confirmation, i.e. it indicates that the proposition it introduces should be processed in parallel with some other contextually manifest assumption leading to the confirmation of the same conclusion; *also* and *too*, by contrast can be used in a variety of other ways as well, as Blass (1990: 134-156) has shown in detail. More important for my purposes is that *moreover* does not interact with focus the way *too* and *also* do. Compare the following examples:

- (15) a. PETER also/*moreover drives a car
b. Peter also/*moreover DRIVES a car
c. Peter drives a CAR also/*moreover

As Blakemore has already discussed in her book, the interaction of *also* with focus simplifies the hearer's task of finding the contextually manifest assumption which the hearer is intended to process in parallel with the proposition introduced by *also*. The idea, which originates from Sperber and Wilson's work on focus (Wilson and Sperber 1979, Sperber and Wilson 1986), is this: the stress on 'Peter' in (15a) indicates that the proposition in (15a) achieves relevance by providing a value for the variable 'someone'

in the proposition in (16) (in addition to being an entailment, (16) is one of the background propositions against which (15a) is to be processed):

(16) Someone drives a car

Also indicates to the hearer that the proposition it accompanies should be processed in parallel with some other proposition; the interaction of *also* and focus constrains the hearer's search by instructing him to process the proposition in (15a) in parallel with a proposition similar to (16), in which, however, the value for the variable 'someone' is other than 'Peter'.

Parallel processing is a relatively difficult inferential task to perform: in any given instance there will be a variety of assumptions that could be processed in parallel with the one in which *also* or *moreover* occurs yielding similar conclusions. Interaction of say *also* with focus simplifies this task by suggesting what the proposition the hearer is searching for looks like. Where there is no such interaction, as in the case of *moreover*, the hearer's task seems to be far too difficult, and therefore a previous utterance is necessary.

Unfortunately, this is not a full explanation given examples like (17) where *also* and *too* are used parenthetically, i.e. without interacting with focus, at the beginning of a discourse:

(17) (Context: Peter is having only salad for lunch)
Mary: You went jogging this morning, *also/too/?moreover*

Another consideration to take into account here is that *moreover* is somewhat archaic, and given that there are at least two other connectives which can be used for parallel confirmation and are stylistically unmarked, the speaker will, everything else being equal, prefer to use one of those. A similar (partial) explanation hinging on stylistic considerations can be given for the fact that *however* and *nevertheless* cannot occur discourse initially in contrast to *but* in the denial of expectation use.

4 Connectives and procedural meaning

I have proposed an explanation for why *whereas* and *therefore* cannot occur discourse initially and we have the beginnings of an account for the similar behaviour of *moreover*, *however* and *nevertheless*. On the basis of the evidence we have got so far, it is clear that

the relevance-theoretic approach to connectives is more adequate than the coherence-based approach, on which it is impossible to explain in any principled way the fact that most connectives may occur discourse initially.

In fact, there is a slightly different way of constructing the relevance-theoretic answer to the question 'what do connectives link?' which suggests that the fact that certain connectives may not occur discourse initially, although interesting and worth of an explanation in its own right, does not really bear on the essence of the relevance-theoretic account of connectives.

Remember that the claim which distinguishes the relevance-theoretic account from the coherence-based account is that connectives encode procedural meaning. In Deirdre Wilson's lectures on Semantic Theory since around 1990 and in many works on connectives since then, for instance Blass's book *Relevance Relations in Discourse*, and Blakemore's recent book (1992), and definitely since Wilson and Sperber (1993), it has been stressed that the essential property of connectives is to indicate the inferential process the hearer is expected to go through. Taking this into account, connectives should be seen as linking not so much an utterance and a context but rather an utterance and a specific inferential process: very simply put, *but* is linked to the inferential process of contradicting and eliminating an assumption, *so* is linked to the inferential process of drawing a conclusion, *whereas* is linked to the inferential process of parallel processing leading to contrasting conclusions, *moreover* is linked to the inferential process of parallel processing leading to the confirmation of the same conclusion, etc. This way of answering the question addressed in this paper shows that the fact that certain connectives cannot occur discourse initially is in some sense arbitrary (as the syntactically motivated explanations also suggest), and in any case of no consequence for the relevance-theoretic approach to connectives. What is essential in this approach is that connectives constrain the inferential phase of communication by pointing to the particular inferential process that the hearer is intended to go through.

There is further motivation for claiming that connectives link an utterance with the inferential process the hearer is expected to go through: it is in general more in line with the way procedural encoding is understood. Wilson and Sperber (1993) show that the distinction between conceptual and procedural meaning is a fundamental distinction in linguistic semantics which cross-cuts the distinction between the implicitly and the explicitly communicated content of an utterance. Connectives are only one of the various linguistic devices which encode procedural meaning. Pronouns (*I, he, etc.*), mood indicators (interrogative and imperative mood), and attitudinal and illocutionary particles (*huh, eh, etc.*) may also be analysed in procedural terms. Whereas connectives are seen

as constraints on the implicatures of an utterance, pronouns are argued to be constraints on the proposition expressed by an utterance, and mood indicators, attitudinal and illocutionary particles are best analysed as constraints on the higher level explicatures of an utterance. Neither in the case of pronouns nor in the case of attitude and illocutionary force indicating devices does it make sense to argue that they guide the hearer towards a particular set of contextual assumptions and effects. A pronoun like *he* guides the search for the intended referent by narrowing down the class of candidates that the hearer need consider: he need only consider males. A mood indicator guides the search for the intended interpretation by narrowing down the propositional attitude descriptions the hearer need consider. Moreover, not all connectives can be analysed as constraints on the implicatures of an utterance. For instance, *therefore* when it expresses a causal connection contributes to the proposition expressed by an utterance. If a procedural account of the causal *therefore* is viable, then it could not be claimed that it indicates the intended context and contextual effects of an utterance; it is more plausible to argue that in this use too *therefore* links the utterance to the inferential process of reaching a conclusion, only this time on the basis of causal evidence.

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