

TEXT AND CONTEXTUAL INFORMATION RETRIEVAL: A RELEVANCE-THEORETIC APPROACH TO COHESION

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Abstract

This paper argues for a pragmatically based reconsideration of cohesion-based approaches to information retrieval during comprehension, suggesting that a Relevance-based approach is preferable on both descriptive and explanatory grounds. It outlines a number of descriptive and explanatory problems dating back to Halliday and Hasan's (1976, 1985; Hasan 1984) early view of cohesion, which seem to call for pragmatic solutions, and argues that *interpretively used* and *echoic* utterances raise serious questions as to the text-constitutive potential of cohesion. It goes on to discuss a number of cases that seem to pose problems for purely cohesion-based approaches but are straightforwardly explained by the Relevance-Theoretic account.

Keywords: Cohesion; Text; Pragmatics; Relevance Theory; Conceptual ties; Information retrieval processes; Cognitive environment; Intertextuality; Inference.

1. Introduction

Many textual theorists, whether in text linguistics, Discourse Analysis or literary theory, have tended to treat cognitive pragmatic processes as playing a rather limited part in their overall framework. As a result, core questions about the nature of text have often been tackled largely independently of parallel advances in pragmatic research. However, developments in pragmatics in the last twenty years have made the attempt to incorporate pragmatic theory into the study of text seem increasingly worthwhile. Recently, a number of pragmatically informed approaches to Discourse Analysis (e.g. Maillat and Oswald 2009; Hart 2011; Oswald 2011; Saussure 2007 and 2011) have made positive moves in this direction, offering a concrete illustration of how pragmatic considerations can shed new light on pervasive questions at the heart of text studies and open the way to a renewal of the domain and methods of textual enquiry.

In this paper, I will argue for a pragmatically based reconsideration of an issue widely debated in the text-linguistic and psycholinguistic literature: The nature and role of cohesion. Adapting some ideas from Relevance Theory (Sperber and Wilson 1995;

Wilson and Sperber 2012), I will present a number of descriptive and explanatory problems which date back to Halliday and Hasan's (1976, 1985; Hasan 1984) early view of cohesion, and which seem to call for pragmatic solutions.¹ More specifically, I will argue that *interpretively used* and *echoic* utterances raise serious questions about whether a purely cohesion-based approach can account for the constitution of texts. The interpretation of such utterances often depends on information retrieved from earlier but temporally distant sources. If discourse-internal types of information retrieval – which are standardly treated as cohesive – are no more constitutive of text than information retrieved from other, discourse-external sources, then cohesion seems to be only a sub-case of the more general issue of how audiences draw on contextually available information in arriving at a satisfactory interpretation. I will go on to discuss a number of examples that seem to pose problems for purely cohesion-based approaches to the retrieval of contextually available information, even when this information is discourse-internal, and argue that a Relevance-based account is preferable on both descriptive and explanatory grounds.²

2. Tension between two aspects of cohesion

A closer look at Halliday and Hasan's project reveals that *Cohesion in English* is tackling two distinct, though related, questions, which it often seems to equate. The first question arises from the authors' definition of cohesion as

[the phenomenon which] occurs when the interpretation of some element in the discourse is dependent on that of another. The one presupposes the other, in the sense that it cannot be effectively decoded except by recourse to it. When this happens, a relation of cohesion is set up, and the two elements – the presupposing and the presupposed – are thereby at least potentially integrated into a text' (1976: 4).

As this excerpt shows, the authors realized that successful interpretation often involves a process of retrieving information interpreted at some previous stage in a given discourse, and call this phenomenon 'cohesion'. It follows that a cohesive relation (or 'cohesive tie' in Halliday and Hasan 1976: 3) involves at least two areas of the text,

¹ In the '70s and '80s many other works tackled the same issue (Greenbaum 1969; Quirk et al. 1972, 1985; Gutwinski 1976; Dressler 1978; De Beaugrande and Dressler 1981; Petöfi 1973; Petöfi and Söze 1983; Heydrich et al. 1989), but Halliday and Hasan's surveys are the most systematic and thorough, epitomizing most of the major insights and drawbacks of the cohesion approach. I would like to stress here that Halliday and Hasan's model has been fundamental for text-linguistic scholarship and has inspired research in other domains too: For instance, Givón's (2002) proposals on conceptual referential accessibility or Lascarides et al.'s (1996) suggestions on ambiguity and coherence, in my view, owe a lot to the original work carried out by Halliday and Hasan in the framework of lexical cohesion.

² Other attempts at subsuming cohesion under a broader notion of coherence have been made by coherence-based and mental models-based approaches such as Asher and Lascarides (2003), Grosz and Sidner (1986), Grosz et al. (1995), Hobbs et al. (1993), Lascarides and Asher (2009), Sanjose et al. (2006), van Dijk (2006) and Webber et al. (2003). These attempts represent a significant step towards a cognitive treatment of the issue but do not offer solutions to the problems I will raise here about interpretive and echoic uses, and they cannot in themselves supply an adequate explanatory model of how the relevant presupposed information is accessed in our cognitive environment and by what mechanisms it is pragmatically supplied during the interpretation process.

between which a relation of ‘presupposition’ obtains. Halliday and Hasan’s analysis does not further explain how the term ‘presupposition’ is to be unpacked. Roughly speaking, however, we can conclude that the ‘presupposing’ element is the one currently being interpreted, and the ‘presupposed’ element is the one that provides the ‘required information’ for the interpretation of the ‘presupposing’ element.

It is fairly easy to see how what Halliday and Hasan call ‘componential cohesive relations’ (Hasan 1984; Halliday and Hasan 1985: 81) – that is, reference, substitution, ellipsis and, finally, general and instantial lexical cohesion in the form of collocation or reiteration – might fit this definition of cohesion as established by a discourse-internal process of information retrieval. However, it is not clear in exactly what way each componential relation is cohesive, at what stage of the interpretive process it is established and what contributions it actually makes. The points of potential similarity and difference between each of the categories listed above are not clear either. In later sections I shall briefly touch on this point.

Here, let me just note that Halliday and Hasan’s survey is not always consistent with the definition of cohesion they provide. The authors also consider a second question. In an attempt to account for discourse connectedness and its relation to textuality, they also classify as ‘cohesive devices’ (1976: 226-271) such linguistic constructions as conjunctives, continuatives and contrastive intonation (termed ‘organic cohesive relations’ in Halliday and Hasan 1985: 81), which do connect stretches of discourse, although it is hard to see in what sense they can be regarded as involving the retrieval of information of any sort from anywhere in the discourse. If the claim is, ultimately, that the second conjunct must be processed using information from the first conjunct, then establishing the cohesive tie still falls under the definition of componential cohesive relations and is partly irrelevant to the function of the discourse connective itself.

The result of this ambivalence between two separate questions (i.e. about the role of cohesion in information retrieval and its contribution to discourse connectivity) is that some of the categories the authors call cohesive, and in particular the organic cohesive relations (conjunctives, continuatives, etc.) do not fit well with their own general definition of cohesion. Research on discourse connectives in Relevance Theory suggests that their essential function is not to establish cohesive ties between units of discourse, but to indicate what role the following clause is intended to play in inference (Blakemore 1987, 2002; Wilson 2011). As Sperber and Wilson (1993: 11) note, ‘[in Blakemore’s view] discourse connectives such as “so” and “after all” [...] constrain the inferential phase of comprehension by indicating the type of inference process that the hearer is expected to go through’. Evidence from discourse-initial uses of connectives³ shows rather clearly that the function of discourse connectives is not necessarily to retrieve information from elsewhere in the discourse, but rather to constrain and guide the interpretation of the following clause. From this perspective, any attempt to merge these two distinct aspects of language use, i.e. organic cohesive relations and componential cohesive relations, under the same definitional umbrella is unlikely to succeed. My main concern in this paper is with cohesion as information retrieval alone,

³ By ‘discourse-initial uses of connectives’, I mean examples such as the following:

- (i) *Sue (finding John unexpectedly at home):* But I thought you were out all day!
- (ii) *Jane (seeing Bill getting ready to leave):* So you won’t be in this evening.

and from now on, when I speak of cohesion I shall use it only in the ‘componential’ sense.

3. Can cohesion define text? Intertextual aspects of language use

Around the time that cohesion came to the attention of discourse analysts, a new theoretical programme, whose goals were to define textuality, account for the ability of texts to function as a single unit, and identify the characteristic features of ‘texts’ as opposed to ‘non-texts’, was becoming popular in Discourse Analysis, text linguistics and theoretical literary studies. Halliday and Hasan’s research on cohesion was influenced by this theoretical programme, and they clearly intended their work as a contribution to the ongoing discussion on textuality. Ultimately, the authors saw cohesion as a text-defining property, a phenomenon found necessarily in texts. As Halliday and Hasan put it, ‘[cohesion] is part of the text-forming component in the linguistic system’ (1976: 27).⁴

Given their assumption that when ‘a relation of cohesion is set up, [...] the two [cohesively related] elements [...] are thereby at least potentially integrated into a text’ (1976: 4), Halliday and Hasan felt justified in focusing only on discourse-internal forms of information retrieval and singling them out as a special kind of cohesion.⁵ Thus, early on in their book (Halliday and Hasan 1976: 18-19, 31-37, 71) they distinguish between two types of referential relation, endophora and exophora. Roughly speaking, endophora obtains when reference is assigned to an element/set of elements in the preceding (anaphora) or following (cataphora) discourse, while exophora obtains when reference is assigned to an element in the context of situation.⁶ According to Halliday and Hasan, only endophora is genuinely ‘cohesive’.

However, the fact that in a later chapter Halliday and Hasan speak of ‘exophoric’ and ‘endophoric ellipsis’ (1976: 144) suggests that the terms ‘exophora’ and ‘endophora’ are not always used in their strictly referential sense, but sometimes in a much broader one. I suspect that what Halliday and Hasan may have had in mind when introducing the terms is a more general distinction between retrieval of information originating within a given discourse (endophora) and retrieval of information originating from some other, discourse-external source (exophora). In this latter sense, not only reference assignment but all other types of componential cohesive relation must be seen as endophoric for Halliday and Hasan, since they all involve a ‘semantic relation between an element (/set of elements) in the text and some other element (/set

⁴ Here are some further representative comments: ‘There are certain specifically text-forming relations which cannot be accounted for in terms of constituent structure; they are properties of the text as such[.] Cohesion refers specifically to these non-structural text-forming relations’ (1976: 7). ‘Cohesion refers to [...] the semantic resources which are drawn on for the purpose of creating text’ (1976: 10). ‘[It] is the set of meaning relations that is general to all classes of text, that distinguishes text from ‘non-text’ and interrelates the substantive meanings of the text with each other’ (1976: 26).

⁵ Note here that this view is still widely held in text studies. As Toolan (2000: 23) puts it, cohesion is ‘what makes text’.

⁶ In Gutwinski (1976: 66-68), non-endophoric reference is further distinguished into exophora (reference to some element in the context of situation), homophora (reference to some element in the encyclopaedia) and paraphora (reference to some element originating in some other text).

of elements) that is crucial to the interpretation of it' (1976: 8); and as the authors note, '[t]his other element is also to be found in the text' (1976: 8).

However, Halliday and Hasan's proposal is not as clear-cut as it might appear, since they go on to acknowledge that the limits of the text are sometimes fuzzy and that we cannot always pin down where one discourse finishes and another begins (1976: 291-303). That is, cohesion is strictly endophoric, but we do not always know whether or not endophora obtains, because we do not always know whether the region where the presupposed information is to be found is part of the text or not. If Halliday and Hasan were right to assume that when a relation of cohesion is set up, the two elements are thereby integrated into a text, then this problem would not arise: As soon as any two stretches of discourse were associated by virtue of a cohesive relation, endophora should immediately obtain and the cohesively related elements should unequivocally be integrated into a text. But I want to argue that Halliday and Hasan's prediction is not always confirmed.

As relevance theorists have pointed out, an utterance can be used in two fundamentally different ways. It can be descriptively used to represent an actual or possible state of affairs, or it can be interpretively used to represent some utterance or thought that the speaker attributes to someone else (Sperber and Wilson 1995: 231). For instance, the utterance *The trains are delayed* can be descriptively used by a railway official to inform an audience that the trains have been delayed, or interpretively used by a passenger to report to an audience that *according to the railway official* the trains have been delayed.

I want to argue that the subset of interpretively used utterances (a) that are used by the speaker to indirectly quote or allude to another utterance which he tacitly attributes to someone else (or to the speaker at some other time), and (b) that fall within the scope of lexical cohesive relations such as repetition or reiteration⁷ raises serious questions about the text-constitutive potential of cohesion. In such *intertextual* uses of language (as I shall call them), the two related utterances, the interpretation and the original, do form a cohesive tie but, contrary to Halliday and Hasan's predictions, endophora does not obtain and the utterances are not ultimately integrated into a single text:

- (1) What if the USSR blockades the Gulf and all the oil?
- (2) Oh come now, *Britain rules the seas!*⁸

⁷ Interpretive uses of language do not always fall within the scope of cohesive relations. In the following example, for instance, Peter can infer that Mary is indirectly quoting the Prime Minister's words even though he may not have seen the interview and is therefore unable to retrieve from memory a representation of the original utterance that is being echoed:

Peter: Did you see the interview with the Prime Minister?

Mary: His policies have been a great success!

Sperber and Wilson emphasize at various points that the hearer need not always access the original in order to understand the text that is being interpretively used: The guarantee given by the speaker is that processing this text will give her all the knowledge of the original that she needs. However, sometimes a hearer is indeed expected to have knowledge of the original, particularly in cases of tacit interpretive use, where one has to recognize the allusion in order to understand the communicator's meaning correctly. I therefore take the above example to be crucially different from the one I present in (1), (2) and (3a), in which the hearer's ability to identify the interpretive use and the resulting irony rests on establishing a 'cohesive tie' between interpretation and original.

⁸ The example is taken from Levinson's *Pragmatics* (1983: 109) and is one of the many discussed by relevance theorists under the heading of 'verbal irony' (Sperber and Wilson 1981).

In order to fully understand the irony in (2), the hearer has to recognise it as alluding to the patriotic song which starts:

(3a) ‘Rule Britannia, *Britannia rules the waves.*’

Hence, the interpretation of (2) involves recourse to (3a) and the relation between them is a case of what Halliday and Hasan call ‘lexical cohesion by partial reiteration or paraphrasis’ (1976: 277-282). In line with Halliday and Hasan’s proposals, (2) and (3a) undoubtedly form a cohesive tie. However, to suggest that the ironic utterance and the song it alludes to form part of one and the same text would go against the clear intuition that these utterances belong to two separate texts. In Relevance Theory, the speaker of (2) is described as echoing ‘Rule Britannia’, where echoic use is a subtype of interpretive use intended not simply to report an earlier utterance or thought, but to express the speaker’s own attitude towards it, and where the attitude expressed in irony is invariably of the mocking, sceptical or contemptuous kind (Wilson and Sperber 2012: 128-34).

Here is another pertinent case: Monday morning. In my presence, my mother looks ostensibly at my father’s shirts hanging from the back of a chair and says:

(4) *The pope* did not bother to iron his shirts today.

Monday evening. My mother says to me:

(5) Tell *the pope* to carry this table out into the garden.

In order to understand what my mother is telling me in (5), which involves finding the intended referent of the definite expression *the pope*, I have to recall (4) and infer that the intended referent must again be my father – assuming, of course, that my father is not frequently or standardly referred to as *the pope*. The point here is that (5) could not be independently understood by using the same form of creative inferencing as was used to interpret (4), since the situation in which (4) was uttered contains enough clues (the shirts hanging on the chair) to identify the intended referent, while the situation in which (5) was uttered (unless we add further stipulations to the context) does not. It is reasonable to conclude that reference in (5) can only be assigned by recourse to the referent of the definite expression *the pope* in (4). The relation between (4) and (5) falls within the scope of what Halliday and Hasan call lexical cohesion by verbatim reiteration or repetition (1976: 277-282); but is it empirically justified to say that the two utterances therefore constitute a single text?

Cohesion is by no means endogenous to or constitutive of text. Consideration of intertextual instances of language use such as interpretive and echoic uses of utterances shows that cohesive relations may well obtain between utterances without resulting in their amalgamation into a single unit. Halliday and Hasan felt justified in focusing only on discourse-internal forms of information retrieval, on the assumption that this type of information retrieval is ultimately constitutive of text. The above examples show that this assumption is too strong. Discourse-internal types of information retrieval are no more constitutive of text than information retrieval from other, discourse-external

sources. This in turn justifies a broader treatment of the cohesion question and suggests a more holistic approach.⁹

4. Developing a theoretical framework: Contextual information retrieval and cognitive environments

It is now widely believed in pragmatics that linguistic meaning *underdetermines* speaker's meaning (Carston 2002: 15-83). Relevance theorists take one of the most radical approaches in the field, arguing that underdeterminacy is an essential property of the relation between linguistic expressions and the propositions they are used to express: No sentence ever fully encodes the thought or proposition it is used to articulate. Carston (2002: 30) explains: 'I think that public language systems are intrinsically underdetermining of complete (semantically evaluable) thoughts because they evolved on the back, as it were, of an already well-developed cognitive capacity for forming hypotheses about thoughts and intentions of others on the basis of their behaviour'. Such a radical underdeterminacy thesis entails that verbal communication is heavily *inferential*; encoded linguistic meaning provides merely a schematic starting point for inferring the speaker's meaning using a combination of linguistic and contextual clues.¹⁰

Seen in this light, Halliday and Hasan's attempt to ascribe special intrinsic worth to endophoric componential cohesion and link it to 'the [set of those] semantic resources [of language] which are drawn on for the purpose of creating text' (1976: 10) appears to need some further justification. From the perspective I have presented, these text-internal cohesion relations, along with other types of information retrieval that the authors exclude from their theoretical framework, are merely by-products of the fact that the speaker's meaning is heavily underdetermined by the linguistic properties of the utterance. I will argue that in interpreting an utterance, the hearer always has to draw on contextual information, and that as long as it is readily retrievable, whether it is 'endophoric' or 'exophoric' makes no difference to the interpretation process. The challenge for cohesion-based approaches to textuality is therefore to explain by what criteria we can distinguish 'endophoric' from 'exophoric' cohesive ties in a non-circular way: That is, without relying on some prior notion of what constitutes a text.

Taking a broader perspective on the matter, let us now consider how we might use some ideas from relevance theory to analyse information retrieval in a more holistic manner as a process occurring within human cognitive environments.

Sperber and Wilson introduce the notion of a cognitive environment as follows:

⁹ A considerable body of quite early research in psycholinguistics and text linguistics has pointed out the need for some expansion/reformulation of the notion of cohesion to include cognitive considerations (see e.g. van de Velde 1981, 1989; Charolles 1985, 1989; Heydrich et al. 1989; Danes 1989; Lundquist 1985; Coates 1995; Givón 1995, 2000).

¹⁰ Relevance theorists treat grammar (including semantics) and pragmatics as distinct cognitive systems, and describe the utterance interpretation process as drawing not only on linguistic properties of the utterance, but also on information derived from perception, memory and inference. On the interaction between grammar and pragmatics from a relevance-theory perspective, see Carston (2000) and Wilson (2011).

‘A fact [or, more generally, assumption] is *manifest* to an individual at a given time if and only if he is capable at that time of representing it mentally and accepting its representation as true or probably true. A *cognitive environment* of an individual is a set of facts [or, more generally, assumptions] that are manifest to him. To be manifest, then, is to be perceptible or inferable. [Hence] an individual’s total cognitive environment [...] consists of not only all the facts [or assumptions] that he is aware of, but also, all the facts [or assumptions] that he is capable of becoming aware of, in his physical environment. [...] Memorized information is a component of cognitive abilities’ (1995: 39).

Typically, the cognitive environments of interlocutors are partly shared and partly distinct. Sperber and Wilson define a mutual cognitive environment as ‘any shared cognitive environment in which it is manifest which people share it. In a mutual cognitive environment, [...] every manifest assumption is mutually manifest’ (Sperber and Wilson 1995: 41-42).

For relevance theory, since the cognitive environments of communicator and audience are unlikely to coincide exactly, communication is a fundamentally *asymmetrical* process, in which the responsibility for avoiding misunderstandings lies largely with the communicator: In any given situation a communicator will have some intuitions about which assumptions the audience will have accessible and will be likely to use in the interpretation process. If he wants to be understood, it is then in his interest to formulate his utterance in such a way that the audience will be able to supply appropriate contextual information when required. In line with Halliday and Hasan’s terminology, I will refer to contextual information manifestly intended by the speaker to play a role in the interpretive process as *presupposed information*, using the term not in any of its technical senses, but merely as a shorthand to pick out a particular subset of available information. ‘Presupposed’ contextual information in this sense may be either a single concept or a larger conceptual representation.

In a given cognitive environment, a speaker can manifestly intend contextual information to be retrieved from (shared) assumptions about the physical environment (auditory, kinaesthetic, visual etc) derived via inference and/or perception. Any utterance produced in a given physical environment may ‘presuppose’ information retrievable from this environment. Consider (6):

(6) *It’s so cute!*

This utterance involves a case of referential indeterminacy. The semantic analysis of *it* would indicate that a non-human referent has to be supplied; what has to be pragmatically inferred is which particular non-human referent the speaker has in mind.¹¹ Most pragmatic frameworks agree that a speaker who wants to be understood should formulate his utterance so that the intended referent is the most easily identifiable one in the hearer’s cognitive environment that leads to a satisfactory overall interpretation (where the task of pragmatic theory is to explain what makes an interpretation satisfactory or not).

¹¹ Note that the process of assigning deictic reference may be facilitated by ostensive behaviour, such as ostentatiously looking at an object or gesturing (Lascarides and Stone 2009).

Any utterance may also ‘presuppose’ information retrievable (or derivable) from a given set of (shared) memorized assumptions. Here are some possible sources from which memorized contextual information might be ‘presupposed’ when a sentence is uttered in a given cognitive environment.

A. *Sentential*: Information may be retrieved from (the interpretation of) any constituent of the sentence that has already been processed (e.g. information derived from *John* may be retrieved in assigning reference to *his* in (7)):

(7) *John_x* took off *his_x* hat.

B. *Intertextual*: Information may be retrieved from temporally distant discourses, i.e. discourses that have been processed in the past:¹²

(8) (Memorized patriotic song) ‘Rule Britannia, *Britannia rules the waves.*’

(9) (Utterance presupposing conceptual information retrieval from (8)) *Britain rules the seas!*

According to Sperber and Wilson’s account, the ironical speaker in (9) is *echoing* the sentiments expressed in (8) in order to express a mocking, sceptical or contemptuous attitude to them, and to those who believe them or put them forward.

C. *Encyclopaedic*: Information may be retrieved from the encyclopaedic entries of concepts that have already been processed:

(10) Are we going to play tennis?

(11) It’s raining.

The word *raining* in (11) might prompt the retrieval of encyclopaedic assumptions associated with the concept RAINING – e.g. *when it is raining in a certain location X one cannot play tennis in X* –, which are ‘presupposed’ by the speaker as background information for arriving at the implicature involved in the interpretation of (11).

When a discourse extends beyond the level of the sentence, all the above sources of contextual information retrieval remain available, while one more is added: all the utterances that have preceded the current one have already added manifest assumptions to the cognitive environments of communicator and audience, and subsequently, ‘presupposed’ information can be retrieved from them as well. Hence, the source of conceptual information retrieval may also be:

D. *Discursive across adjacent sentences/utterances*

(12) a. *John_x* entered the room. *He_x* looked exhausted.

b. We didn’t *go to the party_x* but Mary did φ_x (i.e. ‘go to the party’_{*x*}).

c. Her mother brought her a *kitten_x*. *The kitten_x* was sleeping in its basket.

¹² Presupposed memorised information may also be paratextual, involving a conceptual tie between the main body of a text and the discursive material coming from editors, publishers, printers and advertisers that surrounds it.

To assign reference to the anaphoric item *he* in (12a) and recover the ellipsed material ‘ φ ’ in (12b), information must be retrieved from constituents of the immediately preceding sentence (i.e. *John* and *go to the party*, respectively).

E. *Discursive across non-adjacent sentences/utterances*

- (13) It was *Christmas_x*. Mary was in a mood for shopping. [Then the text shifts to Mary’s thoughts while shopping without any further mention of Christmas. A few lines later...] It was late. She was now walking back home carrying a little *tree*. (i.e. ‘Christmas tree’)

Mention of *Christmas* earlier in the discourse activates a frame of encyclopaedic assumptions associated with CHRISTMAS, which enable the *conceptually narrower* interpretation of *tree* as ‘Christmas tree’.

- (14) (At an early point in a text the reader is presented with a conversation in which a captain says to one of his crew:) Kevlar sails are advantageous in bad weather.

At a later point in that text the reader encounters the following exchange between the captain and his crew member:

- (15) Captain, what sails shall we use?
 (16) The weather is going to get worse.

To draw the implicature in (16) the reader must recall the background assumption explicitly added to the context earlier in the discourse (i.e. that *Kevlar sails are advantageous in bad weather*) and use it as an implicated premise in an inferential process:

- a. Kevlar sails are advantageous in bad weather.
 b. The weather is going to get worse.
 c. It would be advantageous to use Kevlar sails.

Now, since in all cases discussed above the information ultimately used in the interpretation process is contextual in nature, the key question ought to be how audiences move from an area X in their cognitive environment – where X is the utterance under interpretation, which, roughly speaking, triggers the process of contextual information retrieval – to some other area Y of their cognitive environment in order to pragmatically supply the ‘presupposed’ contextual information. It seems that whether the information retrieved comes from perception and is identified from the physical environment or comes from memory and is identified in any particular one of the following ways makes no difference to the contextual role it can play in the pragmatic interpretation process:¹³

¹³ I exclude properly linguistic binding processes, which typically apply in local linguistic environments (and occasionally across sentences).

- a) from information provided within the same sentence or
- b) from the representation of some specified number of utterances preceding/succeeding the sentence or
- c) from the representation of more remote preceding areas of the given discourse or
- d) from the representations of previously represented discourses or
- e) from long-term encyclopaedic memory.

An obvious advantage of the pragmatic approach is that it accounts within a single explanatory framework for cases of contextual information retrieval that may appear distinct from a purely descriptive point of view – e.g. cases of (endophoric) reference assignment and cases of deixis, i.e. exophoric reference to a referent perceptually salient in the receiver’s immediate physical environment.

5. Explanatory advantages of the Relevance-Theoretic approach

As noted above, most pragmatic theorists would probably accept that when contextual information is required for the interpretation of an utterance, the hearer is entitled to use the most easily retrievable information that leads to a satisfactory overall interpretation; where they mainly differ is on what makes an interpretation pragmatically satisfactory. Relevance theorists argue that there is a substantial difference between the frame of mind in which the individual may approach an utterance or other ostensive stimulus addressed to him and the frame of mind in which he approaches other (non-communicative) phenomena: ‘When attending to other phenomena, he may have hopes of relevance. [...] With an ostensive stimulus, however, the addressee can have not only hopes, but also fairly precise expectations of relevance’ (Sperber and Wilson 1995: 154-158; Wilson & Sperber 2004, 2012).

It follows that when an utterance calls for information retrieval – and given the extent to which public languages underdetermine speaker’s meaning, an utterance will always call for some sort of information retrieval –, hearers rely on these ‘fairly precise expectations’ (theoretically articulated in terms of a notion of *optimal relevance*)¹⁴ to enable them to ‘navigate’ amongst an indefinite range of disparate memorized or perceptual phenomena and identify the bits of contextual information required.

The particular procedure which (according to relevance theory) is used in context construction and the resolution of linguistic underdeterminacies (both of which, as we have seen, involve the retrieval of relevant conceptual information) is described by Carston (2002: 45) as follows: ‘Check interpretive hypotheses in order of their accessibility, that is, follow a path of least effort, until an interpretation which satisfies the expectation of relevance is found; then stop.’ The assumption is, then, that interpretive hypotheses (e.g. about the intended sense of an ambiguous expression, the intended referent of a referential expression, the intended set of contextual assumptions and implications, etc.) will be more or less accessible to the audience at a given point in

¹⁴ In the Postface to the second edition of *Relevance* (1995: 270), Sperber and Wilson propose the following definition: An utterance (or other ostensive stimulus) is *optimally relevant* iff:

- (a) ‘[It] is relevant enough for it to be worth the addressee’s effort to process it.’
- (b) ‘[It] is the most relevant one compatible with the communicator’s abilities and preferences.’

the discourse, and the audience's task is to find the most accessible set of hypotheses which yield an overall interpretation that is relevant in the expected way. Once a satisfactory interpretation has been found, the comprehension process stops. Thus, the Relevance-Theoretic comprehension procedure is intended to account for the selection of context in psychologically realistic terms, offering a concrete solution to the open-ended processes of context construction that van Dijk (2006: 161-162) describes as a fundamental flaw of traditional approaches to context.

The idea that some types of contextual information retrieval contribute to the development of what is explicitly communicated (or explicit content) while others contribute to implicatures is another feature of Sperber and Wilson's approach. As they note (2004: 615), 'Relevance Theory treats the identification of explicit content as equally inferential, and equally guided by the Communicative Principle of Relevance as the recovery of implicatures.' Within this framework, tentative hypotheses about contextual assumptions, explicit content and implicatures (intended implications) are mutually adjusted to a point where contextual assumptions and explicit content together yield enough implications to satisfy the audience's expectations of relevance.¹⁵

Having outlined briefly how relevance theory treats the role of contextual information in utterance interpretation, I would now like to compare it with the Hallidayan account. In the Hallidayan theoretical framework and analyses based on it, contextual information is seen as invariably retrieved from an occurrence of the 'presupposed element' in the preceding discourse; if there are several such occurrences, it is not seen as important which one of them is used. However, there is a range of cases in which the exact location in the discourse from which the 'presupposed' contextual information is to be retrieved does make a difference. How does the audience access the 'presupposed' information from a range of potentially competing candidates with which the 'presupposing' term shares extensive referential and conceptual similarities? In line with work already carried out (see e.g. Blass 1990; Wilson 1998; Wilson and Matsui 1998; Matsui 2000; Blakemore 2002; Unger 2007), I will suggest that Relevance Theory seems to work better for these cases, allowing us to identify a) the particular constituents of the discourse that actually contribute to establishing conceptual ties and b) those constituents that are not part of the explicit content of the surrounding discourse but need to be inferred from implicated assumptions added to the context as part of the interpretation process.

For instance, consider the way reference is assigned in the following example:

(17a) John took a bottle of *medicine*_x out of his pocket (17b) and drank ϕ_x (i.e. the *medicine*_x). (18) *It*_x felt cold on his tongue.

In this case, reference assignment does not depend on establishing a conceptual tie between the anaphoric item *it* in (18) and the occurrence of the target *medicine* in (17a), as Halliday's framework (and most other existing frameworks) would suggest. To illustrate this, let us consider the interpretation of the sequence (17a)-(18), omitting (17b):

¹⁵ To be relevant is to carry implications. To satisfy the audience's expectations of relevance is to carry enough implications, at a sufficiently low processing cost, to be worth the audience's attention in that particular discourse context.

(17a) John took a bottle of *medicine_x* out of his pocket. (18) *It_x* felt cold on his tongue.

Here, unless otherwise indicated by information to follow, a natural interpretation is that the bottle (rather than the medicine) felt cold on John's tongue. It follows that the repetition of the target item in the free pragmatic enrichment in (17b) makes a decisive contribution to establishing the conceptual tie and yielding the correct interpretation:

(17b) John drank φ_x [i.e. the *medicine_x*]. (18) *It_x* felt cold on his tongue.
[The medicine he had just drunk felt cold on his tongue.]

This indicates that the conceptual tie is not in effect established directly between (17a) and (18) but mediated by (17b). Direct association of the anaphoric pronoun *it* in (18) with the recurrence of the referent 'the medicine' as a *free pragmatic enrichment* in (17b), as relevance theorists would suggest, results in an interpretation which makes the right prediction, with the medicine he has just drunk feeling cold on John's tongue.¹⁶

Classic examples of *bridging reference* such as (19) also seem to pose problems for the cohesion-based approach:

(19a) Jane sent her meal back. (19b) *The pie* was awful.

To interpret the definite expression *the pie* in (19b) the hearer has to supply a referent which is not explicitly mentioned in (19a), as a cohesion-based approach would predict, but is part of a *bridging assumption* like the one in (20), which can be inferred from (19a) and added to the context:

(20) Jane's meal included a pie.

According to Relevance Theory, on the other hand, the hearer will use the Relevance-Theoretic comprehension procedure in identifying the intended referent of *the pie*, and will thus look for the most accessible referent that leads to an overall interpretation that satisfies his expectation of relevance. Here, (19a) would raise an implicit question – *why did Jane send her meal back?* – which (19b) will be expected to answer. The activation of encyclopaedic knowledge associated with MEAL in (19a), together with the explicit mention of *the pie* in (19b), would make the bridging assumption in (20) highly accessible. Following a path of least effort, the hearer can infer from it the intended referent of *the pie* in (19b) and thus satisfy her expectation of relevance.

Less straightforward cases of bridging reference like the one in (21) below present further problems for the cohesion-based account:

(21a) I prefer the restaurant on the corner to the student canteen. (21b) *The cappuccino* is less expensive. (Wilson and Matsui 1998: 5)

¹⁶ There has been considerable debate about whether implicit objects such as 'the medicine' in (17b) are genuine cases of free pragmatic enrichment. For alternative treatments, see e.g. Stanley (2002) and Marti (2006). But whichever way the debate comes out, my examples show that it is the implicit object of *drink* rather than the overt occurrence of *medicine* earlier in the utterance that plays the decisive role in reference assignment, contrary to what the Hallidayan framework suggests.

In this example, (21a) allows for two possible bridging assumptions that could be added to the context and yield a relevant interpretation of (21b):

(22) The restaurant on the corner serves cappuccino.

(23) The student canteen serves cappuccino.

As a result, there are two possible antecedents that could supply, via bridging, the reference of the definite expression *the cappuccino* in (21b) – i.e. *the restaurant on the corner* and *the student canteen*. Just as in the case of (19), the intended referent of this expression is not explicitly mentioned in (21a), as a cohesion-based approach would predict, but has to be supplied via one of the bridging assumptions in (22) and (23). In addition, the cohesion-based approach does not make any predictions in this case about which of the two competing assumptions (22) and (23) will be chosen by the hearer as containing the antecedent of the definite expression *the cappuccino* in (21b), or on what grounds such a choice could be made. A questionnaire designed by Wilson and Matsui (1998) to test which antecedent would be chosen by hearers in similar cases shows that subjects overwhelmingly chose the antecedent in (22) rather than in (23), despite their factual knowledge that the coffee in a student canteen is likely to be much cheaper than the coffee in a restaurant, and despite the fact that *the student canteen* was mentioned more recently than *the restaurant on the corner*. This suggests strongly that reference is not assigned on the basis of either factual knowledge or structural position alone, as a cohesion-based approach might suggest, but on the basis of some pragmatic criterion such as the one proposed by relevance theory. According to Relevance Theory, the hearer is looking for an interpretation that satisfies his expectations of relevance, for instance by explaining why the speaker prefers the restaurant on the corner to the student canteen.

Similarly, a cohesion-based approach might falsely predict that a humorous one-liner such as (24) is merely ill-formed or unacceptable:

(24a) Peter went to a Japanese restaurant. (24b) *The ambulance* came in 10 minutes.
(Wilson and Matsui 1998: 22)

Here, the bridging assumption that has to be added to the context for reference to be assigned to the NP *the ambulance* in (24b) is much less accessible than in the bridging examples discussed above, but in a stand-up comedy routine this utterance might still be quite acceptable.¹⁷ Note also that unlike example (19), where a cohesion-based account could perhaps try to bypass the need for a bridging assumption by appealing to *lexical cohesion by reiteration* in the semantic relation between the lexical items ‘meal’ and ‘pie’ – since MEAL is a superordinate of PIE –, in (24) JAPANESE RESTAURANT cannot be said to be in any way semantically related to AMBULANCE. A cohesion-based account would simply predict this latter example to be ill-formed, failing to account for its humorous effect or the creative process of its interpretation that clearly needs to be

¹⁷ In order to understand (24) as a one liner, one has to supply the missing premise that Peter is so accident-prone that when he goes to a Japanese restaurant he’s bound to choose the dangerous raw fish and be poisoned by it. The bridging assumption accessed then would be something along the lines of:
(25) An ambulance was called for Peter.

pragmatically supplied. Relevance Theory, on the other hand, smoothly accommodates examples like (24): The humorous effect results from the creative process of accessing a bridging assumption (or an indefinite set of bridging assumptions) presented as immediately accessible to both speaker and hearer (despite the very tenuous connection between these assumptions), and compensating the hearer for the extra effort required by exceeding normal expectations of effect because of the humorous content.

Finally, straightforward cases of *extended reference assignment* (Halliday and Hasan 1976: 66-76), in which demonstratives can be used to refer either to a single nominal antecedent or to extended text, reveal further explanatory weaknesses of the cohesion-based approach. In discussing extended reference, Halliday and Hasan (1976: 66) present the following example:

- (26) They broke a Chinese vase.
 (i) *That* was valuable.
 (ii) *That* was careless.

They suggest that the demonstrative *that* in (i) refers to the NP *a Chinese vase*, whereas in (ii) *that* refers to the total event 'their breaking of the vase'. However, their account offers no explanation of how hearers manage to choose the appropriate antecedent in each case. From a Relevance Theory standpoint, the utterance in (26) would activate encyclopaedic knowledge about Chinese vases on the one hand, and breaking things on the other. In processing (i) and (ii), the hearer might therefore make tentative hypotheses about the intended referent of *that* early on in the utterance, but would be unable to confirm one or the other until she hears the predicates *valuable* or *careless*. The occurrence of *valuable* in (i), for instance, would activate the encyclopaedic knowledge that Chinese vases may be valuable and that breaking valuable things leads to undesirable consequences. Then by adding these to the context and interpreting *that* as referring to the Chinese vase, she will be able to satisfy her expectations of relevance by deriving implications having to do with the undesirable consequences that will result from the fact that the vase was valuable. Similarly, the occurrence of *careless* in (ii) will activate the encyclopaedic knowledge that breaking things often results from carelessness, and that someone who breaks a valuable object through carelessness is particularly deserving of blame. Then by adding these assumptions to the context and interpreting *that* as referring to the act of breaking the vase, she will be able to satisfy her expectations of relevance by deriving implications having to do with the undesirable consequences that will result from the fact that the vase was carelessly broken.

6. Conclusion

In this paper, I have tried to show that a cohesion-based approach is inadequate on its own when it comes to accounting even for discourse-internal cases of contextual information retrieval. The Relevance-Theoretic account I have outlined seems to work better in both descriptive and explanatory terms: I have tried to show, for instance, that the Relevance-based comprehension procedure accounts for a range of superficially distinct phenomena such as exophoric and endophoric reference without drawing a systematic distinction between them, makes correct predictions where a purely

cohesion-based account does not, explains how hearers choose between competing antecedents on the basis of expectations of relevance, allows us to identify the exact constituents in the discourse that contribute to establishing conceptual ties, and smoothly accounts for cases of bridging reference and extended reference, where establishing a ‘cohesive tie’ requires access to implicated contextual assumptions.

I have also drawn on intertextual aspects of language use to show that all types of contextual information retrieval during comprehension can be accounted for using the same explanatory framework based on the *presumption of optimal relevance* and the Relevance-Theoretic comprehension procedure.¹⁸ Relevance Theory allows us to locate the study of cohesive relations within the broader study of the underdeterminacy of linguistic meaning, and makes possible a unitary account of the pragmatic interpretation mechanisms which apply to both endophoric and exophoric cohesion. I believe that the study of textuality may also be fruitfully approached within this broader framework, for instance by exploring the idea that not only isolated utterances but also longer stretches of planned discourse may create presumptions of optimal relevance which have global effects on the discourse as a whole (for a comparison of coherence-based and Relevance-based approaches to textuality, see Wilson 1998).

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¹⁸ It may, of course, be methodologically convenient to restrict our attention for some purposes to only the discourse-internal ones. If so, we need to bear in mind that this is an artificial distinction, which does not ascribe any special qualities to them.

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