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Text structuring devices: an overview

Laure Sarda¹, Shirley Carter-Thomas^{1, 2}, Benjamin Fagard¹ & Michel Charolles^{1,3}

Lattice, CNRS & ENS¹
Institut Télécom, Télécom et Management SudParis (TMSP)²
Université Sorbonne Nouvelle³

1. Text structuring devices

The overlapping fields of text linguistics and discourse analysis have given rise to a considerable body of research over the past 30 to 40 years. Since the studies undertaken by researchers such as Halliday & Hasan (1976), Van Dijk (1972, 1977) and Petöfi (1973, 1979) in the 1970s, it is now generally accepted that:

- the distribution of sentences within a text is not constrained by a set of compositional rules comparable with a sentence grammar (cf., in a slightly different perspective, Benveniste 1966),
- the development of texts is constrained, at the pragmatic level, by a single principle which stipulates that the interpretation of successive statements must give rise to a representation of their content which is relevant or coherent, precisely because they are produced consecutively and form part

of the same text or discourse unit (Grice 1975, Sperber & Wilson 1986, Blass 1990, Blakemore 1987, 2003).

The online construction and updating of this representation can be guided by certain expectations readers (and speakers) may have. In the case of texts clearly belonging to a particular genre, such as a recipe, a company annual report or a scientific research article, genre knowledge can contribute considerably to the interpretation process (cf. Swales 1990; Bhatia 1993). The influence of the extralinguistic context can impact strongly not only on the content but also on text structure and on the choice of syntactic construction (Carter-Thomas 2010). There is a continuum between the highly codified texts typical of such genres and more unpredictable everyday texts, with structural constraints being intricately linked to issues such as the text's objective and intended readership. Fundamentally, however, the principle of relevance or coherence is the only general pragmatic principle governing the interpretation of texts.

In this introductory chapter we will briefly review different text structuring devices which can contribute to textual cohesion and thus facilitate access to a coherent interpretation of the discourse. We will firstly consider anaphors and connectives (1.1), before going on to examine the specific role of sentence-initial adverbials (1.2). This will be followed by a discussion of the various functions of the expressions commonly grouped under the umbrella term of discourse markers (1.3). The main methods used for analysing text

structuring will finally be discussed in (1.4). In the second and third part of the chapter we will explain the origins of this volume (2) and introduce the individual chapters of the volume (3).

1.1 Anaphors and connectives

The process of establishing coherence between text segments is based on the information mentioned in successive statements, and on the extralinguistic knowledge associated with this information. Links between segments can be signalled (or not, as the case may be) by various relational expressions which indicate how incoming statements should be connected to the previous ones. Among markers, we find anaphors and connectives, whose specific function is to indicate respectively referential and rhetorical links between segments. These types of expression have an eminently text-structuring role, in that the instructions they contain encode a link with the preceding co-text, or – more rarely – with an upcoming segment (e.g. cataphoric pronouns, which are in fact very often both anaphoric and cataphoric). As the range of referential and rhetorical links encoded by anaphors and connectives is itself very wide, it follows that languages have developed a considerable variety of connectives and anaphoric expressions. Each of these expressions signals a specific type of referential or rhetorical link. As a result, their use in one context or another is quite constrained and

inappropriate use of these markers could even be counterproductive in establishing coherence. In other words, despite the lack of any explicit ‘syntax’, we find also, at this level, problems of acceptability, which can be investigated and tested in corpus and experimental research (see section 1.4).

Connectives and anaphors encode interpretative instructions indicating the links to be established between their host sentence and the preceding text. It is therefore unsurprising that their use has been the main focus of research in text and discourse linguistic literature. They are indeed sometimes considered as the only two types of link possible, as in Reinhart (1980: 168):

The various devices for linking adjacent sentences in a discourse can be reduced to two types of links: the one is referential links (...). The other type of cohesive link is a semantic link between the proposition expressed by the two sentences (...). Any of these two types of link is sufficient to produce a cohesive discourse, and it is necessary that at least one of them will hold.

This line of argument is also followed by Sanders & Spooren (2001: 7), who explain that:

Generally speaking, there are two respects in which texts can cohere:

1) Referential coherence: units are connected by repeated reference

to the same object

2) Relational coherence: text segments are connected by establishing coherence relations like CAUSE-CONSEQUENCE between them

Connectives and anaphor complement each other in building a coherent representation of what is said. The example below illustrates how connectives (in bold case) and anaphora (in italics) work together in creating the cohesion of the excerpt:

(1) An ex-con sets out to avenge *his* brother's death (...). During *his* campaign, **however**, *he*'s tracked by a veteran cop and an egocentric hit man. (<http://www.imdb.com/genre/action>)

Despite this complementary quality, there are some fundamental differences between these two types of cohesion markers. Anaphoric expressions contribute to the propositional content of the statements in which they occur and are syntactically integrated. Connectives, on the other hand, signal links between the propositional content and/or illocutionary value of successive statements. They are not syntactically integrated in their host sentence and do not contribute to the truth-conditional interpretation of its propositional contents.

Moreover, as several past studies have clearly demonstrated (Roulet et al. 1985; Mann & Thompson 1986, 1988; Asher & Lascarides 2003; Hobbs 1983, 1990, Kehler 2002), connectives indicate rhetorical links between

statements: elaboration, evidence, concession, etc. These links denote communicative intentions which are associated with preconceived intentional structures. These structures are hierarchical, as is the case for example of evidence connectives, where the justification statement hinges on the statement it justifies and not the contrary. The rhetorical relationship between two statements is not always explicitly indicated by connectives (cf. for example, *Paul didn't attend, he had a lot of work*). Hence the development of discourse leads to the emergence of rhetorical structures which are created and updated throughout the processing of successive statements. These structures have a preference for particular attachment sites on the right frontier (Polanyi 1988, Asher 2005). For instance, in *Paul didn't come as he had a lot of work, but Mary phoned*, the third statement is linked to the first (in a coordinating relation) and not to the second clause (which is in a subordinating relation).

Anaphors establish referential links between the participants involved in the situations denoted by statements in which they appear, as well as between the situations themselves. They are non autonomous referential expressions, and their interpretation relies on another constituent of their host utterance, or more frequently still on a constituent of a preceding utterance. First and foremost, they encode the degree of accessibility or saliency and other semantic information on their referent in the mental or situational model built by the hearers/readers as they are processed (Ariel 1990, Givón 1983,

1992, Gundel, Hedberg & Zacharski 1993, Walker, Joshi & Prince 1998, Kleiber 1994). When interpreting an anaphoric expression, the reader has to focus on the referent itself rather than on the speaker/writer's intentions or communicative goals (Grosz & Sidner 1986). The referential relations encoded by anaphors can be divided into relations of identity, inclusion and implication. As a rule, these relations must be expressed, and only in specific contexts can they remain implicit (zero anaphor). These are contexts where the referent is maximally accessible, generally in the case of very cohesive gapped utterances, as in *Paul came and brought some flowers*.

Referential expressions, and particularly anaphoric expressions, when referring to a same referent, produce referential chains. These chains can be extended, have branches added or be stopped, but they do not give rise to any hierarchical structure comparable to those observed with rhetorical connections (whether these connections are signalled by connectives or not). Anaphors make it possible to focus the discourse or at least certain segments of the discourse on a specific referent. This referent will occupy the centre of attention for a while, before attention is transferred, via transitions of the types identified in Centering Theory (Walker, Joshi & Prince 1998) to other referents, either completely new or already evoked. However, as it is always possible to introduce a new referent or to reactivate an old one with the help of contextually appropriate referential expressions, referential chains do not

establish any kind of right frontier or give rise to any type of particular segmentation or regrouping, similar to those created by rhetorical structures. The accessibility or attractiveness of referents varies as the text progresses: the choice of referential and anaphoric expressions is linked to the predicates (within the statements) and to the emerging rhetorical structures between statements (Cornish 1999, Salles 2010). Referential chains have frontiers and can be interrupted or restarted, but they do not give rise to sub-chains which would be less accessible than the others. They are not hierarchical. Referential expressions do not, therefore, structure texts as much as explicit and implicit connectives do.

Anaphoric expressions referring to their antecedent tend to appear at the beginning of the sentence (*Paul lent two thousand Pounds to his sister. **She** paid him back as soon as she could*). The left-hand portion of the sentence is, in many SVO languages, predestined to house those expressions providing a link with what has already been said. When this zone is also pre-verbal, it is the expected position for topical (and given) elements, which will then be commented upon in the rest of the sentence. Initial position and “theme” are usually indeed conflated in the systemic functional linguistic tradition (Halliday 1967, 1994, Downing 1991, Fries 1995). It is thus hardly surprising to find pronominal subjects in this zone too.

However, from a strictly syntactic point of view, the fact that pronouns, and especially clitic forms, occur frequently in preverbal position, bears no relation to the fact that connectives also appear often sentence-initially. Pronouns, as emphasised above, are syntactically integrated into their host sentence. They depend on the verb and their initial positioning is strictly speaking only a characteristic of SVO or SOV languages. On the contrary, connectives are not syntactically integrated; they are mobile, at least in most cases, within their host sentence (see for instance Fraser 2006). Although some connectives such as *but* can only appear sentence-initially, there is no fundamental rhetorical difference between *Paul wasn't able to attend. But he phoned* and *Paul wasn't able to attend. He however phoned* or *He phoned, however*. The fact that certain connectives can only appear in initial position suggests that they are more grammaticalised than those not subject to this constraint (cf. Charolles & Lamiroy 2007).

1.2 Preposed Adverbials

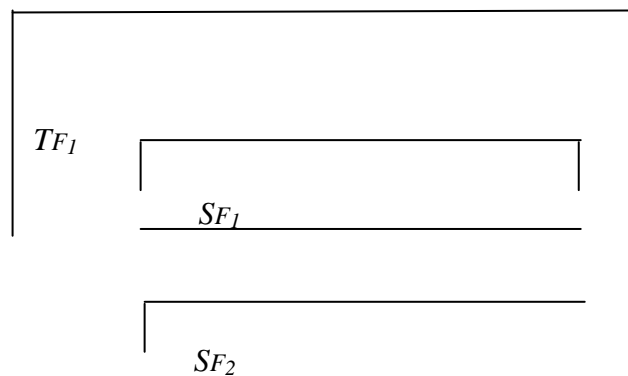
However, in addition to anaphor and connectives, some adverbials are also frequently found at the beginning of sentences. Amongst these, we frequently find prepositional phrases, for instance, and particularly temporal and spatial ones such as *by the second half of the fourteenth century*, *in England* and *in France*, in the following example:

(1) **By the second half of the fourteenth century**, few in France could claim not to be involved in it in one way or another.

The effects on domestic politics were considerably and predictably different. **In England**, the needs of war (in terms of money and provisions) provoked a considerable crisis in the years 1338-41. Thereafter Edward III, having learned some valuable political lessons, was able to develop a far greater degree of co-operation with his people, in particular with the fighting nobility, a spirit fostered by the two outstanding victories won at Crécy and Poitiers. **In France**, by contrast, in spite of what seemed like early successes, the personal fortunes of both Philip VI and John II sank very low. Both met defeat and one suffered capture, thus becoming, in a very real sense, a national liability. The lack of strong leadership served to exacerbate these disasters, and the nobility of France was obliged to endure strong criticism for its failure to protect the kingdom and its people in their hour of need. (BNC, *The Hundred Years War*. Allmand, 1991)

In this excerpt, the prepositional phrases (PP) in bold refer to a specific place or time period within which the different situations reported take place. *By the second half of the fourteenth century* indexes all the situations taking place within the time range denoted by the PP. It opens a temporal frame (TF₁) whose scope extends beyond the host sentence. In the same way

In England (S_{F_1}) opens a first spatial frame which is closed by the advent of the second (S_{F_2}) *In France*, which in its turn indexes the remainder of the excerpt. This emerging structure can be schematised as follows:



This structuring is particularly exploited in planned written texts. The initial position of adverbials and their use in series suggest a type of structuring which is essentially on the informational level – rather than on the propositional and/or illocutionary level, as in the case of rhetorical links and connectives whose use translates the presumed communicative intent of the writer. In (1), the writer organises the text in terms of the semantic criteria specified by the content of the three initial adverbials. He selects, from the propositional content of the upcoming text, a particular dimension, in this case firstly a temporal dimension and then a spatial one, to organise what he has to say. This way of organising textual content is hierarchical and restrictive to the extent that once a dimension of situations is introduced by an adverbial, it tends to remain in place. For instance, any new statement

occurring at the end of the extract will be understood as occurring under the scope of SF₂ and thus of TF₁. Linking it to SF₁ under TF₁ would be impossible, unless *In England* is reintroduced, either in sentence-initial position which would then lead to the closing of SF₂ and the opening of new frame SF₃ referring to the same place as SF₁, or in another position, in which case its contents would be simply indexed by TF₁. Unlike rhetorical structures, which are constantly added to and updated with each incoming sentence, the structures generated by framing adverbials are ephemeral. Their implementation is conditioned by the use of a PP in initial position, whilst the conferring of an intentional function on the incoming statements is carried out independently of the use of connectives.

This type of analysis, first suggested by Thompson (1985) and systematised in Charolles (1997, 2005) is based on the hypothesis that only initially occurring adverbials have this framing capacity. Although perhaps debateable on some accounts (cf. Crompton 2006 and this volume), this hypothesis is nonetheless supported by:

- a series of corpus-based studies¹ showing that prepositional adverbials are often used strategically on account of their framing potential (Enkvist 1985, Virtanen 1992a, 1992b). This is particularly

¹ For English (see Quirk et al. 1985, Lowe 1987, Downing 1991, Prideaux & Hogan 1993, Sinclair 1993, Sarda & Carter-Thomas 2009) as well as for French (see Le Draoulec & Péry-Woodley 2001, 2003, Charolles & Prévost 2003, Vigier 2004, Vigier & Terran 2005, Sarda 2005, Charolles 2005, 2006, Charolles & Péry-Woodley 2005, Schrepfer-André 2006, Ho-Dac 2007, Ho Dac & Péry-Woodley 2009) and in a contrastive perspective (Sarda & Carter-Thomas 2009).

true when they occur at the beginning of a paragraph, when they are used in a series and when they are announced by a trigger sentence.

- a series of psycholinguistic experiments (Bestgen & Piérard this volume, Colonna, Sarda, Pynte & Charolles submitted) also show that spatial prepositional phrases are not processed the same way in sentence-initial vs. sentence-final position.

From a pragmatic viewpoint, there is no reason why only preposed adverbials should have this capacity to influence the sentences following the one in which they occur. If the text producer is careful to explain, in whatever way he chooses (by using an adverbial or a complement), that a given situation takes place in a certain location or at a certain time, we can expect – in accordance with the principle of relevance (cf. supra) – that this information will be not only valid for the situation denoted by the sentence where the expression used to specify this point appears but also for the following sentences. This point does not really seem at issue. However, when we examine the beginning of extract (2) and compare it to the manipulated version (2') where *in France* has been placed before the verb, we see there is a difference:

(2) (...) ***By the second half of the fourteenth century, few in France***
could claim not to be involved in it in one way or another.

*The effects on domestic politics were considerably and predictably different. ***In England***, (...). ***In France***, ...*

(2') (...) **By the second half of the fourteenth century, in France,**
few could claim not to be involved in it in one way or another.

*The effects on domestic politics were considerably and predictably
different. **In England,** (...). **In France,** ...*

In the original version (2), readers would most likely understand that the second sentence does not only concern the citizens of France, unlike in (2') where the second sentence is understood (in spite of the paragraph break) as specifically concerning what is happening in France at this point in the second half of the fourteenth century. In (2) the predicate *be different* subsequently pre-announces the ensuing text which considers how the effects of the war on domestic policy were perceived, firstly in England, then in France, justifying in this manner the way the information is presented.

The fact that certain adverbials can index (i.e. include in their scope) clauses or sentences other than the one in which they appear is quite remarkable, when we consider that the expressions usually considered in the literature as having a scoping capacity, such as expressions of negation or quantification, only have this capacity in the sentence in which they are included. Furthermore, the mechanisms at work in the use of framing adverbials are not of the same type as those resulting from the use of connectives and anaphors: framing adverbials make use of an indexation relationship which is directed forwards, rather than backwards. However, framing adverbials

are quite close to connectives to the extent that they both give rise to emerging local structures. These structures are hierarchical and result from an intentional mechanism. In contrast, anaphors do not give rise to any hierarchical substructure and they involve low-level processing mechanisms. The referential chains are constantly remodelled as the text progresses, and the choice of referential expressions is partly conditioned by the rhetorical and framing structures.

In short, all these devices operate in a concerted way, facilitating access to a coherent interpretation of the discourse, as hearers/readers progressively become aware of it. As it is a matter of piloting the processing of incoming utterances, the beginning of the sentence is clearly a strategic location to indicate in advance how the situations and the participants in these situations are connected with those previously mentioned, and what connects them with the incoming information.

1.3. Pragmatic markers

Languages provide speakers with a vast array of tools they can use to build up text or discourse cohesion, including anaphors and connectives, as we have seen. However, speakers also have at their disposal all kinds of constructions, grammaticalized to various degrees, which contribute to discourse meaning without being specifically dedicated to the setting up of

links between successive utterances. Such expressions abound in discourse, both written and spoken², and are called *discourse markers*. This is Lakoff's (1973) term (Müller 2005: 2-3), and also the most popular one – along with e.g. *discourse particles* (Schourup 1983, Hansen 1998, Aijmer 2002, Fischer 2006) and *pragmatic markers* (Fraser 1996).³ The existence of various competing denominations for these elements, which has been reported already on various occasions (Fritz 2009: 3, Müller 2005, Schourup 1999, etc.), is in fact indicative of different views on what a DM is and does.⁴ Indeed, DMs (or discourse particles, etc.) are not only given different names: they also receive various definitions – among (many) others, see Schiffrin (1987: 31, 323, 328), Hansen (1998), Fischer (2006), Waltereit & Detges (2007: 63), Traugott (2007: 144), Fagard (2010); actually, defining DMs proves so complex that Jucker & Ziv (1998) see it as a prototypical category. As pointed out by Lewis (forthcoming),

There is little consensus on whether [Discourse Markers] are a syntactic or a pragmatic category, on which types of expressions the category includes, on the relationship of discourse markers to other posited categories such as connectives, interjections,

² It is actually quite hard to say whether they are more frequent in spoken or written language, although it is usually considered that they are especially common in spoken language (see e.g. Lenk 1998: 3).

³ This is confirmed not only by Schourup (1999: 224), but also by google's latest gimmick, Culturomics, as the reader can see for himself on the website <http://www.culturomics.org/> with a search on all denominations listed in the following footnote.

⁴ Other common terms include *discourse organizers* (Pons Bordería 1998), *discourse particles* (Schourup 1983, Fischer 2006), *discourse signals* (Lamiroy & Swiggers 1991), *discourse connectives* (Erman & Kotsinas 1993), *pragmatic markers* (Fraser 1996).

modal particles, speaker-oriented sentence adverbials, and on the term ‘discourse marker’ as opposed to alternatives such as ‘discourse connective’ or ‘pragmatic marker’ or ‘pragmatic particle’.

We propose here a working definition of DMs. The question of which elements should be included in the ‘category’ of DMs is essential, and depends of course on the definition given to this category (one can also ask whether DMs pertain to a single class, cf. Schiffrin 1994: 40, Müller 2005: 3-4). We should be careful not to count as such elements which do not contribute to discourse structure or management. Epistemic or mirative adverbials are a case in point: they seem to be generally included in the category, but this might not be completely justified.

Definitions of DMs usually include the following features:

- (a) Syntactically,
 - (i) they are extra-sentential and, as a result,
 - (ii) they have a relatively free distribution (i.e. syntactic position; Schiffrin 1987: 31 sqq.) with however common appearance in clause-initially (Schiffrin 1987: 328, Aijmer 2002: 29), with specific prosodic contours,
 - (iii) they have variable scope and/or attachment points.

(b) Distributionally, they tend to cluster with other DMs or marks of subjectivity.

(c) Semantically, they have non-propositional meaning (Lenk 1997: 4): they do not contribute directly to the meaning and structuring of text and discourse, or to the same degree as connectives.⁵

(d) Pragmatically, DMs operate at the discourse level:

(i) They are used for discourse signaling and negotiation of ongoing discourse-related interaction: stance expression, conversational management. DMs initiate discourse, mark a boundary (topic shift), are used as fillers, floor-holding devices, to mark fore- or backgrounded information... (see Müller 2005: 9 for a more exhaustive list).

(ii) They also have text / discourse-structuring functions (e.g. linking functions, cf. Fraser 1996): “Discourse marking refers to the explicit expression of the coherence relations (sometimes called discourse relations or rhetorical relations) that can hold between two ideas or groups of ideas” (Lewis, forthcoming); they indicate “the structural organization of the discourse” (Fritz 2009: 4), acting either on a local level,

⁵ See Schiffrin (1994: 9): “Cohesive devices do not themselves create meaning; they are clues used by speakers and hearers to find the meanings which underlie surface utterances”.

between adjacent utterances or on a global level, between discourse segments further apart (Lenk 1997: 7).

The question is whether (d/i) and (d/ii) point to different categories of markers, some specialized in spoken discourse and interaction (*oh, well, I mean, y'know*, etc.) and others in (spoken or written) discourse structure (*but, and, or, so, because...*), or simply to two different functions (see Schiffrin 1994: 31, who counts all these elements as DMs). This distinction might best be seen as representing two ends of a continuum:

a global DM “refers back to discourse that ha[s] occurred somewhat earlier, not immediately adjacent. Future research should investigate how far the scope of discourse markers that mark local coherence relations can reach, and whether discourse markers that are functional on a clearly local level of discourse and those that are functional on a clearly global level of discourse must be considered the extreme ends on a continuous scale of *discourse structure markers*. If this should be the case, *local discourse markers* probably represent one end of the continuum where *utterance relations* are marked, whereas *global discourse markers* represent the other end of the continuum where *topic relations* are marked.” (Lenk 1998: 211; author’s emphasis)

This distinction partly overlaps with another distinction between *turn-taking* and *textual* functions, to which Fritz (2009: 10) adds a *modal component*:

- a) textual function: “topic- and content-related issues such as changing or introducing topics, introducing direct speech etc.”;
- b) turn-taking function: “concerned with the sequence of turns”, including floor-holding;
- c) modal component: “whenever attitudes and evaluations, or modifications of the illocutionary force of an utterance are concerned”; “for English, it is debatable whether it applies to discourse markers, depending on how they are defined”.

It is in fact hard to distinguish clearly between these functions in single occurrences of DMs: the question, then becomes “which of the functions is more dominant”? (Fritz 2009: 11, see also Aijmer 2002: 39). In our view, each DM specialises in one function or the other, and the *modal* function is clearly less oriented towards text or discourse cohesion.

1.4 Corpus studies and psycholinguistic investigations

Text structuring devices have been investigated largely through corpus-based studies (among many others, see Schiffrin 1994, Brinton 1996, Chanet 2001, Katzenberger & Cahana-Amitay 2002, Dostie 2004, Lewis 2006, Moore 2006, Bazzanella et al. 2007, Milagros Del Saz Rubio 2007). These include different genres, from sociolinguistic interviews to judiciary or literary texts, as well as narrative and expository text production or various types of spoken discourse. Such studies have been conducted on

different languages, among which English, German, French, Italian, Spanish, etc., in different perspectives: bottom-up as well as top-down, in synchrony as well as diachrony. Most chapters of this book adopt a corpus-based or corpus-driven approach, in various languages (see section 3. below).

The approach adopted in other chapters of the book is quite different, and involves psycholinguistic experiments rather than corpora. Since Kintsch & Van Dijk's (1978) pioneering work on text comprehension, there have been several experimental studies on the processing of connectives (particularly causal connectives), referential and anaphoric expressions as well as on temporal and spatial prepositional phrases (see Garrod & Sanford's 1994 review). These studies were done to check the validity of abstract multi-level models of text comprehension, describing how a hearer/reader processes linguistic data (mostly written narratives). Among the most complete models, one can find Kintsch's (1998) Construction-Integration Model, Gernsbacher's (1990) Structure Building Framework, as well as various Situational Models (see Tapiero's 2007 review), including Zwaan's Event Indexing Model (Zwaan, Magliano & Graesser 1995, Graesser, Millis & Zwaan 1997, Zwaan & Radvansky 1998; for a review, see Zwaan & Rapp 2006). These models analyse text comprehension as a series of processes going from partly automated low-level processes to a variety of higher-level processes. Readers do not have access to the lower-level

processes, such as written word recognition, lexical access, syntactic parsing, and diffusion of semantic activation. However, the higher level processes, including the development of bridging inferences (Clark 1997) or the attribution of intentions to speakers/writers, imply shared or specialised, background knowledge. While these models were intended to account for comprehension in adult, expert readers in their mother tongue, other models are designed to account for differences between better and poorer readers, on the basis of age, literacy and expertise (cf. Long, John & Morris 2006 for a review).

Situational models, in particular the Event Indexing Model, predict that readers, in a relatively late stage of comprehension, will focus on five distinct dimensions of a situation: agents and objects, temporality, spatiality, causality, and intentionality. Readers' sensitivity to these dimensions is attested by a large body of experimental data (including behavioural experiments as well as neuroimaging, which shows among other things that the sensitivity of a reader depends on his interests and on text genre). There is no predetermined limit to the number of dimensions in the model: to Zwaan's five dimensions, one could add for instance the source of reported information, indicated by markers such as *according to X*. Overall, such models account for the use of connectives (causality and intentionality), anaphors, referential expressions (agents) and locative (spatio-temporal) expressions. The importance of framing adverbials for comprehension,

however, has not been looked into as extensively. In particular, few experiments have tested whether initial position of prepositional phrases is of importance (see Bestgen & Piérard, this volume).

The (relative) convergence between linguistic and psycholinguistic approaches is an important factor for the development of research in both domains. In corpus-based studies, linguists can only provide indicative tendencies according to the specificity of the genre and size of the data. Therefore, it can be also increasingly necessary to take into account experimental evidence to back functional analyses. Conversely, psycholinguists can benefit from detailed results of corpus work, enabling them to test precise features which would be not easily observable otherwise.

2. Origin of the present volume

The original inspiration for this book dates back to the international research project on Spatial Framing Adverbials (SFA) led by researchers at the Lattice laboratory from 2006 to 2010⁶ and the conference organised on completion of the project. One of the main aims of the initial project was to investigate the impact of position on the capacity of adverbials introduced

⁶ This large-scale corpus annotation project was funded by the *Agence Nationale de la Recherche* (ANR-05-BLAN-016201).

by spatial prepositions to exert a framing potential over subsequent discourse. Large-scale corpus analyses and experiments were undertaken in both the psychological and linguistic domains to evaluate the framing potential of adverbials. The international conference organised at the ENS in Paris in September 2009 sought to draw on the main results of the project as well as to provide an interdisciplinary forum for the presentation of studies on text and discourse structure by other researchers conducting similar or complementary work in these domains.

The call for papers and title of the conference, *Linguistic and Psycholinguistic approaches to Text Structuring* (LPTS), although also inviting papers covering a much wider range of issues, placed the emphasis squarely on texts (planned written texts for the most part), and on their structuring, and hence on the markers needed to interpret this structuring process, as well as on the interpretative methods used for processing them. We were also interested in work investigating the ways individual languages override the inherent syntactic and word order constraints in order to signal text structure and in possible observable variations between discourse genres and the written and oral modes of natural language communication. In the light of the research developed within the SFA project, we particularly encouraged research focusing on the position of the markers examined and on the identification and categorisation of different types of linguistic structuring markers: adverbials, connectives, discourse particles,

etc. Quite understandably, some papers have gone beyond these guidelines, with more wide-ranging presentations both on oral and written questions and on the great variety of markers covering the whole span of devices used by languages for indicating text structuring. These papers are presented in the following section.

3. The papers

The first section of the book presents studies focusing on discourse phenomena from three rather different angles: experimental, corpus-driven and formal. The second section presents case studies on the importance of *word order* for discourse structure, the existence of different text strategies, and the function and use of adverbials in discourse. Both sections include data from various languages: French, English, German, Norwegian, Finnish and Gbaya.

1) Text Structure

This first section deals with text structure; the first subsection looks at experimental approaches, investigating the way reference-tracking is achieved.

a) Experimental approaches

Chapter 1, by S. Colonna, S. Schimke & B. Hemforth, is entitled “Information structure and pronoun resolution in German and French, Evidence from ‘visual world’ eye-tracking”. The authors present experiments investigating the interplay of language-specific and language-independent factors influencing within-sentence anaphora resolution. Using the visual-world paradigm, they have analysed interpretation preferences, comparing results for French and German. On the basis of these data, the authors investigate the effects of information status, grammatical role and first-mentioned referent on pronoun interpretation. They show that some linguistic factors determining pronoun resolution, such as information structural aspects, are valid cross-linguistically, whereas others are language-specific, such as the clear preference for the object in French, which seems short-lived in German.

Chapter 2, by M. Ellert, J. Järvikivi & L. Roberts, is entitled “Information structure affects the resolution of the subject pronouns *er* and *der* in spoken German discourse”. The authors present an eye-tracking study on reference-tracking. Coherent discourse often entails repeated reference to the same discourse entity, frequently achieved through the use of personal pronouns such as *he*, *she*, *it*. In German, two distinct pronominal forms can refer to the same singular, masculine entity: the personal pronoun *er* and the d-pronoun *der*. The authors investigate patterns of use of *er* and *der* predicted by theories of reference and try to establish what determines the relative

accessibility of one potential antecedent over another, a question which has been the subject of debate in many experimental studies on pronoun resolution. They show that *er* is linked to the topical antecedent, while the *d*-pronoun shows more affinities with the non-topical one. In their second study, they try to establish whether changing the information structure of the antecedent clause affects these resolution patterns. Their results clearly indicate that both pronouns are resolved towards the focused 2nd-mentioned antecedent.

b) Corpus-driven approaches

In the second subsection, also concerned with discourse structure, authors use corpus-driven approaches to perform analyses of text structure.

Chapter 3, by M. Ho Dac, C. Fabre, J. Rebeyrolle & M.-P. Péry-Woodley, is entitled “From cues to markers: a corpus-driven approach to complex discourse organisation markers”. The authors approach texts from a global perspective with corpus-linguistics methods and NLP techniques. Their corpus consists of long non-narrative texts. They investigate multiple-scale discourse structures and markers, focusing on two structures in particular: segments corresponding to a co-reference chain, and enumerative structures. The latter are composed of a string of items, which may be preceded by a trigger, and followed by a closure. They are found at different levels of granularity. The method advocated by the authors is a two-step analysis of texts, with a manual pre-marking phase in which candidate cues guide

structure identification, and a second phase which consists in the analysis proper of discourse organisation markers as such.

Chapter 4, by A. de Waard & H. Pander Maat, is entitled “Linking Verb Forms To Conceptual Spaces In Biological Text”. With a corpus analysis of scientific texts, the authors illustrate their method of discourse analysis. They divide their corpus into the smallest possible “thought units” and perform a manual semantic classification of these units. They then analyse the relationship between segment types and verb form, and show the existence of prototypical relations: for instance, Facts, Problems, Hypotheses and Implications are largely referred to in the Present tense, while Methods and Results tend to be referred to in the Past tense. Based on these findings, the authors propose a model of discourse structure in general, and scientific rhetoric in particular. They postulate that the primary reason an author uses a particular tense is to indicate the appropriate *realm* of discussion.

c) Formal approaches: Testing the theories

The third subsection investigates discourse structure with a formalist approach based on the SDRT framework, relying on corpus-based research for the validation of theoretical claims.

Chapter 5, by W. Ramm, is entitled “Discourse-coordinating or discourse-subordinating? The discourse function of clause-related relative clauses in a translation perspective”. The author investigates the role of clause-related

relative clauses in German. These hybrid structures, such as those introduced by the clause-initial relative adverb *wobei*, partake of subordinate and main clauses. They have specific propositional status and information structure, and their discourse properties are traditionally described as being ‘continuative’. The author shows, on the basis of a corpus study, that the relation established by *wobei* clauses can actually be described, in SDRT, as an Elaboration relation. The corpus is a sentence-aligned collection of fictional and nonfictional German original texts and their Norwegian translations. This study leads the author to distinguish between different types of *wobei*-clauses, which depend on the temporal properties of the predicates, correlate to some degree with text type and are also influenced by the context, in particular the sentence following the relative clause.

Chapter 6, By B. Behrens & K. Solfjeld, is entitled “Discourse role guiding clause type and relative position in translation”. The authors investigate the interplay between syntax and discourse structure, and in particular the weighting of the different information units. They compare English, German and Norwegian, languages which are rather alike in structure, but nevertheless display discrepancies in the way the hierarchical structure at the intrasentential level interacts with text-structuring discourse relations. Focusing on Background, a discourse relation in SDRT, the authors discuss the equivalence between alternative intrasentential combinations. In order to

do so, they distinguish between semantic contribution and discourse function of different clause types, and go on to discuss the discourse-functional contribution of intrasentential clause combinations. With the help of a parallel corpus study, they analyse a series of constraints on discourse relations and show that these can be overruled by syntactic downgrading and information structural principles.

Chapter 7, by M. Bras & C. Schnedecker, is entitled “French adverbials *dans un (premier+second+n^{ième}) temps* and Discourse Relations: From Elaboration to Contrast”. The authors investigate the use of ordinal adverbials such as *premièrement* “firstly”, *en premier lieu* “in the first place” and *dans un premier temps* “in a first phase”, which may order textual matter and can thus be used to mark up texts. They therefore belong to the class of ‘Linear Integration Markers’. In an SDRT perspective, the authors study one of these adverbials, *dans un premier temps*, with the help of a corpus based on the French textual database *Frantext*, the website *Wikipedia* and two newspapers, *L’Est Républicain* and *Le Monde*. Drawing on this corpus study, the authors distinguish several uses of the adverbial on the basis of formal and semantic criteria, and show that it can convey both discourse order and event order, rather than discourse order only. They also show that *dans un premier temps* can be both retro- and pro-active, establishing backward and forward links in discourse. These links can be a

part-of relation on events, which triggers a Contrast relation, or a temporal succession between two events, which triggers an Elaboration relation.

Section 2: Linguistic Structuring devices

The second section of this volume investigates the importance of adverbials and their position for discourse structuring.

a) Word ordering constraints

In the first subsection, the papers focus on the role of adverbials in discourse and the importance of sentence-initial position of adverbials.

Chapter 8, by P. Crompton, is entitled “The positioning of adverbials: discourse function reconsidered”. The author investigates the role of sentence-initial position for adverbials in English, challenging the widely accepted view that initial position confers extended discourse scope. This study builds on earlier work (Crompton 2006) where the author argued that there was no necessary relation between initial position and discourse scope, or final position and local scope. In this paper, the author describes a new corpus-based study on the BNC (British National Corpus) investigating more closely two variables: the relation of adverbials’ position in the clause to paragraph-internal positioning and textual reference. His study shows that the most important factor for the extension of an adverbial’s scope is not clause-initial but paragraph-initial position. Besides, the link to prior discourse seems to be only one of the motivations for initial positioning: the author shows that the backward scope of adverbial clauses in *if* and *when*

appeared independently of their position. The author concludes that positioning options of adverbials do not obey a single discourse motivation and suggests that discourse motivations compete with other discourse-independent factors.

Chapter 9, by T. Virtanen, is entitled “Sentence-initial adverbials in written texts: On discourse functions and cognitive motivations”. The author investigates the text-structuring functions of sentence-initial adverbials in written English and French. Unlike P. Crompton, the author believes the initial slot has in itself cognitive potential for discourse organisation, but stresses the fact that there is a complex interplay between this potential and various other motivations. The author first studies the text-structuring functions of sentence-initial adverbials and their textual scope. She then investigates specifically the textual potential of the initial slot itself and shows (concordantly with P. Crompton’s findings in the preceding chapter) that discourse boundaries have an impact on this textual potential, along with other signals of closure. Finally, she focuses on the interaction between the position of adverbials and text/discourse type or genre. She shows that these do indeed have an impact on adverbials’ position, and identifies potential genre markers among sentence-initial adverbials.

Chapter 10, by T. Huumo, is entitled “Path Settings: How dynamic conceptualization enables the use of path expressions as setting adverbials”. The author investigates setting adverbials, focusing on path expressions in

Finnish. He first explains why path expressions, despite their dynamicity, can be used as setting adverbials. He then goes on to show that there are different types of path expressions; from the point of view of path construal, he explains why expressions of fictive motion are more subjective and have a greater autonomy with respect to the clause nucleus than canonical path expressions. He discusses three factors bearing on the conceptualization of the path as a setting and the autonomy of the path expression: the nature of the trajector, of the verb and of the path expression itself.

Chapter 11, by Y. Bestgen & S. Piérard, is entitled “Sentence-initial adverbials and text comprehension”. The authors investigate the impact of the position of adverbials on text comprehension with various experiments. They explain that, while linguists have long believed that the position of adverbials has an important role in text structuring, psycholinguists have until now mostly focused on mental representations of texts. They choose to combine these two lines of research, with a series of experiments designed to verify the existence of a link between sentence position of temporal or spatial adverbials and text comprehension. In a first series of four experiments, the authors manipulate the position of an adverbial and the presence or absence of situational breaks in a narrative. The results confirm the predictions made by the authors: the reading time is longer for a new discourse unit, but the presence of a sentence-initial adverbial can cancel this effect. In a second series of experiments, the authors confirm that the

sentence-initial position is indeed responsible for the segmenting function of adverbials, and also show experimental evidence of their framing function.

Chapter 12, by C. Fuchs, is entitled “A paradoxical case of locative inversion”. The author investigates a specific type of sentence-initial adverbial in Modern French – a case of locative inversion with unexpected typographical markings. In these structures, the VS word order is followed by a comma, whereas canonical locative inversions exclude the use of a comma. The author’s hypothesis is that the presence of a comma indicates a specific type of text structuring. In order to test this hypothesis, she analyses in detail attested examples of locative inversions and points out the specificities of paradoxical locative inversions. She shows, for instance, that different kinds of restrictions have a bearing on the initial adverbial, the verb and the subject. Paradoxical locative inversion obeys a distinct text-structuring strategy, which the author terms “text priming” and which consists in the progressive constitution of a scene from a subjective point of view. The current development of this strategy seems to reveal a phenomenon of subjectification in contemporary French writing.

b) Discourse-marking adverbials

In the second subsection, the papers focus on certain specific sets of adverbials used for discourse-structuring.

Chapter 13, by D. Lewis, is entitled “Word order and the development of

connective markers in English”. The author investigates the formation of discourse connectives, *at least* and *instead*, which both, like many other discourse connectives, originated as prepositional phrase. She describes the changes undergone from the original constructions to the modern discourse connectives, within a grammaticalization framework including Construction Grammar analyses. The aim of the paper is to analyse in detail these changes, and evaluate the claim that they present a gradual evolution involving scope increase. On the basis of a corpus study on both historical and present-day English corpora, the author argues that both claims are valid, and goes on to show that Construction Grammar can be useful for describing the semantic changes involved. The author concludes that constructional meaning as well as information structure design have to be considered in order to account for word order change and scope change.

Chapter 14, by P. Roulon-Doko, is entitled “Discourse markers in a non-scripted language: the case of Gbaya, an Adamawa-Ubangi language of Central Africa”. The author investigates the use of a series of discourse markers in an unscripted isolating language of Central Africa, Gbaya. In this SVO language, in which clause order is directly linked to the discourse level, several markers display discourse-structuring functions. In order to study the constraints bearing on these markers, the author analyses the way they are used in a corpus of spontaneous speech collected over a large period of field work, covering more than 25 years. This enables her to

describe accurately two different series of markers, coordinators (in clause-initial position) and dictum particles (in clause-final position). She shows that these markers can be used outside their ‘expected’ position, but then take on a different meaning. Position is thus once again shown to have an impact on the semantics of discourse particles.

Chapter 15, by B. Fagard and L. Sarda, is entitled “From locative adverbial to discourse marker: Three case studies in the diachrony of French”. The authors investigate the evolution of three adverbials into discourse markers: *parallèlement* “parallel to”, *au fond* “at the bottom” and *d’un côté* “to one side”. These adverbials, which initially had locative uses, have evolved into discourse markers, with frequent sentence-initial use. The authors analyse their evolution within the framework of grammaticalization theory. The main theoretical question at stake in this paper is whether the grammaticalization of discourse markers is driven by semantics or syntax. In order to answer this question, the authors present a corpus study of these markers. They show that the dichotomy between framing adverbials and discourse markers is partly linked to the referential properties of their components.

Chapter 16, by C. Gledhill, is entitled “An unusual word order in English: Predicator-Adjunct-Complement”. The word order pattern Predicator + Adjunct + Complement or PAC is often considered unusual or marked in English. The author conducts a survey of attested examples of PAC in the

British National Corpus, and finds that most examples of PAC belong to two relatively predictable (but also productive) patterns: (i) a construction in which the Adjunct contributes to the expression of a MENTAL or other communicative process in contrast to other positions in the clause (*consider here, read with relish...*), and (ii) an expression in which a post-verbal modifier designates the ‘Range’ of a Mental process (*bear in mind, take seriously...*). These observations raise a number of questions for grammatical theory, such as (a) the extent to which PAC word order can be seen as a ‘derived’ paraphrase of a more basic underlying order, (b) whether the PAC sequence confers a ‘semantic prosody’ on Adjuncts placed in that position, and (c) whether some modifiers should be seen as obligatory extensions of the Predicator rather than as optional Adjuncts.

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