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Improving Text Quality in Two Languages – The role of linguistic markers of text structure

Current state-of-the-art

This project heavily relies on recent research in text linguistics, psycholinguistics and text design. One of the most important insights from recent research is that readers construct a representation of the information in the text, and that this representation is coherent. Readers establish coherence by relating the different information units in the text by means of coherence relations that hold between the text segments (say clauses up to paragraphs). Examples are *cause-consequence*, *contrast* and *problem-solution* relations. Coherence relations are conceptual and they can, but need not, be made explicit by linguistic markers like connectives (*because*, *but*, *and*) or signalling phrases (*This is caused by...*, *the solution to this problem is...*, *On the other hand...*).

Linguistic research focuses primarily on the characteristics of these connectives (Which relations can they express? How are identical relations expressed in different languages? What are the interrelationships between different connectives?). This work has led to several interesting proposals for categorisation of connectives and their underlying relations (Degand, 1996a; Knott & Dale, 1994; Knott & Sanders, i.p.; Sanders, 1997; Sanders et al., 1992).

Psycholinguistic research focuses on the actual processing of connectives and lexical markers of text structure. Although there has been a lot of work in this area, there is still no detailed consensus on the role of explicit discourse markers in text (for an overview, see Sanders & Noordman, n.d.). In the literature it is assumed that they influence both the reading process and the reading result, i.e. the mental representation constructed by the reader. There is indeed much empirical support for the position that connectives and other linguistic coherence markers play a facilitating role *during* the reading process, i.e. on-line (Britton et al., 1982; Haberlandt, 1982; Sanders, 1992). With respect to the influence of explicit coherence markers on the text representation afterwards, i.e. off-line, the positions are not so clear. On the one hand, there are studies which seem to show that linguistic marking of coherence relations improves the mental text representation (better recall, better comprehension) (Loman & Mayer, 1983; Lorch & Lorch, 1986; Meyer et al., 1980; Millis & Just, 1994). On the other hand, there are a number of studies indicating that linguistic markers do *not* have this facilitating role (Meyer, 1975; Sanders, 1992; Sanders & Noordman, 1997; Spyridakis & Standal, 1987) or even a negative impact (Millis et al., 1993).

There are plausible explanations for the reported contradictions, which can be brought back to two basic problems with this previous research: sloppy manipulation of the independent variable and neglecting of other influencing factors like content knowledge and linguistic knowledge of the reader. We believe to resolve these problems in this project by the use of authentic texts and by controlling the linguistic knowledge of the reader, contrasting L1 and L2 readers. Only explorative research seems to exist in this area (Geva, 1986), part of which is done at UIL/OTS (Plomp, 1997).

Detailed description of the research project

Linguistic markers of text structure are an interesting subject for further research, for three reasons:

First, from a linguistic point-of-view, the question is exactly how these markers are expressed in different languages, in our case in French and Dutch. On the basis of earlier work (which was partly done by the applicant and by a group at the host institution) we will compare the expression of causal relations in French and Dutch. This restriction to the causal domain is motivated by the fact that causal

relations occur at all levels of text, i.e. at supra-, inter- and intra-clausal level (Degand, 1996a, 1996b, 1997a; Kemmer & Verhagen, 1994). This should allow us to take a vertical approach to coherence instead of confining ourselves to one level of description as is mostly the case in discourse studies. Moreover, it has been established in the literature that causal relations are complex (Sanders et al., 1993), that they have a wide functional expression potential and offer interesting cross-linguistic variation (Degand, 1996a; Noordman & Vonk, 1997) and that they play a fundamental role in text processing (Black & Bern, 1981; Keenan et al., 1984; Myers et al., 1987; Noordman et al., 1992). This descriptive phase will provide us with a solid linguistic basis for our psycholinguistic investigations, making explicit the functional relations that exist between the abstract coherence relations and the linguistic markers present in the text.

Second, from a psycholinguistic point-of-view, we want to know to what respect linguistic markers affect text processing, both on-line and off-line, in first and in second language reading. One expected result is that explicit linguistic marking of crucial causal relations will lead to faster processing of textual information, indicating that readers find it easier to process. Our hypothesis is that this advantage of linguistic marking will be stronger in the case of L2-readers, because general and implicit linguistic knowledge is lower in the foreign language. The questions we would like to tackle then are the following:

- 1) Do discourse markers really have a positive impact on text processing in one's mother tongue (Dutch/French)? Under what conditions?
- 2) Is there a greater positive impact of discourse markers on text processing in a foreign language (Dutch/French)?

Third, the results of both of the above mentioned research directions add up to a third insight, in the field of text design. If we know, first, how exactly causal relations can be made explicit in two languages, and, second, how this affects the reading process, then we can answer the question whether it is possible to improve the quality of expository text by making the text structure explicit, both in reading a text in L1 and in L2.

Work plan and methods

Descriptive Phase

Description of causal relations across levels and across languages (Dutch and French). This phase should be partially accomplished by the beginning of the project. It is mainly based on ongoing work in the two research groups (Pander Maat & Sanders, 1995; Degand, 1996a, 1996b, 1997b, 1997c; Pit et al., 1997; Knott & Sanders, i.p.; Verhagen & Kemmer, 1997). Detailed comparison and evaluation of the results will take approximately 2 months.

Experimental Phase

Two parallel experiments are planned in Utrecht (UiL/OTS) and Louvain-la-Neuve (UCL). The first one aims at testing the impact of discourse markers on text processing in L1 (Dutch at UiL/OTS, French at UCL); the second in L2 (French at UiL/OTS, Dutch at UCL). The material used will be expository texts containing information about the European Community in which text structure will be manipulated with respect to the absence or presence of discourse markers (number and quality of explicit and implicit coherence relations). Text processing will be measured in terms of comprehension, recall, and reading times. This experimental phase should start soon after the beginning of the post-doctoral stay. It will cover approximately 4-5 months.

Expected results of the project

Results of the descriptive phase are taken up in a contrastive "dictionary" of causal discourse markers in Dutch and French giving rise to functionally motivated translation equivalences in the discourse domain. For instance, connectives should not always be translated by their "traditional" counterparts, e.g. *parce que* ('for/because') does not always correspond to *omdat* ('because'). Furthermore, not all connectives in one language have a counterpart in the other, e.g. *doordat* ('because of that') has no equivalent in French, *puisque* ('since') in French is a lot more frequent than *aangezien* ('since') in Dutch. Finally, a connective in one language might give rise to a preposition in the other language, etc.

As a matter of fact, we aim to make our corpus examples together with their “classification code” (descriptive terminology) available to the discourse research community, so as to favour comparison and exchange of results and data.

Results of the experimental phase will give rise to advice, i.e. a set of writing guidelines to writers and/or translators of public communication texts, for native as well as for foreign language readers. This is directly connected to the domain of *text design and evaluation* focussing on the improvement of text quality. Moreover, it seems that nothing has been produced so far in this domain for the French-speaking language communities.

References

- Black, J.B. & H. Bern (1981). Causal coherence and memory for events in narratives. *Journal of Verbal Learning and Verbal Behavior*, 20, 267-275.
- Britton, B.K., S.M. Mayer & M.J. Penland (1982). Effects of text structure on use of cognitive capacity during reading, *Journal of Educational Psychology*, 74, 51-61.
- Degand, L. (1996a). *A Situation-based Approach to Causation in Dutch with some Implications for Text Generation*, Doctoral dissertation, University of Louvain, Louvain-la-Neuve, Belgium.
- Degand, L. (1996b). Causation in Dutch and French. Interpersonal aspects, in R. Hasan, C. Cloran & D. Butt (eds), *Functional Description: Theory in Practice*, John Benjamins Publishing Company, Amsterdam/Philadelphia, 202-237. [Current Issues in Linguistic Theory, 121].
- Degand, L. (1997a), Causal connectives or causal prepositions. Discursive constraints. Submitted for publication.
- Degand, L. (1997b), A cross-linguistic view on causation : The case of Dutch and French causal connectives, paper presented at the *Fifth International Cognitive Linguistics Conference*, July 1997, Amsterdam.
- Degand, L. (1997c), Het ideationele gebruik van *want* en *omdat* : een geval van vrije variatie ? submitted for publication.
- Geva, E. (1986), Reading comprehension in a second language : The role of conjunctions. *TESL Canada Journal*, 1, 85-96.
- Haberlandt, K. (1982). Reader expectations in text comprehension. In J.F. Le Ny & W. Kintsch (eds), *Language and language comprehension*, North-Holland, Amsterdam, 239-249.
- Keenan, M.F., S.D. Baillet & P. Brown (1984). The effects of causal cohesion on comprehension and memory, *Journal of Verbal Learning and Verbal Behavior*, 23, 115-126.
- Kemmer, S. & A. Verhagen (1994), The grammar of causatives and the conceptual structure of events, *Cognitive Linguistics*, 5, 115-156.
- Knott, A. & R. Dale (1994), Using linguistic phenomena to motivate a set of rhetorical relations, *Discourse Processes*, 18, 35-62.
- Knott, A. & T. Sanders (i.p.), The classification of coherence relations and their linguistic markers : an exploration of two languages, to appear in *Journal of Pragmatics*.
- Loman, N.L. & R.E. Mayer (1983). Signalling techniques that increase the understanding of expository prose, *Journal of Educational psychology*, 75, 402-412.
- Lorch jr, R.F. & E.P. Lorch (1986). On-line processing of summary and importance of signals in reading, *Discourse Processes*, 9, 489-496.
- Meyer, B.J.F. (1975). *The organization of prose and its effects on memory*, North-Holland, Amsterdam.
- Meyer, B.J.F., D.M. Brandt & G.J. Bluth (1980). Use of top-level structure in text : Key for reading comprehension of ninth-grade students, *Reading Research Quarterly*, 16, 72-103.
- Millis, K.K., A.C. Graesser & K. Haberlandt (1993). The impact of connectives on the memory for expository texts, *Applied Cognitive Psychology*, 7, 317-339.
- Millis, K.K. & M.A. Just (1994). The influence of connectives on sentence comprehension, *Journal of Memory and Language*, 33, 128-147.
- Myers, J.L., M. Shinjo & S.A. Duffy (1987). Degree of causal relatedness and memory, *Journal of Memory and Language*, 31, 573-590.
- Noordman; L.G.M. & W. Vonk (1997) The different functions of a conjunction in constructing a representation of the discourse, in J. Costermans & M. Fayol (eds), *Processing Interclausal Relationships. Studies in the Production and Comprehension of Text*. Lawrence Erlbaum Associates, Mahwah, 75-93.
- Noordman, L.G.M., W. Vonk & H.J. Kempff (1992). Causal inferences during the reading of expository texts, *Journal of Memory and Language*, 31, 573-590.
- Pander Maat, H. & T. Sanders (1995). Nederlandse causale connectieven en het onderscheid tussen inhoudelijke en epistemische coherentie-relaties, *Leuvense Bijdragen*, 84, 349-374.

- Pit, M., H. Pander Maat & T. Sanders (1997). 'Doordat', 'omdat' en 'want'. Perspectieven op hun gebruik. *Taalbeheersing*, 3, 238-251.
- Plomp, F. (1997). Een empirisch onderzoek naar het effect van lexicale structuurmarkeringen op tekstbegrip in de eerste en in de tweede taal, *Toegepaste Taalwetenschap in Artikelen*, 56, 47-62.
- Sanders, T.J.M. (1992). *Discourse Structure and Coherence: Aspects of a Cognitive Theory of Discourse Representation*, Doctoral Dissertation, University of Tilburg, The Netherlands.
- Sanders, T. (1997). Semantic and pragmatic sources of coherence: On the categorization of coherence relations in context, *Discourse Processes*, 24, 119-148.
- Sanders, T.J.M. & L.G.M. Noordman (1997). The role of coherence relations and their linguistic markers in text processing, submitted for publication.
- Sanders, T.J.M., W.P.M.S. Spooren & L.G.M. Noordman (1992). Towards a taxonomy of coherence relations, *Discourse Processes*, 15, 1-15.
- Sanders, T.J.M., W.P.M. Spooren & L.G.M. Noordman (1993). Coherence relations in a cognitive theory of discourse representation, *Cognitive Linguistics*, 4, 93-133.
- Spyridakis, J.H. & T.C. Standal (1987). Signals in expository prose, *Reading Research Quarterly*, 22, 285-298.
- Verhagen, A. & S. Kemmer (1997) Interaction and causation : Causative constructions in modern standard Dutch, *Journal of Pragmatics*, 27, 61-82.