Empirical Studies of the Construction of Discourse

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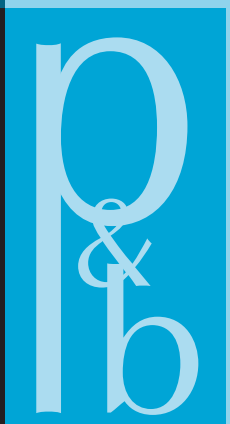

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Introduction

Óscar Loureda,[1] Inés Recio Fernández,[1] Adriana Cruz[1] and Laura Nadal[2]
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This volume brings together eleven studies that address current points of interest within the realm of discourse studies from an empirical perspective.[1] By dealing with state-of-the-art issues, the gathered contributions reveal the potential of approaching the construction of discourse empirically, either by means of corpus-based analyses, by means of experimentation, or by combining methodologies.

The presence of quantitative analyses in the field of discourse studies, which is experiencing "a paradigm shift towards more empirical methods" (Gries 2013: 4), has rapidly increased over the past few decades. This fact owes much to a change in the object of study within linguistic research that took place throughout the 20th century, which saw a widening of the research scope of the discipline, traditionally set in micro-structures, to phenomena related to larger units. In the first step towards overcoming the paradigm of code linguistics, the expansion of syntax beyond the boundaries of sentences led to a shift from the study of *langue* to the study of *parole,* which led to incorporating the cognitive, situational, social, ethnographic and cultural dimensions of languages and language in use into linguistic analysis (Verschueren 2009), thus revealing the interdisciplinary nature of the field of studies about the construction of discourse (see Moeschler 1989: 1–2). On occasions, the interdisciplinary turn has even led to speaking of "language sciences" rather than of "linguistics" (idem: 1).[2] The widening of the object of study – the *what* –,

1. Most of the works in this volume stem from contributions presented at the *11th International Conference on General Linguistics* (Pamplona, 2014); the *4th International Symposium on Discourse Markers in Romance Languages* (Heidelberg, 2015); the *13th Conference of the International Pragmatics Association* (Antwerp, 2015), or the *3rd International Conference on Linguistic & Psycholinguistic Approaches to Text Structuring* (Valencia, 2016).

2. "While linguistic studies, strictly speaking, deal with discipline-internal issues (phonology, morphology, syntax or even semantics), we observe that studies of linguistic pragmatics, dialogue or discourse analysis, transcend the realm of linguistics and become more and more of interest

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and the subsequent closer contact of linguistics with other disciplines, triggered a sort of chain reaction that affected the way to approach it – the *how*.

From a methodological perspective, proof that disciplines or scientific dimensions originally external to linguistics are incorporated in the linguistics program is the concept of "corpora" usually managed in corpus-based discourse research: machine-readable, representative, balanced collections of texts produced in natural communicative settings (Gries 2009; Guilquin and Gries 2009). Clear interfaces follow from this definition with, for instance, computer science and sociology. In experimentation, in turn, incorporating cognitive phenomena into the studies of discourse production and comprehension has been possible by resorting to techniques, methods and tasks traditionally used in psycholinguistic research that enable access to data about speakers' behaviors (Dietrich 2002; Gibbs 2004; Noveck and Sperber 2004; Sandra 2009). Finally, statistics represent another methodological interface between corpus and experimental analysis at present and they are an essential tool for empirical linguists for data evaluation.

Combined with descriptions, experimental and corpus analyses form the triad of methods often referred to as *armchair, laboratory* and *field* (Clark and Bangerter 2004; Jucker 2009; see also Guilquin and Gries 2009) and provide the scientific community with a comprehensive view of discourse processes. Empirical investigations complement researchers' "educated guesses" (Noveck and Sperber 2007: 185), that is, their intuitions.[3] While scientific observation in its pure state "has no purpose unless it is guided by some kind of previous theoretical claim" (López Serena 2016: 1164, our translation) and it is precisely through intuition that initial assumptions and, subsequently, theory-based hypotheses are often brought into being, bringing in empirical methods to the research enterprise puts valuable pressure on theorizing and serves as a scientific basis to confirm, reject or revise theoretical claims (Sperber and Noveck 2004: 9; Sandra 2009; see also Sandra and Rice 1995).

Corpus linguistics provides "new ways of studying the relations between language system and language use" (Stubbs 2007: 127): it gives insight into correlations between the potential structural value of signs, i.e., of specific linguistic expressions in a certain language – which is the object of study – and their actual realization within discourse, understood fundamentally as a *product* (Coseriu 1955–56). In other words, corpus analyses provide evidence on the relationship between

for all disciplines concerned with the issues of language use in communication" (Moeschler 1989: 1–2, our translation).

3. Itkonen (2003) defines "intuition" as "the epistemic act characteristic of human sciences such as linguistics, in which, apart from other types of knowledge, the researcher resorts to his agent's knowledge, which he has as a native (or expert) speaker of a language about the (variety and state of the) language under study" (apud López Serena 2018: 166).

distributional, semantic and syntactic features of linguistic material and the function of such material in discourse.

Experimentation provides data that is otherwise difficult to access, since its focus lies on the relation between linguistic input and the mental processes triggered by it (Sandra 2009). The underlying tenet of experimentation in (psycho) linguistics is the fact that "cognitive processes need time and complex processes are more time-consuming than easier ones" (Dietrich 2002: 17, our translation). In experimentation, therefore, discourse is approached as an *activity*: insight is provided into *reactions* (e.g., cognitive effort measured in milliseconds) to *stimuli* (e.g., discourses), shedding light on potential correlations between specific features of expressions functioning at the discourse level and the processing/production patterns of language users.

Approaching research on discursive material such as discourse-marking and structuring devices empirically is, therefore, key to complementing theoretical studies on how discourses are constructed. The study of that kind of expressions does not only reveal their formal, semantic or functional properties, but also tells us about "the organization of social interactions and situations in which they are used" and "about the cognitive, expressive, social, and textual competence of those who use them." (Schiffrin 2001: 67). Methodological combination and triangulation – either corpus analyses with experimentation or different experimental paradigms, see for instance the contributions by Sanders and Evers-Vermeul, Gerwien and Rudka, and by Andersson in this volume – is becoming increasingly frequent and gives rise to particularly robust evidence on linguistic phenomena (see, e.g., Gries, Hampe and Schönefeld 2005; Guilquin and Gries 2009: 9). Eventually, it also helps alleviate limitations inherent to each empirical method, such as laboratory constraints in the case of experimental studies or the fact that corpora provide insight only into the actual data that they contain (Sandra 2009: 161–162).[4]

In addition to sharing their empirical basis, from the viewpoint of the object of study, the investigations in this volume deal with current research topics on different levels concerning the construction of discourses. More specifically, the gathered contributions approach the analysis of a broad array of linguistic expressions that allow language users to generate and identify the information structure of utterances, to regulate and process argumentative operations, and to organize their

4. Data naturalness is also a major issue for empirical research. Guilquin and Gries (2009: 5) provide an overview of types of linguistic data sorted according to naturalness of production/collection. From the viewpoint of philosophy of science, however, full naturalness of data is an impossible endeavor. Even the observation of naturally (e.g., non-elicited) produced data implies a data selection based on the aim of the study and the theoretical framework at issue, and therefore involves the researcher's intervention (see López Serena 2006 and references therein).

discourses: focus operators (Cruz and Loureda, Gerwien and Rudka), topic-shifting and topic-resuming markers (Crible), connectives in fundamentally monological discourse units (Aijmer, Degand, Gast, Nadal and Recio Fernández, Sanders and Evers-Vermeul, Andersson) and signals of discourse connection in conversational structures (Espinosa-Guerri and García-Ramón). A further issue highlighted in the volume concerns the importance of prosody as an explaining factor of how discourse markers behave within different discourse units (Hidalgo Navarro and Martínez Hernández). While the linguistic expressions approached by the volume contributors display substantial differences in terms of their semantic and morphosyntactic features (Pons 1998; Loureda and Acín 2010; Blühdorn, Foolen and Loureda 2017), they all serve one purpose: constraining the access to the context in communication, understood as a cognitive act, and triggering inferential processes from the encoded information in the utterances they link or upon which they operate (Portolés 2001[1998], 2015; Blakemore 2002; Murillo 2010).

Human thinking can be best understood "in terms of representational structures in the mind and computational procedures that operate on those structures" (Thagard 2005: 10). Mapped onto an ostensive-inferential concept of communication, this claim means that speakers produce utterances thereby activating the interpretive processes of hearers, who arrive at the communicated assumption by means of linguistic decoding and inferencing (Sperber and Wilson 1995[1986], 2002; Wilson and Sperber 2002; Wilson 2003). Guiding communicative processes to recover the speaker's meaning is achieved by making use of "interpretative cues" of a varied nature (Schiffrin 1987; Neuber 2002), as the volume's contribution show. These can be linguistically encoded, such as discourse markers, grammaticalized procedural-meaning devices that guide the reader/listener during information processing according to their morphosyntactic, semantic and pragmatic features (Blakemore 1987; Fraser 1999; Portolés 2001[1998]; Pons and Loureda 2018). They can also be suprasegmental features of language, such as prosody, which contributes to utterance comprehension and plays a role in the syntactic organization, the semantic and pragmatic interpretation of utterances and the interactive organization of conversations (Neuber 2002; Hidalgo Navarro and Cabedo Nebot 2012).

As far as the treatment of the object of study is concerned, the contributions of the volume describe one language (Cruz and Loureda, Gerwien and Rudka, Nadal and Recio Fernández, Andersson, Hidalgo Navarro and Martínez Hernández, Espinosa-Guerri and García-Ramón) or have a cross-linguistic character (Sanders and Evers-Vermeul, Crible, Degand, for contrasts between two languages; Aijmer, Gast for contrasts of more than two languages).

Since the major aim of this book is to underscore the benefit of approaching discursive phenomena empirically, the chapters have been ordered according to the empirical method or methods applied in the analyses they present:

i. Corpus-based studies (Aijmer, Degand, Crible, Gast, Hidalgo Navarro and Martínez Hernández, Espinosa-Guerri and García-Ramón).
ii. Experimentation (Cruz and Loureda, Gerwien and Rudka, Nadal and Recio Fernández).
iii. A combination of both (Sanders and Evers-Vermeul, Andersson).

The first subsection of the book comprises six chapters devoted to the description of connectives and conversation-structuring devices in one or several languages with a corpus-based orientation. One of the central issues underlined by most authors in this subsection is the importance of discourse segmentation to isolate the scope of coherence markers and discourse-structuring cues and, subsequently, to outline and delimit their uses and values in discourse. For a long time, the analysis of the positional distribution of discourse markers has been "one of the most striking descriptive gaps" in their study (Briz and Pons Bordería 2010: 327), with some works being only partially anchored in segmentation models (see, however, Roulet et al. 1985; Roulet 1991; Cresti 2000; Roulet et al. 2001; Ferrari, Cignetti and De Cesare 2008; Briz and Val.Es.Co. Group 2003, 2014; see also Pons 2014 for a recent overview of several proposals on discourse segmentation in Romance languages). The advantage of systematic model-based analyses is addressed in this book and demonstrated in this subsection's contributions by Crible, Degand, Espinosa-Guerri and García-Ramón, and Hidalgo Navarro and Martínez Hernández.

Determining the structural scope and the position of discourse markers is essential, firstly, to perform contrastive analyses. In Chapter 1, Karin Aijmer approaches the theoretical and methodological challenge of depicting the functions of discourse markers and points out that positional analyses and a cross-linguistic approach are key to obtaining comprehensive functional descriptions of discourse markers. Aijmer compares the English consecutive connective *then* with Swedish *då* and German *denn*/*dann* in terms of the contexts in which they seem interchangeable and the frequency with which they are used as equivalents. For the comparison English/Swedish, where Aijmer resorts to data from a parallel corpus, she also highlights translator intuitions as a further methodological possibility for cross-linguistic research and proves it useful to study multifunctional expressions like discourse markers.

The scope of discourse markers is a challenge, secondly, for studying spoken discourse, since the distinction between "local" and "global coherence" (Lenk 1998) is not binary but displays a wide range of intermediate cases. Ludivine Crible's work in Chapter 2 envisages the possibility of performing systematic annotations of corpora to look for correlations between syntactic and semantic-pragmatic features of discourse markers, on the one hand, and their scope, on the other. Crible argues that the fact that discourse markers operate at the level of local or global coherence

should have a reflection in their syntactic and syntagmatic behavior within discourse. Her analysis is a comparison of three pairs of discourse markers/functions with different degrees of scope (topic-shifting versus topic-resuming, coordinating versus subordinating conjunctions, and consecutive versus conclusive value). To describe the semantics of these markers, Crible contrasts spoken data from English and French and annotates specifically their degree of syntactic integration, position and co-occurrence between pauses.

In the contribution by Antonio Hidalgo Navarro and Diana Martínez Hernández in Chapter 3 the authors provide empirical evidence from acoustic analyses in support of the idea that the degree of prosodic realization of discourse markers – illustrated with a detailed analysis of Spanish conversational markers – helps determine their hierarchical rank within discourse structure and, as a result, their pragmatic function in a specific context. Hidalgo Navarro and Martínez Hernández base their analysis on the Val.Es.Co model of discourse units (VAM, Briz and Val.Es.Co 2003, 2014) and resort to several corpora of spoken Spanish (Briz and Val.Es.Co. 2002; Cabedo and Pons 2013, and corpus *Fonocortesía* [http://fonocortesia.es/]).

In Chapter 4, Guadalupe Espinosa-Guerri and Amparo García-Ramón present an innovative visualization tool (based on Briz 2013) with a high developing potential that depicts interaction patterns arising from the hierarchical relationships of conversational interactions. The tool does not exclude any interactional elements from the analysis, contributes to determining the roles of participants in a given interaction, and serves to obtain visualizations on how conversation works in terms of the dynamism of different discourse genres. Specifically, the authors apply the tool to systematically analyze the connecting signals existent between dialogical turns in interactional structures in conversations, taking the distinction between initiative and reactive interventions as a starting point, as proposed by the Val.Es.Co model (VAM) as well.

The subsequent corpus-based contributions address the role of connectives to inferential processes during the construction of discourse. In Chapter 5, Liesbeth Degand stresses the need to consider syntactic behaviour and semantic features of argumentative connectives to approach them as discourse markers. It is often the case that causal connectives belong to the class of coordinating or subordinating conjunctions and can therefore operate both at a sentential and at a supra-sentential level. However, subordinating conjunctions cannot be considered to systematically contribute to the construction of discourse relations, since they do not always link independent utterances or independent speech acts (due to their higher syntactic dependency). Degand illustrates this in her corpus-based analysis of the conjunctions *parce que* in French and *omdat* in Dutch ('because'). While both are subordinating conjunctions, language users sometimes employ them – more

frequently French *parce que* – as syntactically independent, thus conferring them a discourse value.

The corpus-based subsection of the volume closes with Volker Gast's contribution in Chapter 6. On the basis of annotated data from the Europarl corpus, Gast detects several interactions of features established for concessives in the literature – the structural properties of the linked clauses (length and position), the semantic relation between the clauses, the level at which the connection exists (propositional, textual or illocutionary), and the information structure patterns generated by the conjunction between the main and the subordinated clause – and their distribution. Specifically, Gast offers a contrastive study on three subordinating concessive conjunctions: *although* in English and its alleged equivalents *obwohl* in German and *aunque* in Spanish. Due to higher positional restrictions and to the existence of further specialized concessive connectives in German, *obwohl* seems to be limited to clausal and textual connecting functions, whereas *although* and *aunque* display a wider range of discursive uses. In addition, ordering asymmetries arise with the distribution German vs. English/Spanish as to the position of the concessive clause in relation to the main clause.

The second subsection of the volume is devoted to experimental analyses of discourse-marking expressions. Its first two chapters deal with information-structuring devices, specifically, the focus operators *incluso* in Spanish and *sogar* in German (both equivalent to English *even*). *Incluso* and *sogar* conventionally create a scalar informative structure in which a given discourse segment, the focus, is presented as more informative than other co-textual or contextual elements, the alternative/s (König 2005; Portolés 2010). Thus, focus operators function as instructions on how utterance constituents should be combined with each other. From a cognitive viewpoint, such procedural features of focus operators could have an impact on the underlying processing patterns of their host utterances, compared to instances where the information structure is otherwise built, e.g., by means of world knowledge.

In Chapter 7, Adriana Cruz and Óscar Loureda confirm precisely that different focusing structures in pragmatic scales give rise to different processing patterns due to their semantic and syntactic properties. In an eye tracking reading experiment and a comprehension test, Cruz and Loureda deal with two types of focusing constructions: unmarked structures consisting of either an unmarked identificational focus (Kenesei 2006, e.g., *Alicia writes essays and* poems) or an unmarked focus restricted by a conceptual input (Flórez 1995, e.g., *Alicia writes essays and* simple poems), and structures with contrastive foci marked by the Spanish focus operator *incluso* ('even', *Alicia writes essays and* even poems). Their findings suggest that, despite the increased information load in marked utterances, both marked and unmarked focus constructions have similar total processing costs. *Incluso* exerts a

control and facilitation effect and guides utterance interpretation, conventionally generating a contrast with a set of alternatives. Additionally, the findings show that, in spite of their global similarities, utterances can also be arranged according to two different internal processing patterns: while in unmarked utterances processing is guided by conceptual input, in marked utterances it is the rigidity of the procedural instruction of the focus operator that determines processing and interpretation. The obtained patterns support arguments in favor of the characterization of procedural-meaning devices in terms of asymmetry and rigidity as to conceptual contents (Leonetti and Escandell Vidal 2004; Escandell and Leonetti 2011).

In Chapter 8, Johannes Gerwien and Martha Rudka also base their work in a concept of focus operators as processing and comprehension-guiding devices. Assuming that language is processed incrementally (Kamide, Altmann and Haywood 2003) and that readers and hearers predict the upcoming discourse when engaged in a communicative exchange, Gerwien and Rudka explore how and when the German focus operator *sogar* ('even') modulates comprehenders' expectations about the subsequent discourse. The authors perform a two-alternative choice task to show how *sogar* impacts participants' expectations about the focus; subsequently, they observe viewing behavior in a visual world paradigm (VWP) experiment in four conditions resulting from crossing the factors (a) presence of the focus operator (yes/no) and (b) magnitude of expectation change (high/low) induced by *sogar* on the basis of the previously obtained two-alternative choice-task data. Gerwien and Rudka show that the instruction encoded in *sogar* is integrated into a situation model immediately, but that updating an initially built model becomes cognitively more demanding in the presence of *sogar* as the degree of expectation change about the upcoming discourse increases. From a methodological viewpoint, Gerwien and Rudka propose a non-canonical approach to the VWP and take the non-occurrence (instead of the occurrence) of eye movements as informative of their theory-based hypotheses and predictions.

In Chapter 9, Laura Nadal and Inés Recio Fernández address the role of connectives as interpretive guides for the construction of discourse, specifically of the Spanish causal-consecutive connective *por tanto* ('therefore', 'so'). In an eye tracking reading study, Nadal and Recio Fernández investigate whether implicit causal relations give rise to processing patterns different from explicit relations, where two discourse segments are linked by *por tanto*. The underlying theoretical claim is that, since the human mind is by default geared towards seizing optimal relevance when confronted with ostensive stimuli (Sperber and Wilson 1995[1986]) and seeks causal processing of information (Sanders 2005), causal implicit relations should be highly predictable and inferable from the mental representations arising from the lexical content of the utterance segments. The fact that causality is additionally marked by the procedural-meaning guide *por tanto* in the explicit causal relations

under study raises the question of the actual contribution of discourse markers to utterance understanding and, subsequently, to the construction of discourse relations.

These three contributions, in sum, reflect the impact of contextual enrichment, procedural semantics and the discourse relations holding between discourse segments on cognitive effects, processing patterns and processing strategies.

The third and last subsection of the volume comprises two contributions that highlight the advantage of addressing phenomena related to discourse by combining empirical methodological approaches.

In Chapter 10, Ted Sanders and Jacqueline Evers-Vermeul present a metastudy with converging evidence on how causality and subjectivity condition discourse processing. Sanders and Evers-Vermeul remark the importance of methodological triangulation for cognitively-oriented linguists to obtain particularly rich and robust data evidence on the cognitive principles that organize discursive knowledge. Specifically, the authors discuss three types of empirical works: evidence from written and spoken language corpora; corpus and experimental data on language acquisition; and processing studies. Sanders and Evers-Vermeul approach the question of how causality, which is understood as a basic cognitive operation (see also Nadal and Recio Fernández, Chapter 9; Andersson, Chapter 11), and subjectivity, which refers to the fact that a *Subject of Consciousness* intervenes in the utterance (Pander Maat and Sanders 2001: 251–252, see also Andersson, Chapter 11; Degand, Chapter 5), influence language processing and motivate language use. While Dutch is the starting point for most of the works discussed by Sanders and Evers-Vermeul, cross-linguistic comparisons are also drawn with English, French, German and Chinese.

The last chapter of the volume is written by Marta Andersson and presents results gathered from combining corpus and experimentation (a sentence completion task and a paraphrasing experiment). Andersson addresses two questions. Firstly, whether the English causal connectives *as a result* and *for this reason* show clear tendencies for certain discourse environments in natural language; secondly, which intuitions language users share about the functions of each connective. The conceptual and linguistic features of *as a result* and *for this reason* are described and analyzed in terms of volitionality combined with the concept of *Subject of Consciousness*. This allows Andersson to obtain a more fine-grained description of the use and preferences of language users in relation to both connectives, which can also give account of the three discourse domains identified by Sweetser (1990) – real-world, epistemic and speech-act related – in which they operate.

In a nutshell, this volume gathers eleven contributions that offer the reader a detailed picture of how empirical approaches can make research on the construction of discourse go forward. The contributions provide empirical evidence – corpus-based,

experimental, combined methodologies – about a series of issues in research at the discourse level for which in-depth theoretical descriptions are available, thus leading to particularly powerful claims. Empirical and theoretical approaches are presented in this book not only as complementary, but also as mutually indispensable to gain a comprehensive insight into the *how* and the *what* of discourses, and into the interface between languages and cognition.

References

Blakemore, Diane. 1987. *Semantic Constraints on Relevance*. Oxford: Blackwell.

Blakemore, Diane. 2002. *Relevance and Linguistic Meaning: the Semantics and Pragmatics of Discourse Markers*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511486456

Blühdorn, Hardarik, Ad Foolen, and Óscar Loureda. 2017. "Diskursmarker: Begriffsgeschichte – Theorie – Beschreibung. Ein bibliographischer Überblick." In *Diskursmarker im Deutschen. Reflexionen und Analysen*, ed. by Hardarik Blühdorn, Arnulf Deppermann, Henrike Helmer, and Tomas Spranz-Fogasy, 7–48. Mannheim: Verlag für Gesprächsforschung.

Briz, Antonio. 2013. "El relato coloquial." *Oral presentation at the XXVIII Congreso de Hispanistas Italianos*. Pisa, Italy, 27–30.

Briz, Antonio, and Grupo Val.Es.Co. 2002. *Corpus de conversaciones coloquiales*. Madrid: Arco Libros.

Briz, Antonio, and Grupo Val.Es.Co. 2003. "Un sistema de unidades para el estudio del lenguaje coloquial." *Oralia* 6: 7361.

Briz, Antonio, and Grupo Val.Es.Co. 2014. "Las unidades del discurso oral. La propuesta Val.Es.Co. de segmentación de la conversación (coloquial)." *Estudios de lingüística del español* 35(1): 11–71.

Briz, Antonio, and Salvador Pons Bordería. 2010. "Unidades, marcadores discursivos y posición." In *Los estudios sobre marcadores del discurso en español, hoy*, ed. by Óscar Loureda, and Esperanza Acín, 327–358. Madrid: Arco Libros.

Cabedo, Adrián, and Salvador Pons. 2013. *Corpus Val.Es.Co. 2.0*. [online: http://www.valesco.es].

Clark, Herbert H., and Adrian Bangerter. 2004. "Changing ideas about reference." In *Experimental Pragmatics*, ed. by Ira A. Noveck and Dan Sperber, 25–49. Basingstoke: Palgrave. https://doi.org/10.1057/9780230524125_2

Coseriu, Eugenio. 1955–56. "Determinación y entorno. Dos problemas de una lingüística del hablar." *Romanistisches Jahrbuch* VII: 29–54.

Cresti, Emanuela. 2000. *Corpus di Italiano parlato*. Florence: Accademia della Crusca.

Dietrich, Rainer. 2002. *Psycholinguistik*. Stuttgart, Weimar: J. B. Metzler. https://doi.org/10.1007/978-3-476-02866-2

Escandell, María Victoria, and Manuel Leonetti. 2011. "On the Rigidity of Procedural Meaning." In *Procedural Meaning: Problems and Perspectives*, ed. by María Victoria Escandell, Manuel Leonetti, and Aoife Ahern, 81–102. Bingley: Emerald Group.

Ferrari, Angela, Luca Cignetti, and Anna-Maria De Cesare. 2008. *L'interfaccia lingua-testo. Natura e funzioni dell'articolazione informative dell'enunciato*. Alessandria: Edizione dell'Orso.

Flórez, Óscar. 1995. "La posición del adjetivo: una perspectiva pragmática." *Dicenda: Cuadernos de filología hispánica* 13: 163–174.

Fraser, Bruce. 1999. "What are discourse markers?" *Journal of Pragmatics* 31: 931–952. https://doi.org/10.1016/S0378-2166(98)00101-5

Gibbs, Raymond W. 2004. "Psycholinguistic Experiments and Linguistic-Pragmatics." In *Experimental Pragmatics*, ed. by Ira Noveck and Dan Sperber, 50–71. Basingstoke: Palgrave. https://doi.org/10.1057/9780230524125_3

Gries, Stefan Th. 2009. "What is Corpus Linguistics?" *Language and Linguistics Compass* 3(5): 1225–1241. https://doi.org/10.1111/j.1749-818X.2009.00149.x

Gries, Stefan. 2013. *Statistics for Linguistics with R. A Practical Introduction*. Berlin/Boston: De Gruyter Mouton. https://doi.org/10.1515/9783110307474

Gries, Stefan Th., Beate Hampe, and Doris Schönefeld. 2005. "Converging Evidence: Bringing together Experimental and Corpus Data on the Association of Verbs and Constructions." *Cognitive Linguistics* 16(4): 635–676. https://doi.org/10.1515/cogl.2005.16.4.635

Guilquin, Gaëtanelle, and Stefan Th. Gries. 2009. "Corpora and experimental methods: A state-of-the-art review." *Corpus Linguistics and Linguistic Theory* 5(1): 1–26. https://doi.org/10.1515/CLLT.2009.001

Hidalgo Navarro, Antonio, and Adrián Cabedo Nebot. 2012. "Observaciones sobre la importancia de la entonación en la enseñanza de E/LE: aspectos metodológicos." *Cauce. Revista de Filología y su Didáctica* 34–35: 209–230.

Itknonen, Esa. 2003. *What is language? A Study in the Philosophy of Linguistics*. University of Turku. Turku: Publications in General Linguistics 8.

Jucker, Andreas. 2009. "Speech act research between armchair, field and laboratory. The case of compliments." *Journal of Pragmatics* 41: 1611–1635. https://doi.org/10.1016/j.pragma.2009.02.004

Kamide, Yuki, Gerry T. M. Altmann, and Sarah L. Haywood. 2003. "The Time-course of Prediction in Incremental Sentence Processing: Evidence from Anticipatory Eye Movements." *Journal of Memory and Language* 49(1): 133–156. https://doi.org/10.1016/S0749-596X(03)00023-8

Kenesei, István. 2006. "Focus as Identification." In *The architecture of focus*, ed. by Valéria Molnár, and Susanne Winkler, 137–168. Berlin: De Gruyter. https://doi.org/10.1515/9783110922011.137

König, Ekkehard. 2005. *The Meaning of Focus Particles: A Comparative Perspective*. London: Routledge.

Lenk, Uta. 1998. "Discourse Markers and Global Coherence in Conversation." *Journal of Pragmatics* 30: 245–257. https://doi.org/10.1016/S0378-2166(98)00027-7

Leonetti, Manuel, and María Victoria Escandell Vidal. 2004. "Semántica conceptual/semántica procedimental." In *Proceedings of the V Congreso de Lingüística General*, ed. by Milka Villayandre Llamazares, 1727–1738. Madrid: Arco Libros.

López Serena, Araceli. 2006. "La edición como construcción del objeto de estudio. El ejemplo de los corpus orales." In *Historia de la Lengua y Crítica Textual*, ed. by Lola Pons Rodríguez, 301–333. Madrid/Frankfurt am Main: Iberoamericana-Vervuert.

López Serena, Araceli. 2016. "El establecimiento de niveles y unidades en el análisis del discurso. Una primera aproximación metateórica." In *El español a través del tiempo. Estudios ofrecidos a Rafael Cano Aguilar*, ed. by Antonio Narbona Jiménez, and Santiago del Rey Quesada, vol. 2, 1152–1175. Sevilla: Editorial Universidad de Sevilla.

López Serena, Araceli. 2018. "Intuición, teoría y datos en historia de la lengua. Las hipótesis sobre la gramaticalización del *por cierto* epistémico en español a la luz de la Filosofía de la lingüística." *Revista Internacional de Lingüística Iberoamericana (RILI)* 31, 163–185.

Loureda, Óscar, and Esperanza Acín. 2010. *Los estudios sobre marcadores del discurso en español, hoy*. Madrid: Arco Libros.

Moeschler, Jacques. 1989. *Modélisation du dialogue. Répresentation de l'inférence argumentative*. Paris: Hermès.

Murillo, Silvia. 2010. "Los marcadores del discurso y su semántica." In *Los estudios sobre marcadores del discurso, hoy*, ed. by Óscar Loureda, and Esperanza Acín, 241–280. Madrid: Arco Libros.

Neuber, Baldur. 2002. *Prosodische Formen in Funktion. Leistungen der Suprasegmentalia für das Verstehen, Behalten und die Bedeutungs(re)konstruktion*. Frankfurt M.: Peter Lang.

Noveck, Ira and Dan Sperber. 2004. *Experimental Pragmatics*. Basingstoke: Palgrave. https://doi.org/10.1057/9780230524125

Noveck, Ira A., and Dan Sperber. 2007. "The why and how of experimental pragmatics: The case of 'scalar inferences'." In *Pragmatics*, ed. by Noel Burton-Roberts, 184–212. Basingstoke: Palgrave. https://doi.org/10.1057/978-1-349-73908-0_10

Pander Maat, Henk, and Ted J. M. Sanders. 2001. "Subjectivity in Causal Connectives: An Empirical Study of Language in Use." *Cognitive Linguistics* 12(3): 247–273.

Pons, Salvador. 1998. "Conexión y conectores. Estudio de su relación en el registro informal de la lengua." PhD diss., Universitat de València.

Pons, Salvador. 2014. *Discourse Segmentation in Romance Languages*. Amsterdam: John Benjamins.

Pons, Salvador, and Óscar Loureda. 2018. *Discourse Markers in Grammaticalization and Constructionalization: New Issues in the Study of Language Change*. Leiden: Brill.

Portolés, José. 2001 [1998]. *Los marcadores del discurso*. Barcelona: Ariel.

Portolés, José. 2010. "Los marcadores del discurso y la estructura informativa." In *Los estudios sobre marcadores del discurso en español, hoy*, ed. by Óscar Loureda, and Esperanza Acín, 281–325. Madrid: Arco Libros.

Portolés, José. 2015. "Marcadores del discurso." In *Enciclopedia de lingüística hispánica*, ed. by Javier Gutiérrez-Rexach, 689–699. London: Taylor & Francis Ltd.

Roulet, Eddy. 1991. "Vers une approche modulaire de l'analyse du discours." *Cahiers de Linguistique Française* 12: 53–81.

Roulet, Eddy, Antoine Auchlin, Jacques Moeschler, Christian Rubattel, and Marie Schelling. 1985. *L'articulation du discours en français contemporain*. Bern: Peter Lang.

Roulet, Eddy, Laurent Filliettaz, Marcel Burger, and Anne Grobet. 2001. *Un modèle et un instrument d'analyse de l'organisation du discours*. Bern: Peter Lang.

Sanders, Ted J. M. 2005. "Coherence, causality and cognitive complexity in discourse." In *Proceedings/Acts SEM-05, First International Symposium on the exploration and modeling of meaning*, ed. by Michel Aurnague, Myriam Bras, Anne Le Draoulec, and Laure Vieu, 105–114.

Sandra, Dominiek. 2009. "Experimentation." In *Cognition and Pragmatics*, ed. by Dominiek Sandra, Jan-Ola Östman, and Jef Verschueren, 157–200. Amsterdam/Philadelphia: John Benjamins. https://doi.org/10.1075/hoph.3.11san

Sandra, Dominiek, and Sally Rice. 1995. "Network analysis of prepositional meanings: Mirroring whose mind – The linguist's or the language user's?" *Cognitive Linguistics* 6(1): 89–130. https://doi.org/10.1515/cogl.1995.6.1.89

Schiffrin, Deborah. 1987. *Discourse Markers*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511611841

Schiffrin, Deborah. 2001. "Discourse Markers." In *Handbook of Discourse Analysis*, ed. by Deborah Schiffrin, Deborah Tannen, and Heidi E. Hamilton, 54–75. Oxford: Blackwell Publishers.

Sperber, Dan, and Deirdre Wilson. 1995 [1986]. *Relevance. Communication and Cognition*. Oxford: Blackwell.

Sperber, Dan, and Deirdre Wilson. 2002. "Pragmatics, Modularity and Mind-Reading." *Mind and Language* 17: 3–23. https://doi.org/10.1111/1468-0017.00186

Sperber, Dan, and Ira Noveck. 2004. "Introduction." In *Experimental Pragmatics*, ed. by Ira Noveck, and Dan Sperber, 1–22. Basingstoke: Palgrave. https://doi.org/10.1057/9780230524125_1

Stubbs, Michael. 2007. "On texts, corpora and models of language." In *Text, Discourse and Corpora. Theory and Analysis*, ed. by Michael Hoey, Michaela Mahlberg, Michael Stubbs, and Wolfgang Teubert, 127–161. London, New York: Continuum.

Sweetser, Eve. 1990. *From Etymology to Pragmatics: Metaphorical and Cultural Aspects of Semantic Structure*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511620904

Thagard, Paul. 2005. *Mind. Introduction to Cognitive Science*. Cambridge, London: The MIT Press.

Verschueren, Jef. 2009. "Introduction: The pragmatic perspective." In *Key Notions for Pragmatics*, ed. by Jef Verschueren, and Jan-Ola Östman, 1–27. Amsterdam: John Benjamins. https://doi.org/10.1075/hoph.1.01var

Wilson, Deirdre. 2003. "Relevance and Lexical Pragmatics." *Italian journal of linguistics* 15: 273–292.

Wilson, Deirdre, and Dan Sperber. 2002. "Truthfulness and Relevance." *Mind* 111: 583–632. https://doi.org/10.1093/mind/111.443.583

PART I

Corpus-based studies

CHAPTER 1

Challenges in the contrastive study of discourse markers

The case of *then*

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I argue that the position of the discourse markers in the utterance should be part of the contrastive analysis on the basis of a corpus case study of *then* and its Swedish cognate *då.* The focus for the contrastive analysis has been on *then* which has been studied both in the left and the right periphery while *då* has been investigated only in its use in the right periphery. English and Swedish *then/då* seem to have partly overlapping polysemies reflecting the fact that they are not completely grammaticalized. However, when we take the position of *then/då* into account there are differences between them reflecting both the uncertain distinction between their uses as discourse marker or modal particle and that languages prefer different strategies.

Keywords: contrastive, English, Swedish, German, *then*, parallel corpus, right periphery, left periphery grammaticalization

1. Introduction

It is by now common knowledge that there is a close association between functions that elements perform in conversation and the needs imposed by producing speech moment by moment in the evolving discourse. This has naturally also led to an interest in how the left and the right margin of the turn or the utterance are used for particular functions reflecting the progression of the speech activity in time. If position in the utterance is driven by the needs to speak from left to right we would expect there to be similarities at least between typologically related languages. This provided the initiative for a study which has the aim to compare *then* and its cognates in Swedish and German focusing on where it is placed in the utterance and what it is doing in these positions.

https://doi.org/10.1075/pbns.305.01aij

However, the contrastive study of *then* poses both theoretical and methodological problems. On the theoretical side, we need to find a model which can account for the meanings and uses of *then* on the basis of its position first or last in the utterance in different contexts. The methodological issues have to do with how we should study *then* cross-linguistically by comparing it with its cognates in Swedish and German on the basis of corpora.

The study of cognates generally takes off from the hypothesis that they should have similar meanings or functions reflecting the fact that they develop along the same grammaticalization paths. The aim of the present study is to argue that *then* should be studied in different positions for pragmatic and cross-linguistic reasons. What are the similarities and differences between the languages? What are the functions associated with the initial and final position of the utterance? How should we explain the differences between the languages?

The discussion will be carried out against the backdrop of recent research on the position of utterance-final particles where *then* is of particular interest since it is so often placed finally. Haselow (2011) provides a detailed corpus description of the final *then* and Haselow (2013: 376) argues that final particles such as *then* should be analysed in "macrogrammar", expanded to integrate elements of the grammar of conversational language (cf. also Hancil et al. 2015 on final particles in languages of the world). *Then* was earlier studied in an English-Swedish contrastive perspective by Altenberg (2010) and by Aijmer (2010). Moreover, we are lucky to have several analyses of Norwegian *då* (=Swedish *då*) accounting for its polysemy in a relevance-theoretical framework (Borthen 2014; Fretheim 2015). For the analysis of the German modal particle *denn,* cf. e.g., Diewald (2006).

The structure of the paper is as follows. Section 2 discusses previous work which is relevant for the study of *then* in the left and the right peripheries. Section 3 presents the frequencies of the use of *then* on the basis of the data. Section 4 takes a look at *then* in the left periphery and Section 5 discusses the different functions of *then* in the right periphery. Section 6 deals with cross-linguistic similarities and differences between English *then* and Swedish *då* in final position on the basis of the analysis of *då* in Swedish source texts. Section 7 brings the German correspondences of English *then* into the picture. Section 8 contains the summary and concluding discussion.

2. *Then* in the left and the right periphery

Standard grammars of English such as Biber et al. (1999) do not distinguish functionally between *then* in initial and final position. In both positions the functions would be described as "indicating an inference with a summative, resultative

character" (Haselow 2011: 3606). However, a number of ideas and hypotheses have emerged from the ongoing discussion about the importance of the peripheries of the utterance both cognitively and at the discourse level (cf. Haselow 2011). In this perspective, the position "utterance-first" or "utterance-final" may serve as a clue to their interpretation. *Then* may, for example, be assumed to have different positions for cognitive and textual reasons. When *then* is placed initially in the utterance in the so-called left periphery, it is assumed that the speaker has planned what to say and uses *then* as a stepping-stone for marking a relationship between the utterance where it is placed and the preceding context. Final position (or placement in the right periphery), on the other hand, indicates "delayed planning", which may be reflected in the postponement of the linking of the utterance to the preceding discourse by means of *then*. As a result, the relationship to the preceding text is signalled retrospectively and more vaguely.

Another line of research has been to explore the idea that languages may be more or less oriented to the rightmost or leftmost periphery of the sentence or utterance for typological reasons or because they have undergone different diachronic developments (Beeching and Detges 2014; Hancil et al. 2015). The comparison between *then* and *då* in different utterance positions can contribute to this discussion and, more generally, to larger issues about the interaction between meaning and context.

Moreover, a common theme in studies of elements in the left and the right periphery has been that they undergo grammaticalization and that the expressions change from textual functions (in the left periphery) to more subjective and expressive meanings in the right periphery. According to Traugott (2014: 74), "the development of a slot at RP for stance markers of various types was a relatively late development in English, beginning in the later ME period and expanding fairly rapidly, especially in conversation, during EModE" (cf. also Lenker 2010). In this perspective, the functional spectrum of *then* emerges from an ongoing grammaticalization process from more adverbial-like functions to a modal particle with subjective or attitudinal meanings.

It is clear that we need a rich model in order to describe the meanings and uses of *then* which takes into account levels of analyses as well as informational aspects of how the discourse is organized (the relationship between the condition or cause which leads to certain consequences). Following Sweetser (1990), the multiple uses of *then* can be described by analysing them on different levels corresponding to *then* "as bearer of content, as a logical entity, and as an instrument of a speech act" (Sweetser 1990: 76).

Then on the content level:

– *Then* is a connective adverbial stating the consequence of an event or circumstance in the preceding discourse.

Then on the discourse level:

– *Then* is a discourse marker indicating a deductive relationship between an utterance in the preceding discourse and a new utterance.

Then on the illocutionary level:

– *Then* is analysed on the illocutionary level to indicate that an assertion, request, question, promise is warranted by the earlier context.

3. The use of *then* in the left and the right periphery in authentic corpus examples

The data for the present study have been collected from the English-Swedish Parallel Corpus (for information about the corpus see Altenberg and Aijmer 2000; Altenberg et al. 2001). The corpus consists of almost 3 million words of fiction and non-fiction making it possible to compare English and Swedish texts in parallel or as translations of each other. The analysis of *then* and *då* has been based on their occurrence in English and Swedish source texts in the fiction part of the corpus together with their translations (1.5 million words in all). It is assumed that translator intuitions are a useful method to analyse lexical elements which are multifunctional such as discourse markers since the translator has to choose a certain meaning depending on the analysis of the concrete speech situation. The translations can also point to cases where it is unclear what a discourse marker means, when it is vague between several possible meanings or when a meaning is redundant (the word is omitted in the translation). Another possibility is to relate the functions worked out for English *then* with their German translations. German is interesting because the correspondence of *then* is generally described as a modal particle (*denn*) rather than a discourse marker.[1]

In the fiction data in the English-Swedish Parallel Corpus *then* was most common in initial position (40 examples in initial position, 35 examples in final position

1. For information about the data used for the German translations see Section 7.

plus two examples of post-initial *then*). With *då*, final position dominated (82 examples) to be compared with 66 examples in initial position[2] (Figure 1):

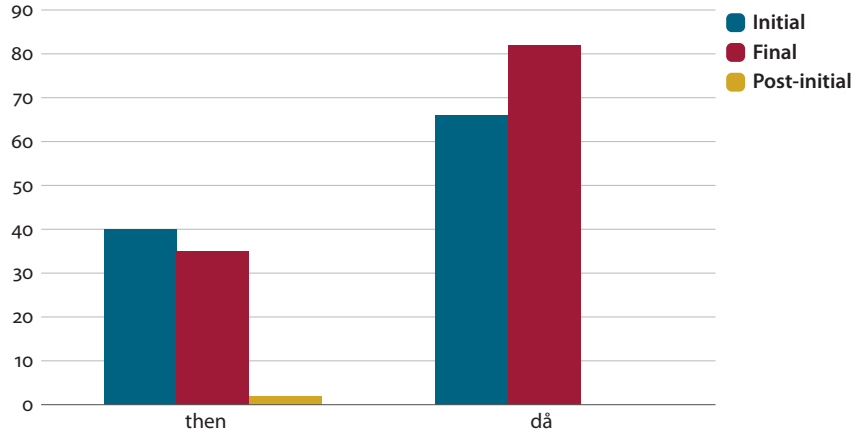

Figure 1. Frequency of *then* and *då* in different positions in the English-Swedish Parallel Corpus (ESPC)

Previous studies have found a high proportion of final *then* in conversation. According to Biber et al. (1999: 891), "the high proportion of linking adverbials in final position is associated with three frequently occurring forms: *then, anyway*, and *though*". All three of these adverbials are shown to be most commonly placed in final position in conversation. Moreover, Haselow (2011: 3608), in his study of final *then* in the ICE-GB Corpus, found twice as many examples of *then* in final position as in initial position (in a sample of 1000 words).

The discussion of the functions of *then* will be organised on the basis of whether *then* (or one of the cognates) is found in the left or the right periphery.

4. *Then* in the left periphery

4.1 LP *then* as a connective adverbial stating the consequence of an event or circumstance in the preceding discourse

Then in the left periphery (LP *then*) is anaphorically linked to the preceding context. When *then* is used anaphorically it is more likely to be used with regard to time

2. Temporal uses of both *then* and *då* have been excluded as well as *då* after a reduced clause (*Var då*? 'Where then?). The selection of corpus examples follows Altenberg (2010: 105).

than in other types of relation.[3] In (1) *then* has an anaphoric relation to a time in the past preceding the time of the verbal action ("when his eyes started burning (then) he'd climb the stairs"):

(1) *But his nights were terrible.*
It wasn't that he had trouble getting to sleep in the first place.
That was easy.
He'd watch TV till his eyes burned; then he'd climb the stairs. (AT1)[4]

Men nätterna var förfärliga.
Inte så att han hade svårt att somna.
Det var en enkel sak.
Han brukade titta på TV tills det sved i ögonen, och då gick han upp i övre våningen.

However, based on the anaphoric relation, new uses can develop. The temporal meaning of *then* can be weakened and *then* be used as "an intersentential connective" (Borreguero Zuloaga 2014: 372): "To acquire this function, the core temporal meaning undergoes a process of desemantization and instead of referring mainly to external time, the phoric component refers to the preceding discourse. This semantic change turns the adverbs into intersentential connectives that express the logical relationship of consequence" (ibidem). The anaphoric *then* refers back to a clause in the preceding context which can be interpreted as the condition or cause of what comes afterwards (Altenberg 2010: 108):

(2) *I could choke on it by mistake, an undignified way to die.*
I should get bifocals.
But then I'd look like an old biddy. (MA1)

Jag skulle kunna kvävas av den av misstag, ett föga värdigt sätt att dö.
Jag borde skaffa bifokalglasögon.
Men då skulle jag se ut som en gammal käring.

In the example above the relationship between the clauses related by *then* seems fairly uncomplicated. *Then* marks the consequence based on a condition which is implicit in the preceding co-text ("If I got bifocals then I'd look like an old biddy"). As we will see in the following discussion, the relationship between *then* and what it points back to in the preceding context can, however, be problematic.

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3. In addition, *then* is used to mark a deictic relation "between a linguistic event and speaker time" (= "after that") (Schiffrin 1987: 248). This use will not be discussed.

4. The text codes and information about where the texts come form is given in the Appendix. See also Altenberg et al. (2001).

4.2 *Then* as a discourse marker indicating that an utterance is a deduction from what has been said in the preceding discourse

According to Biber et al. (1999: 889), linking (connective) adverbials such as *anyway* and *so* can become associated with the functions of discourse markers. It can be argued that *then* follows the same tendency. What discourse markers seem to indicate, often in complex ways, is how the utterance that contains them is a response to, or a continuation of, some portion of prior discourse. As a result, they function as signals to the addressee about the interpretation of the utterance. According to Fraser (1996: 186), "discourse markers do not contribute to the representative sentence meaning, but only to procedural meaning: They provide instructions to the addressee on how the utterance to which the discourse marker is attached is to be interpreted" (cf. also Cruz and Loureda, this volume; Gerwien and Rudka, this volume; Nadal and Recio, this volume)

In (3) *then* signals that the utterance which it introduces should be interpreted as a conclusion which can be drawn on the basis of preceding talk (we are all our own Recording Angels) and marks the transition to a new contrasting position in the discourse:

(3) *"I don't think I believe in a Recording Angel.*
We are all our own Recording Angels."
"Then I am more orthodox than you.
I believe in a Recording Angel.
I even know his name." (RDA1)

"Jag tror nog inte på den ängeln.
Man måste själv vara den upptecknande ängeln."
"Då är jag mer ortodox än du.
Jag tror på en upptecknande ängel.
Jag vet till och med vad han heter."

4.3 *Then* as a discourse marker in non-declarative utterances indicating that a request or a question is warranted by the preceding discourse

Several linguists (e.g., Schiffrin 1987; Altenberg 2010; Haselow 2011) have noticed the frequency of *then* in non-declarative utterances. When *then* has scope over a following imperative it indicates that the request is warranted by preceding talk:

(4) *As Andrew hung up the phone at the nurses' station from where he had been calling, he asked, "Is everything ready?"*
The head night nurse, an elderly R.N. who worked part time, had prepared a tray with a hypodermic.
"Yes, it is."
"Then let's go." (AH1)

När Andrew lade på luren vid det sköterskebord han ringt från, frågade han:
"Är allt klart?"
Nattöversköterskan, en äldre deltidsarbetande dam, hade ställt fram en bricka med en injektionsspruta.
"Ja, det är klart."
"Då sätter vi igång."

The request for action ("let's go") hinges on the night nurse's "yes it is" (confirming that everything is ready for the operation including the hypodermic on the tray).

The majority of examples of left-periphery *then* in non-declarative sentences were questions. *Then* has the function of signalling that the question is not asked out of the blue but is connected to the preceding discourse in a specific way ("warranted by a response to a pre-request", Schiffrin 1987: 258). In "Then what do I do?" the question has been warranted by the response ("of course it won't") to an earlier question (the speaker does not know what to do if his hair falls off). In the translation, *då* is not used alone, but the translator has added *men* ('but') to mark that the question depends on prior talk. *Då* adds some information about the speaker's attitude (frustration, despair).

(5) *"Of course it won't, you twit," the mother said.*
"Then what do I do?
I can't go around looking like this for ever?" (RD1)

"Det är klart att det inte får, din dumskalle", sa fru Vidrigsson.
"Men vad ska jag göra då?
Jag kan ju inte gå omkring och se ut på det här viset för all framtid!")

As shown by the preceding discussion, *then* in the left periphery is not analysed as a single item but in combinations with utterance types and in other environments. The functions of *then* as a discourse marker in different contexts in the left periphery are summed up in the table below:

Table 1. LP *then* in different functions as a discourse marker

Function of LP *then*	Number*
Then as a discourse marker with the meaning of deduction on the basis of inferencing	20
Then in imperatives with the meaning of deduction	11
Then in questions with the meaning of deduction	11

* In addition, there were 11 examples where *then* marked the consequence of a condition or event.

5. *Then* in the right periphery

As has been shown in the preceding section, *then* in the left periphery (LP *then)* needs to be described in a discourse analytic framework with reference to the preceding discourse. However, as a result of grammaticalization, RP *then* (*then* in the right periphery) can come to be used in new contexts. It can, for example, lose its anaphoric meaning and refer instead to the non-verbalized pre-text "that is considered given at the moment of speech" and about which the speaker makes certain assumptions (Haselow 2011: 3621). However, "old meanings persist" and RP *then* would also be used in contexts where it overlaps with LP *then* with pragmatic ambiguity and vagueness as the result (cf. Hopper 1991 on persistence in grammaticalization).

From a different perspective, RP *then* can also be regarded as a modal particle modifying the (illocutionary force of the) utterance in which it occurs in the same way as a modal particle in the Germanic languages (cf. German 'Abtönungspartikel'; Haselow 2011: 3615).

RP *then* in new meanings to express the speaker's emotions or attitudes was particularly frequent in directives (questions, requests for action). The new meanings are made possible by the weakening of the anaphoric relation between the preceding context and the utterance containing *then*. The speaker asks a question or makes a request at a particular moment in the discourse taking account of what has been said, what is known about the hearer's assumptions, general knowledge, etc.

5.1 RP *then* in questions

RP *then* identifies the question as asking for confirmation. In (6) *then* presents the question as a request for confirmation (which is responded to by nodding):

(6) *I had no doubt he would come back in his own good time glowering as usual, and eventually he did, slouching in through the door with no sign of haste. He saw me across the acreage, came to within ten feet, and said, "Shall I fetch the car, then?" and when I nodded, wheeled away and departed. A man of very few words, Brad.* (DF1)

Han kom lommande in genom dörren utan några tecken på brådska. Han såg mig tvärs över lokalen, och sa när han var några meter ifrån mig: "Ska jag hämta bilen då?" När jag nickade, vände han sig om och gick. Han var inte mångordig, Brad.

RP *then* in *yes-no* questions is used when the speaker attempts to "have her own belief in the proposition upgraded" and therefore asks for confirmation (Fretheim 2015: 262).

However, RP *then* in questions can also be more complex and go beyond asking for confirmation. The presence of a negation conveys that the speaker has different assumptions than the hearer on the topic up for discussion and therefore makes an objection or more strongly an accusation. In Example (7) (containing a *yes-no* question) the background is that the speaker has found a brand-new clock in the wardrobe which should not be there and concludes that it was not given away to his dad as a Christmas present:

(7) *"I found a brand-new clock radio at the back of the wardrobe." Marjorie covers her mouth with her hand. "Sst! I* knew *I'd got something for your Dad." "Didn't we give him a Christmas present, then?" "Of course we did. You remember, you rushed out on Christmas Eve and got him that electric blanket"* (DL1)

"Vad?" "Jag hittade en splitter ny klockradio längst in i garderoben." Marjorie slår handen för munnen."
Oj då!Jag *visste* väl att jag hade köpt någonting till din pappa!"
"Fick han ingen julklapp då?" "Jo, det är klart att han fick.
Kommer du inte ihåg att du störtade iväg på julaftonen och köpte den där elektriska filten.

Then in *wh*-questions generally emphasizes the speaker's argumentational aim putting the addressee under a constraint to complete the utterance in a certain way (Hansen 1998: 16; cf. also Anscombre and Ducrot 1989 on Argumentation Theory).[5] In the *wh*-question in (8) (from the same novel as Example (7)) the

5. According to one of the reviewers, we can have a *wh*-question ending in a *then* question tag where the context opens for a consequential interpretation: "John is ill, and Mary is on holiday.

interlocutor (Marjorie) is challenged to provide an explanation or justification for buying the clock-radio. Marjorie has a habit of buying Christmas presents early, hiding them away like a squirrel, and then forgetting all about them. *Then* signals that the question is not neutral but should be understood as rhetorical or biased towards a certain outcome (cf. Diewald 2006: 422):

(8) *Marjorie has a habit of buying Christmas presents early, hiding them away like a squirrel, and then forgetting all about them.*
When he comes downstairs again, she is hovering in the hall.
"Who was the clock radio for, then?" "What?"
"I found a brand-new clock radio at the back of the wardrobe." (DL1)

Marjorie har för vana att köpa julklappar tidigt, gömma dem som en ekorre och sedan helt glömma bort dem.
När Vic kommer ned igen står hon och väntar hotfullt i hallen.
"Vem skulle ha fått klockradion?" "Vad?"
Jag hittade en splitter ny klockradio längst in i garderoben."

5.2 *Then* in assertions expressing modal uncertainty

Then in the right periphery of a declarative utterance which is interpreted as an assertion or a conclusion expresses uncertainty. It can therefore also be used a request for confirmation (implying that the hearer is in a better position than the speaker to know the answer). In Example (9) the conclusion has the form of a declarative sentence with *then* followed by a tag question. The subject in the declarative sentence is typically "you":

(9) *"No, thank you.*
It's getting late and we'll be off.
You'll want to get to bed."
"You've finished with us, then, have you?"
Ken Harrison was looking with a kind of glazed wistfulness at Wexford. (LG1)

"Nej tack.
Det är sent, och vi måste ge oss iväg.
Ni vill väl gå och lägga er."
"Är ni klara med oss då?"
Ken Harrison såg på Wexford med en slags glasartad tankfullhet.

So who IS coming to the party then?" Such uses can, however, be explained with reference to the persistence principle (Hopper 1991), according to which new functions can co-occur with older ones during the grammaticalization process.

Summing up, *then* "in a dialogic way", relates the question to aspects of the context (assumptions, expectations and attitudes evoked by the situation) which are relevant to its interpretation. RP *then* can signal that the question (or a declarative sentence which can be interpreted as an assertion) has the pragmatic function to ask for the hearer's confirmation. An examination of *then* in questions shows that it can also have a more argumentational function when there is disagreement between the speakers. Thus, it is found in questions which are rhetorical in the sense that the expectations or assumptions which are presupposed can be in conflict with what the speaker assumes.

5.3 RP *then* in requests for action with a mitigating function

In (10) *then* comes at the end of a request linking back to and expressing agreement with what the husband has said. *Then* could also have been placed in the left periphery. When it is found in the right periphery (at a later stage in the planning process), it has the function of a downtoner making the request more polite:

(10) *The husband wiped his lips nervously with his napkin.*
"Why don't we all go and look together?" he said.
"Come on, then," the brother said.
"Come on, mum."
"They're definitely in the dining-room," Matilda whispered.
"I'm sure they are." (RD1)

Hennes man torkade sig nervöst om läpparna med servetten.
"Vi kan väl gå och se efter allihop tillsammans?" sa han.
"Kom loss då", sa Mikael.
"Kom loss, mamma."
"Det är definitivt i matrummet de är!" sa Matilda.
"Det är jag säker på."

5.4 RP *then* commenting on what has been said by adding a modification

In (11) the speaker has hurt himself falling from a horse. According to the doctor "the ankle might be strong enough after about three weeks", which is followed by the speaker's comment or emotional reaction.

(11) *"You could be back on a horse in three weeks from now, if you don't mind the stirrup hurting you, which it will.*
About another three weeks after that, the ankle might be strong enough for racing."
"Good," I said, relieved.
"Not much worse than before, then." (DF1)

Du skulle kunna rida om tre veckor, om du struntar i att det kommer att göra mycket ont att ha foten i stigbygeln, vilket det kommer att göra.
Efter ytterligare tre veckor är kanske fotleden stark nog för kapplöpning."
"Bra", sa jag lättad.
"Inte mycket värre än förut då."

When *then* is used in a sentence fragment (as in the example above) this makes it easier to interpret it in a narrow way as a comment, modification or correction of what has been said. Borthen (2014: 292) found similar examples which she describes as "adversative modification" in Norwegian. All her examples were sentence fragments.

5.5 RP *then* with textual functions on the information structure level

Another parameter explaining why *then* is used in the right position (in addition to speech act type) has to do with the function of the utterance in the textual structure of the discourse. Both initial and final positions are linked to interactional functions. In (12) "I'll see you then" typically occurs at the end of a lengthy discourse to express that the speaker wants to end the conversation (cf. Altenberg 2010: 119).

(12) *To his surprise she held out her hand and gave him, once again, that extraordinary, attractive smile.*
"I'm glad you stopped for the children.
I'll see you, then, on Thursday night. (PDJ1)

Till hans förvåning sträckte hon fram handen och log än en gång på det där synnerligen tilldragande sättet.
"Det gläder mig att ni stannade och skjutsade barnen hem.
Då ses vi på torsdag kväll.

The meaning of *then* to refer back to the whole of the preceding discourse is less obvious in the Swedish translation wherever *då* has been placed in the left periphery to signal the transition to a new stage in the discourse.

5.6 Summarising *then* as a modal particle in the right periphery

The final position (right periphery) of the utterance (outside the proposition) is sometimes described as the position about which we know the least reflecting the fact that its relation to the preceding context is complex and often indirect and vague. The relationship between an implicit *if*-clause and its consequence in another utterance can be weakened or disappear. As a result, *then* can have functions specific to the right periphery. On the metadiscursive level, the RP *then* can, for example,

lead the hearer to a subjective conclusion by pointing to the existence of a conversationally given (pre)-text from which different, often divergent assumptions can be derived. RP *then* is confirmation-seeking in questions and declaratives and either strengthening or softening with imperatives. Depending on the speaker's attitudes and the existence of disagreement *then* can however also be used for argumentative or rhetorical purposes especially in *wh*-questions. Table 2 sums up the functions of RP *then* in my data.

Table 2. RP *then* in different functions

Then in confirmation questions	5
Then in questions introducing potential disagreement	12
Then in assertions or conclusions with the modal meaning of uncertainty	13
Then in requests for action with a downtoning or strengthening function	3
Then with sentence fragments modifying what has been said	1
Then with textual function (marking the end of discourse)	1

6. Some cross-linguistic similarities and differences: A comparison between English *then* and Swedish *då* in the right periphery[6]

Although there are many similarities between *then* and *då* in the right periphery the difference in frequency is striking suggesting that *då* is more grammaticalized than *then* (cf. Section 3). On the basis of the functional categories established for *then* in the right periphery in English we can go on to examine if the same distinctions are made in Swedish (see also Altenberg 2010).

6.1 RP *då* in questions

Då (like *then*) is frequent in questions and imperatives. It marks the question as non-initial, i.e., as presupposed (warranted) by the preceding context. However, the relationship to the pre-text is not straightforward since it is not always possible to verbalize the preceding context but *då* refers to the situation in a very general way (often to implicit assumptions or expectations actualized in the discourse). *Då* is found in *wh*-questions, *yes-no* questions and questions in the form of a declarative sentence:

6. In 66 examples *då* was initial and marked conclusion or the consequence of an implicit condition. These examples will not be discussed here.

a. Då *in* wh-*questions*

About two thirds of the questions were *wh*-questions:

(13) *Ett kakel som förmodligen låg i högar av uppblött masonit och med mjuk metalltråd omkring sig ute på gården i höstleran.*
Varför hade dom så bråttom då?
Gällde det verkligen bara att flytta in så fort som möjligt? (LG1)

Tiles that were probably standing in piles of soggy fibreboard with loose metal bands around them out in the garden in the autumn mud.
So why were they in such a hurry
Was it really just because they wanted to move in as quickly as possible?

Då activates assumptions or expectations implicit in the conversation which can provide an explanation (potentially violating previous assumptions) for why the people were in a hurry to move. It does not express the relationship with the preceding context except vaguely or implicitly. However the English translation uses *so* (a discourse marker with the function of expressing transition) suggesting that the conventions involving the marking of discourse relations are subtly different in English and Swedish.

b. Då *in* yes-no *questions*

In (14), *då* has been added to show that it is clear that the speaker experiences a conflict between the situation (there is not a TV in the room) and his expectations. The communicative effect of *då* is therefore to express the speaker's frustration and disappointment.

(14) *"Har du TV på rummet, pappa?"*
"Nej, det har jag inte", sa jag och såg på snön som smälte runt skorna, "jag skulle i alla fall inte få tid att titta."
"Finns det nån bio då?"
Han tvivlar på landsorten. (GT1)

"Do you have a TV in your room, Dad?"
"No, I don't," I said as I watched the snow melt around my shoes.
"In any case, I wouldn't have time to watch it."
"Do they have a movie theatre there?"
He is sceptical of the provinces.

c. Då *in conclusions in the form of declarative sentences*

Då is also found in declarative sentences introduced by *så* or by *då* to mark a conclusion followed by a request for confirmation. Such examples suggest that the link to the preceding context is stronger than the same utterance without the doubling

of the connective. The declarative sentence repeats or paraphrases something which has been said in the preceding discourse which the hearer is asked to confirm. *Så* signals that the speaker acknowledges the preceding information while final *då* marks the speaker's shifting to a more active role in discourse (asking for confirmation or information).

(15) *– Det var hagel.*
Rakt upp i käften på'n.
Han ligger därborta på Nya, alldeles intill muren.
Om du skull ha lust å tett till han, om en säjer så.
– Så han sköt sej då?
– Kärringa hans geck ifrån 'en. (GT1)

"It was buckshot.
Right up under his jaw.
He's buried over there in the new part, right up against the wall.
You can go look 'im up, in a manner of speakin'."
"So he shot himself?"
"His old lady left him."

In two examples (out of five examples containing both *så* and *då*) the negation makes explicit that the context is argumentational and that the question is biased towards confirmation:

(16) *Borde du inte vara ute och köra torpedbåt i stället så att du fick lagligt utlopp för dina lustar", mumlade flickan med formuläret medan hon skrev av ett visitkort som Carl räckt henne.*
"Torpedbåtarna är avskaffade", suckade Carl med plötslig dysterhet, "och det är likadant med jagarna och kryssarna och hälften av robotbåtarna."
"Så du är inte ute och jagar dom ryska ubåtarna då?" sa polisen i baksätet.
"Är dom förresten ryska?" (JG1)

"Shouldn't you be out driving a torpedo boat, so you could have a legal outlet for your urges?" muttered the woman with the form as she copied from a business card that Carl handed her.
"Torpedo boats are obsolete," sighed Carl, suddenly gloomy, "and so are destroyers and cruisers and half the guided missile boats." "So you're not out chasing those Russian submarines?" asked the officer in the back seat.
"They *are* Russian, aren't they?"

The translator has chosen to focus on the function of *så* (*so)* preceding the question and not on *då* in final position. *Så…då* expresses stronger contrast than if the speaker had only used *då.*

In Example (17) the translation with *oh (then)* conveys that the speaker's reaction is surprise (*då* conveys expressivity and mirativity). The speaker has dialled the wrong number and checks again whether he is speaking to the paint store:

(17) – *Så det är inte färghandeln då?* (MG1)
"Oh, then this isn't the paint store?"

The ambivalence of the distinction between discourse function and modal function is mirrored in the translation. *Then/so* has been placed first by the translator to mark that the conclusion has been based on the preceding discourse (compare also Example (15) and (16) where *så*/*so* marks the relationship to the preceding context).

6.2 *Då* in imperatives with a strengthening or weakening effect

Då as a final particle can also be attached to an imperative with a strengthening or softening effect on the request:

(18) – *Fantastisk slutledning, säger jag ironiskt, nu är det du som tråkar ut mig – och stjäl min tid. Jag har bråttom.*
– *Jamen gå då, säger han med plötslig upprördhet*. (MS1)

"A fantastic conclusion," I say ironically.
"I find you boring, too, and on top of that you're robbing me of my time. I'm in a hurry."
"All right, why don't you go then?" he says with sudden indignation.

The presence of *då* provides a clue to the speaker's conversational partner to interpret the request (or order) against the background of the assumptions or expectations which have been activated in the evolving discourse. The final *då* can have different effects depending on whether the context is experienced as emotionally neutral or whether the request clashes with the speaker's wishes or expectations. In (18) the wider context shows that the speaker's emotional reaction is indignation, impatience, urgency.

6.3 *Då* in utterances signalling conclusion

Då as a final particle is also found in utterances which are interpreted as assertions or conclusions with the function of creating a link with the preceding context. *Då* is rarely used alone but is preceded by *så* or *då* at the beginning of the utterance with the function of making explicit the meaning of conclusion (the utterance has been warranted by the information in the preceding sentence). Another observation we

can make is that many of the utterances having the conclusive *då* contain 'argumentation words' (such as *måste* 'must', *väl* 'I suppose', *ja* 'well') (cf. Borthen 2014: 285). This suggests that an additional meaning of the final particle *då* can be to signal the presence of contradictory assumptions and that it has an argumentational aim in line with other uses of *då*. *Då* can also signal the emotional effect of an utterance which challenges the speaker's beliefs and assumption (resignation) as in (19):

(19) *Men hur var det med Birk?*
Kanske hittade han alla stigar och leder i Borkaskogen, men här i Mattisskogen var han inte mycket hemmastadd.
Ja, så fick han väl stanna hos rävarna då, tänkte hon, tills det kanske kom en ny dag utan dimma. (AL1)

But what about Birk?
Perhaps he knew all the paths and tracks in Borka's Wood, but here in Matt's Wood he was not so much at home.
Well, then, he could stay there with the foxes, she thought, until a new day dawned without mist.

(19) is an example of overlapping functions in initial and final position. *Då* has a core function (conclusion) which is expressed doubly by *så* and by *då* with different positions in the utterance. The relationship to the preceding context is not made explicit by *då* in final position but is still expressed more directly by *så*. The occurrences of such ambivalent examples are familiar in grammaticalization studies and can be regarded as an indication of the principle of persistence "according to which a form undergoing grammaticalization is polysemous since the new functions co-exist with earlier ones during grammaticalization processes, which implies that both functions may occasionally overlap" (Haselow 2011: 3619).

What we see in the following examples is a doubling of *då* in the source sentence. The doubling of *då* achieves a link with the preceding context, adversativity (there are conflicting assumptions) and disappointment (the speaker's wishes have not been fulfilled) (cf. Altenberg 2010: 117).[7]

(20) *Men nu kunde Dag inte ställa upp, tyvärr, han måste tillbaka till baletten.*
De skulle öva inför uppvisningen i maj.
Dag hade inte tänkt på det när han bestämde med Anders.
Anders blev besviken.
Då var det väl bara att skjuta på det hela då.
Karin hade kvällstjänst på biblioteket. (MG1)

7. Similar examples of doubling are also found in Dutch where *dan* (= *then*) occurs relatively often (Van der Wouden and Foolen [2015: 240]).

Dag had promised to help Anders transplant some plants that evening, but then Dag had to go back to ballet school.
They were rehearsing for a performance; Dag had forgotten this when he had promised to help Anders. Anders was disappointed.
The only thing to do was postpone it, since Karin had the evening shift at the library.

To summarize, final *då* in Swedish is mainly a question particle with only a weak link to the preceding discourse. As with final *then,* the relevant context is not explicit but inferred from what has been said or mutual knowledge about the speakers and serves as a resource to be activated or manipulated by the speaker. The particle was found in emotional contexts with an argumentational function and was associated with contextual effects such as impatience or surprise. Like *then* it was also used in imperatives with strengthening or weakening functions. *Då* as a final particle in declarative sentences was mainly adversative emphasising the speaker's emotions such as disappointment or frustration.

7. German correspondences of English *then* in final position

According to Haselow (2011: 3615), the functions of final *then* come close to those which have been associated with the German modal particle *denn.* The question is now if we can draw a parallel between German *denn* and the final particle *then* on the basis of translations. *Then* does not have a self-evident cognate in German which has both *dann* and *denn* as a translation of *then*.

For the comparison in this paper I have consulted the German translations of *then* in the Oslo-Multilingual Corpus (OMC) (http://www.hf.uio.no/ilos/english/services/omc/sub-corpora/). The corpus consists of c 432,500 words, mainly fiction texts. The translations allow us to see when *then* is more like a final particle and when it is best treated as a discourse marker.

a. *Then* translated by *denn* in questions

Denn has been described as a modal particle that only occurs in information-seeking directives both of the type *yes-no* questions and *wh*-interrogatives (Haselow 2011: 3615). According to Diewald (2006: 420), the *denn*-introduced question "is marked as being merely a consequence of the interaction that precedes it".

(21) *The young man was in uniform.*
He stood with his arm around her shoulder.
"How old are you, then?" she asked. (MM1)

Der junge Mann war in Uniform.
Er hatte einen Arm um ihre Schultern gelegt.
"Wie alt bist du denn?" wollte sie wissen.

Denn can also be placed medially (the prototypical position of modal particles in German):

(22) *Willie did so and returned to the stool.*
He held the warm mug tightly in his icy hands and shivered.
Tom leaned towards him.
"What you got in yer bag, then?" (MM1)

Willie tat es und setzte sich wieder auf den Schemel.
Er hielt den warmen Becher fest in seinen eiskalten Händen und schauderte.
Tom beugte sich zu ihm.
"Was hast du denn in deiner Tasche?"

As with the final *then* or *då,* the German *denn* indicates that the question is justified by the situation and should be interpreted against the background of the speaker's and hearer's (contradictory) assumptions.

In other types of question, the consecutive adverb *dann* is used to link the utterance to the preceding context.

b. *Then* in questions having declarative form (indicating a conclusion and a request for confirmation)

Declarative sentences containing *then* are a fuzzy area. English final *then* was found in utterances marking an uncertain conclusion which could be used to ask for the hearer's confirmation while Swedish *då* was only used as a question particle in specific contexts (together with *så*/*so* in the same sentence and usually with negation of the verb). In the German translations *denn* was not used, but *dann* expresses a connective link to the preceding context:

(23) *"It's getting late and we'll be off.*
You'll want to get to bed."
"You've finished with us, then, have you?"
Perhaps it was a favourite word with him. (RR1)

"Es wird allmählich spät, und wir müssen uns auf den Weg machen.
Sie werden zu Bett gehen wollen."
"Dann sind Sie also mit uns fertig, ja?"
Vielleicht war "fertig" einer seiner Lieblingsausdrücke.

However, in (24) *then* has been translated by *also doch* indicating that its function involves the removal of contradictory opinions:

(24) *"You mean you don't like them, or you don't think you ought to have them?"*
"I suppose I mean that I don't think I ought to have them."
"You religious, then?"
"No, I'm not religious, not in the ordinary way.
It's just that I think sex is too important to be casual about. (PDJ1)

"Heißt das, du magst sie nicht oder du findest sie unschicklich?"
"Ich glaube… ich denke, ich sollte keine haben".
"Du bist also doch religiös?"
"Nein, ich bin nicht religiös, nicht auf die übliche Weise.
Ich meine nur, daß Sex zu wichtig ist, als daß man sich leichtfertig auf ihn einlassen sollte."

The existence of contrasting assumptions motivates the speaker to ask for the hearer's confirmation.

c. *Then* in imperatives (justified requests)

In (25) the speaker and his friends were visiting a restaurant when an old man emerged and asked who they were. The misunderstanding was resolved when they said they had made a table reservation. *Then* modifying the imperative is interpreted as hedging and polite since the context is positive (once conflicting assumptions are out of the way). On the other hand, the German translation *dann* focuses on the direct or textual relationship between the imperative and the preceding context (we had already made a reservation for lunch).

(25) *"Who are you?" a voice said.*
An old man had emerged from the kitchen and was peering at us, screwing up his eyes against the light coming through the door.
We told him we'd made a reservation for lunch.
sit down, then. (PM1)

"Wer sind Sie?" fragte eine Stimme.
Ein alter Mann war aus der Küche aufgetaucht und musterte uns gegen das Licht, das durch die Tür hereinströmte, so daß er die Augen anstrengen mußte.
Wir erklärten ihm, wir hätten zu Mittag reserviert.
"Dann setzen Sie sich."

Summing up, in questions the German modal particle *denn* was found in the translations of *then*. It relates to the preceding context in an indirect way and it has

the interpersonal function to express the speaker's attitudes (often disagreement). However, in declarative sentences the German translations cannot use *denn* suggesting that the linguistic conventions for when and how you mark the relationship to the preceding context or situation are different between German and English.

8. Conclusion

In the present study I have tried to show that the position of discourse markers should be a part of the contrastive analysis. I have therefore analysed the functions of *then,* the Swedish *då* and German *denn* on the basis of their position in the left and the right peripheries. In the conclusion I will return to the research questions asked in the introduction of my paper. How should we find a model which is rich enough to describe the interaction between *then* and contextual factors and what can we learn from considering what they are doing in different positions? What is the importance of going beyond a single language to study similarities and differences between discourse markers cross-linguistically?

We are still only at the beginning of finding out more about differences between languages which involve pragmatic uses rather than semantics. English *then,* Swedish *då* and German *denn* are cognates which can expected to develop in the same way. However, when we take the position of *then/då* into account there are differences between them reflecting both the uncertain distinction between discourse marker and modal particle and that languages prefer different strategies.

Then and its cognates are highly polysemous. This can be illustrated by a semantic map representing the meanings and uses of *then* and its cognates and the relations between the meanings (Figure 2).

The map shows the development from the adverbial *then* introducing the consequence of another event to a discourse marker indicating deduction based on inferencing ("inferential"). From this meaning, a number of textual, subjective or intersubjective functions can be derived such as rhetorical (in questions), uncertainty (in declarative sentences) asking for confirmation (questions), downtoning (imperatives), modification (sentence fragments), boundary (relating to how the information is organized in the discourse). *Then, då, denn* and *dann* are mapped on to different meanings depending on their position in the utterance.

– In English, *then* is used both in LP and RP position to mark that the utterance (assertion) is a deduction based on inferencing or that a request or question is justified by the preceding discourse.

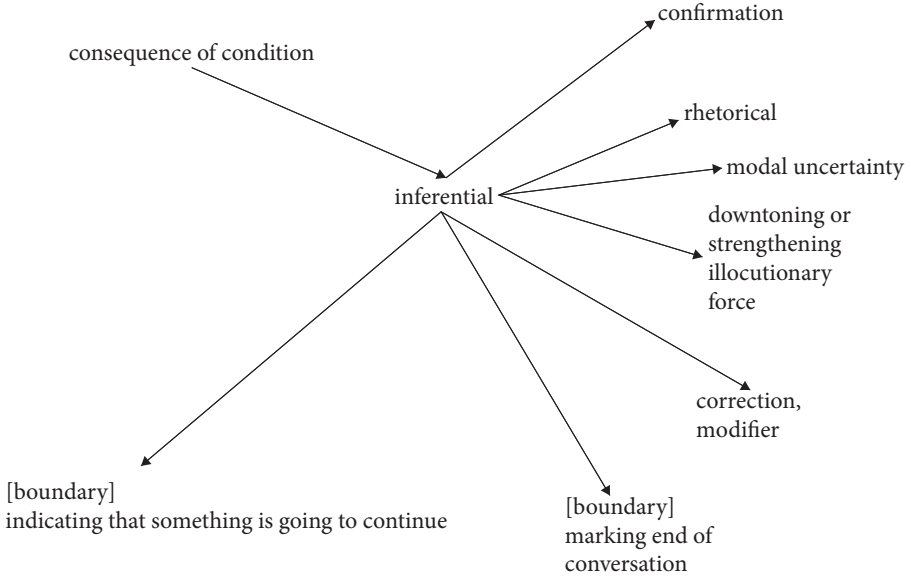

Figure 2. A semantic map showing the meanings or uses of *then* and its cognates

- In the RP position, the link to the preceding context can be weakened so that *then* is no longer anaphoric enabling *then* to be used to express attitudes or emotional reactions to a fixed "pragmatic pre-text" (Haselow 2011: 3618) or more generally to assumptions and expectations derived from the preceding context: RP *then* and *då* are used in questions asking for confirmation.
- RP *then* and *då* are used in assertions with epistemic uncertainty meaning.
- RP *then* and *då* are used in questions (*wh*-questions, negated *yes-no* questions) which have an argumentational aim to express the speaker's attitudes or reaction.
- RP *then* and *då* are used in requests with either a strengthening or dowtoning effect on their illocutionary force.

There were also differences between RP *then* and *då:*

- RP *då* cannot be used alone to refer back to preceding discourse, but we find a doubling of *då* (or *så… då*). The same tendency is less frequent in English (*so… then*).

Bringing German into the picture brings additional evidence that languages may differ with respect to where they draw the borderline between different uses and that languages may view the same situation in different ways. On the one hand, *denn*

is a good translation of final *then* in questions with adversative and attitudinal uses. On the other hand, *dann* was used with a textual function relating the utterance to the preceding context to translate *then* in final position in English.

References

Aijmer, Karin. 2010. "*Then*. A Temporal Adverb and a Discourse Marker." In *English Philology and Corpus Studies. A Festschrift in Honour of Mitsunori Imai to Celebrate his Seventieth Birthday*, ed. by Shinichori Watanabe, and Yukituri Hosuya, 1–21. Tokyo: Shohakusha.

Altenberg, Bengt. 2010. "Conclusive English *then* and Swedish *då*. A Corpus-based Contrastive Study." *Languages in Contrast*: 102–123. https://doi.org/10.1075/lic.10.1.05alt

Altenberg, Bengt, and Karin Aijmer. 2000. "The English-Swedish Parallel Corpus: A Resource for Contrastive Research and Translation Studies." In *Corpus Linguistics and Linguistic Theory*, ed. by Christian Mair, and Marianne Hundt, 15–33. Amsterdam: Rodopi.

Altenberg, Bengt, Karin Aijmer, and Mikael Svensson. 2001. "The English-Swedish Parallel Corpus: Manual." Accessed September 10th, 2017. [online: sprak.gu.se/digitalAssets/1333/1333431_manual_espc.pdf].

Anscombre, Jean-Claude and Oswald Ducrot. 1989. "Argumentativity and Informativity." In *From Metaphysics to Rhetoric*, ed. by Michael Meyer, 71–87. Dordrecht: Kluwer. https://doi.org/10.1007/978-94-009-2593-9_6

Beeching, Kate, and Ulrich Detges. 2014. "Introduction." In *Discourse Functions at the Left and Right Periphery: Crosslinguistic Investigations of Language Use and Language Change*, ed. by Kate Beeching, and Ulrich Detges, 1–23. Leiden: Brill. https://doi.org/10.1163/9789004274822_002

Biber, Douglas, Stig Johansson, Geoffrey Leech, Susan Conrad, and Edward Finegan. 1999. *The Longman Grammar of Spoken and Written English*. London: Longman.

Borreguero Zuloaga, Margarita. 2014. "Left Periphery in Discourse. Frame Units and Discourse Markers." In *Left Sentence Peripheries in Spanish. Diachronic, Variationist and Comparative Perspectives*, ed. by Andreas Dufter, and Álvaro Octavio de Toledo, 345–382. Amsterdam/Philadelphia: John Benjamins.

Borthen, Kaja. 2014. "Hva betyr 'da', da?." *Norsk Lingvistisk Tidsskrift* 32: 257–306.

Diewald, Gabriele. 2006. "Discourse Particles and Modal Particles as Grammatical Elements." In *Approaches to Discourse Particles*, ed. by Kerstin Fischer, 403–425. Amsterdam: Elsevier.

Fraser, Bruce. 1996. "Pragmatic Markers." *Pragmatics* 6(2): 167–190. https://doi.org/10.1075/prag.6.2.03fra

Fretheim, Thorsten. 2015. "A Relevance-theoretical Perspective on Norwegian Utterance-final Particles *da* and *altså* Compared to their English Counterpart *then*." In *Final Particles*, ed. by Sylvie Hancil, Alexander Haselow, and Margje Post, 249–284. Berlin: Mouton de Gruyter.

Hancil, Sylvie, Alexander Haselow, and Margje Post (editors). 2015. *Final Particles*. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110375572

Hansen, Maj-Britt Mosegaard. 1998. *The Function of Discourse Particles. A Study with Special Reference to Spoken Standard French*. Amsterdam: John Benjamins. https://doi.org/10.1075/pbns.53

Haselow, Alexander. 2011. "Discourse Marker and Modal Particle: The Functions of Utterance-final *then* in Spoken English." *Journal of Pragmatics* 43(14): 3603–3623. https://doi.org/10.1016/j.pragma.2011.09.002

Haselow, Alexander. 2013. "Arguing for a Wide Conception of Grammar: The Case of Final Particles in Spoken Discourse." *Folia Linguistica* 47(2): 375–424. https://doi.org/10.1515/flin.2013.015

Hopper, Paul. 1991. "On Some Principles of Grammaticalization." In *Approaches to Grammaticalization*, ed. by Elizabeth Traugott, and Bernd Heine, 17–35. Amsterdam: Benjamins. https://doi.org/10.1075/tsl.19.1.04hop

Lenker, Ursula. 2010. *Argument and Rhetoric: Adverbial Connectors in the History of English*. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110216066

Schiffrin, Deborah. 1987. *Discourse Markers*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511611841

Stig, Johansson, and Cathrine Fabricius-Hansen (dirs.), "English-German parallel corpus". In *Oslo Multilingual Corpus (1999–2008)* [online: https://www.hf.uio.no/ilos/english/services/knowledge-resources/omc/].

Sweetser, Eve. 1990. *From Etymology to Pragmatics. Metaphorical and Cultural Aspects of Semantic Structure*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511620904

Traugott, Elizabeth C. 2014. "On the Function of the Epistemic Adverbs *Surely* and *No Doubt* at the Left and Right Peripheries of the Clause." In *Discourse Functions at the Left and Right Periphery: Crosslinguistic Investigations of Language Use and Language Change*, ed. by Kate Beeching, and Ulrich Detges, 72–91. Leiden: Brill. https://doi.org/10.1163/9789004274822_005

Van der Wouden, Ton, and Ad Foolen. 2015. "Dutch Particles in the Right Periphery." In *Final Particles*, ed. by Sylvie Hancil, Alexander Haselow, and Margje Post, 221–247. Berlin: Mouton de Gruyter.

Appendix. Texts used in the investigation (English and Swedish original texts)

AH1	BrE	Arthur Hailey, 1984. *Strong medicine*. London: Michael Joseph Ltd.
AL1	Swe	Astrid Lindgren, 1981. *Ronja Rövardotter*. Stockholm: Rabén & Sjögren.
AT1	AmE	Anne Tyler, 1985. *The accidental tourist*. New York: Alfred A. Knopf.
DF1	BrE	Dick Francis,1989. *Straight*. London: Michael Joseph Ltd.
Dl1	Br E	David Lodge, 1988. *Nice work*. London: Secker &Warburg.
GT1	Swe	Göran Tunström, 1983. *Juloratoriet*. Stockholm: Albert Bonniers förlag.
JG1	Swe	Jan Guillou, 1989. *Fiendens fiende*. Stockholm: Norstedts förlag.
LG1	Swe	Lars Gustafsson, 1991. *En kakelsättares eftermiddag*. Stockholm: Natur och Kultur.
MA1	CaE	Margaret Atwood, 1988. *Cat's eye*. Toronto: McClelland & Stewart.
MG1	Swe	Maria Gripe, 1981. *Agnes Cecilia*. Stockholm: Bonniers Juniorförlag.
MS1	Swe	Maria Scherer, 1983. *Kejsarvalsen*. Stockholm: Albert Bonniers förlag.

MW1	BrE	Minette Walters, 1994. *The Scold's bridle*. London: Pan Books/Macmillan General Books.
PDJ1	BrE	P. D. James, 1989. *Devices and desires*. London: Faber and Faber.
RD1	BrE	Roald Dahl, 1988. *Matilda*. London: Puffin Books.
RDA1	BrE	Robertson Davies, 1985. *What is bred in the bone*. Harmondsworth: Elizabeth Sifton Books. Viking.
RR1	BrE	Ruth Rendell, 1992. *Kissing the gunner's daughter*. London: Hutchinson.

CHAPTER 2

Local vs. global scope of discourse markers

Corpus-based evidence from syntax and pauses

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This paper discusses the relevance and challenges of a corpus-based investigation of the scope of discourse markers. It builds on Lenk's (1998) distinction between local and global scope of discourse markers and maps it with annotation variables available in existing corpora. Given the interplay of syntactic and semantic-pragmatic variables that a direct approach to scope involves, it is argued that indirect and independent cues (namely position of the marker, its degree of syntactic integration and co-occurrence with pauses) offer a more reliable access to the variation in scope. The analysis focuses on three pairs of discourse markers (topic-shifting vs. topic-resuming, coordinating vs. subordinating conjunctions, objective vs. subjective uses of *so*) in a corpus of spoken English.

Keywords: discourse markers, scope, pauses, position, annotation, corpus-based

1. Introduction

Discourse coherence in spoken language is constrained by temporal dynamics imposing the urgency and pressure of the present while maintaining connections with the previous context, or "retentions", and setting the scene for upcoming material, or "projections" (Deppermann and Günthner 2015). These backward- and forward-looking operations can affect various levels of language structure, from local syntax (verbal dependency relations) to global discourse (co-reference, coherence). Some linguistic devices are particularly suited to signal these non-linear connections: chief among them, the category of discourse markers (henceforth DMs, Schiffrin 1987) is dedicated to the management of "local and global content and structure" (Fischer 2000: 20) through a very broad functional spectrum fulfilled by heterogeneous expressions such as conjunctions (*and, but, although*), adverbs (*so, actually, well*) but also verb phrases (*I mean, you know*) or interjections (*yeah, oh*), among others.

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Studies of discourse markers (or connectives) in written language tend to view them as cohesive ties building up a rather shallow discourse structure as signals of causal or contrastive relations, for instance. This line of research is primarily represented by the very influential Penn Discourse Treebank 2.0 (henceforth PDTB, Prasad et al. 2008) or the Cognitive approach to Coherence Relations (henceforth CCR, Sanders, Spooren and Noordman 1992). Analysis of spoken data, however, soon reveals that the same items (e.g., *so, but*) show instantiations of both local (relational) and global (non-relational) uses, the latter being signposts to a higher level of discourse organization. As a result, the traditional representation "Arg1-DM-Arg2", where the DM connects two simple and adjacent arguments, is often incompatible with the intricate, non-linear structure of spoken discourse.

This article builds on Lenk's (1998) distinction between local vs. global scope of discourse markers, which she respectively associates with utterance relations (cause, contrast, etc.) and topic relations (topic-shifting, topic-resuming, etc.) at each end of the continuum. Of course, the divide is not binary and a fine-grained approach to DM scope should also account for intermediate cases where utterance relations are more distant and far-reaching (e.g., a conclusion over multiple utterances) and where topic relations manage shorter segments (e.g., resuming the previous topic after a short single-sentence digression). The absence of one-to-one mapping between specific DMs, their functions and their arguments calls for a more systematic investigation of the notion of scope grounded in empirical evidence, disentangling the interplay of syntactic and pragmatic factors in the behavior of local vs. global DMs.

The feature of DM scope has been addressed rather irregularly in previous corpus-based research, where authors often target some (but not all) variables involved in its investigation, including large-scale bottom-up identification of discourse markers, sense disambiguation covering both local-cohesive and global-structuring functions, annotation of DM arguments and full discourse segmentation in units of various sizes. In spoken corpora, in particular, such an ambitious undertaking might be even more challenging: Crible and Cuenca (2017: 162) state that "explicitly identifying the units under a DM's scope may be too ambitious"; they further argue that "sense disambiguation is informative and complex enough and should not necessarily be combined with an identification of the related segments" (2017: 162).

The present paper starts from this observation of how challenging (impossible even) a systematic annotation of DM scope would be in spoken corpora and rather provides indirect yet operational cues to the variability of local vs. global functions of DMs, bringing together evidence from mainly three types of linguistic analysis: (i) sense disambiguation of all DMs in a corpus of spoken English, (ii) annotation of position and degree of syntactic integration of DMs and (iii) identification of

co-occurring pauses. The underlying hypothesis states that pauses are windows to the cognitive processing of local vs. global scope, which should in turn be linguistically reflected by different syntactic (position) and syntagmatic (co-occurrence) behaviors. This study thus falls within the usage-based framework of cognitive semantics, whereby converging independent evidence of forms and functions is taken as a reliable methodological gateway to "this infamously slippery object of study, semantics" (Glynn 2010: 240). The analysis focuses on three pairs of DMs potentially related to different degrees of scope, namely topic-shifting vs. topic-resuming (Section 4.1), subordination vs. coordination (Section 4.2) and consequential vs. conclusive uses of the DM *so* (Section 4.3). Theoretical background and materials will be presented in the following sections.

2. Accessing DM scope through direct and indirect evidence

Discourse markers are here broadly defined as procedural, syntactically optional expressions functioning at discourse-level to "integrate their host utterance into a developing mental model of the discourse in such a way as to make that utterance appear optimally coherent" (Hansen 2006: 25). They constitute a formally heterogeneous class whose functional spectrum covers discourse relations, metadiscursive comments, topic structure and interactional management, following several classification models (González 2005; Cuenca 2013; Crible 2017). With such a formal-functional definition in mind, this section develops the notion of DM scope, its treatment in previous research and the hypotheses of the present study.

Most definitions of discourse markers agree on the lower boundary of units minimally qualifying for the status of discourse-level argument: an item is only considered to act as a discourse marker if it takes scope over at least a clause(-like) or larger unit (e.g., the "elementary discourse units" in Rhetorical Structure Theory, henceforth RST, Mann and Thompson 1988). There is, however, no principled upper limit as to the extent of arguments under a DM's scope, be it multiple sentences or utterances, whole turns or entire interactions. Unger (1996) was one of the first authors to explicitly address the notion of DM scope with respect to the extent of the related units: he acknowledges that "discourse connectives can have scope over an utterance or a group of utterances" (1996: 409), yet admits that "though a paragraph break broadens the range of assumptions serving as candidates for the choice of a context, one particular utterance within a preceding paragraph may still be the most likely candidate" (1996: 436); in other words, a DM introducing a new paragraph does not necessarily take as its first argument (henceforth Arg1) the full previous paragraph. The identification of a DM's arguments is therefore not a trivial step in the analysis and impacts the functional disambiguation: Crible

and Cuenca (2017: 154) discuss an example where a particular DM can be assigned different senses depending on the choice of Arg1, and conclude that DMs tend to "combine local and global scope simultaneously", which makes the annotation process quite challenging.

Yet, annotation of DM scope (in the form of argument identification) is central in many writing-based frameworks, where the notion is operationalized and systematically annotated. In the PDTB corpus, for instance, extent (single vs. multiple) and location (adjacent vs. non-adjacent) of the Arg1 of a given connective are annotated and the results show that only 3.34% of all explicit connectives take scope over multiple utterances while, in 9% of the cases, Arg1 is non-adjacent to Arg2. These rather low proportions might be explained by the limited range of DM functions included in the PDTB taxonomy, which does not include any global functions but only allows local discourse relations (e.g., consequence) to be used more globally across multiple and/or distant utterances.[1] Typically global functions include topic relations (topic-shifting, topic-resuming) or turn-exchange functions (turn-opening, turn-closing) which target units that are hierarchically larger than utterances. This divide between local and global functions is sometimes conveyed at a terminological level by distinguishing "connectives" (typically local, cohesive) from "discourse markers" (typically global, coherent), as in Schiffrin (1987) or Cuenca (2013). However, Lenk (1998) shows that a single item – she focuses on *however* and *still* in spoken British and American English – can express both local and global meanings. This multifunctionality of DMs is also addressed by Bunt (2012), who relates it to the multidimensional nature of dialogs, "involving multiple activities at the same time, such as making progress in a given task or activity; monitoring attention and understanding; taking turns; managing time, and so on" (Bunt 2012: 243). An adequate analysis of DM scope in spoken data should therefore come to terms with the multifunctionality of DMs and account for functions at a higher level of discourse organization (e.g., topic-shifting).

One major framework which addresses these aspects of scope is RST and its application to the RST Signalling Corpus (Das et al. 2015), which contains newspaper articles fully annotated for discourse relations (including topic relations) and their signals, distributed over a tree-based segmentation of texts in arguments of different sizes. However, no such undertaking is currently available for spoken corpora, to date: Stent (2000: 250) admits that "given the length and complexity of a typical dialog, it may not be possible to achieve complete coverage", as opposed to written texts where each unit forms a pair with another and each pair is itself

1. In the PDTB 2.0, the "list" relation could be considered as potentially global, since elements of an enumeration can be rather distant in a written text. However, in the latest version (PDTB 3, e.g., Webber et al. 2016), this relation type was removed from the taxonomy.

hierarchically included in a higher-order relation until full-text segmentation is achieved.[2] Speech-specific models of discourse segmentation have been proposed: one of them is the Val.Es.Co 2.0 corpus (Cabedo and Pons 2013), where full conversations are segmented hierarchically into more or less local units such as subacts, acts, turns, interventions, etc. In their approach, however, the functions of DMs are defined at a coarse-grained level, distinguishing among textual, interpersonal and modal types. A more fine-grained study using the Val.Es.Co system is provided by Estellés Arguedas and Pons Bordería (2014), who identified the specific pattern of DMs (e.g., Spanish *bueno* 'well') in "absolute initial position" when signalling a major change in context such as the arrival of additional speakers or a change of speaker status.

In sum, a systematic analysis of DM scope which combines sense disambiguation and argument identification seems to require full discourse segmentation, as in the RST and Val.Es.Co models. However, these tasks are very costly and challenging to implement reliably. In addition, they demand a substantial involvement of the analyst's subjectivity: disambiguating the meaning-in-context of a DM and identifying the arguments in its scope are two strongly inter-related, even circular steps in the analysis, where one decision impacts the other (cf. Crible and Cuenca 2017). Therefore, it might be argued that a reliable approach to DM scope should rather turn to more objective, non-circular evidence of the difference between local and global DMs.

To do so, the linguistic context of use of DMs will be analyzed in corpus-based examples. Local and global scope is defined as follows: local DMs connect or take scope over adjacent units of which they make the linkage explicit, thus managing rhetorical effects; global DMs announce more far-reaching connections with distant and/or larger units that constitute major building blocks in the elaboration of the whole discourse structure. Examples (1) and (2) illustrate this difference and the types of linguistic cues which will feed the present analysis.

(1) *I wasn't looking forward to doing it* but *I am now* (EN-phon-01)[3]

(2) *ICE_10* so *what did you do today then*
ICE_9 *today (0.700) I went I watched the Grand Prix (2.047) and then uh do you remember a neighbour in Hillside called uh the Pembertons*
ICE_10 *yes Pembertons*
ICE_9 *well I know uh (0.770) I met him actually about a year ago with uhm*

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2. See also Baldridge and Lascarides (2005) on a similar observation of the limitation of Segmented Discourse Representation Theory (SDRT) in dialogs.

3. All examples in this paper come from the *DisFrEn* corpus (Crible 2017), see Section 3 for more details.

ICE_10 *[…] Oliver?*
ICE_9 *yeah Oliver*
ICE_10 *didn't I go to school with their daughter is there is there was there a girl there […] was there a sister there*
ICE_9 *well uh he's got a (0.330) I don't know whether yeah I suppose so […] he's got somebody living in his house who used to go to Mrs. Parsons*
ICE_10 so *how did you meet up with him then*
ICE_9 *oh he was a member of the bicycle polo club last year*
ICE_10 *oh right (2.560) what kind of bicycles do you ride on then*
ICE_9 *bicycles with two wheels handlebars and a frame […] the wheels are very close together so you can turn quickly*
ICE_10 so *where did you play this*
ICE_9 *Uhm in Putney (1.470) Hurlingham Park […] it's next to the uh Hurlingham club yes*
ICE_10 *oh right (0.950)* so *whe- how often do you play*
ICE_9 *I play uhm (0.220) once a week in the in the summer […]*
ICE_10 *well mummy and I will have to come and watch you won't we*
ICE_9 *such fun*
ICE_10 *<laughing/> such fun (1.000) yes* but *what we h- what were we oh yes you saw Oliver Pemberton what did you do yesterday* (EN-conv-02)

In Example (1), the DM "but" is highlighting the contrast between a past and present situation: we see that the connection is very local and is further signaled linguistically by the repetition of the verb "to be" conjugated in different tenses; the two arguments in the scope of the DM are single adjacent utterances not separated by pauses. In Example (2), by contrast, several DMs (four "so" and one "but") are used by <ICE_10> to launch new higher-order discourse segments (often questions) which are themselves distributed across several turns. The "but" is particularly far-reaching since it closes the lengthy three-minute digression on Oliver Pemberton, his sister and bicycle polo, and connects the final question of this extract ("what did you do yesterday") with the very first in the extract ("what did you do today"). The higher level of organization signaled by "but" is also reflected in the occurrence of word fragments and false-starts ("what we h- what were we"), which relates to the link between major discourse boundaries and hesitations observed by previous experimental studies (e.g., Roberts and Kirsner 2000: 150).

This association is in fact telling of a hearer-oriented, strategic use of pauses and other performance phenomena which are not (only) the symptoms of trouble but can also perform signposting, forewarning functions (Clark and Fox Tree 2002). The positive effects of both silent and filled pauses such as *uhm* have been the focus of many studies (e.g., Swerts 1998; Rendle Short 2004; Lundholm 2015) pointing in particular to their discourse-structuring function, similar to that of DMs.

Examples (1) and (2) raise a number of hypotheses regarding observable correlates to the distinction between local and global scope of DMs. Firstly, the functional similarity between DMs and pauses suggests that, when combined, these discourse-structuring signals might constitute reliable cues to a major boundary in the higher-order organization of talk (cf. Hidalgo Navarro and Martínez Hernández, this volume). More specifically, the association between higher scope and co-occurrence of pauses will be tested on corpus data to assess its reliability as an indirect cue to DMs variation in scope. Secondly, this first source of evidence will be refined by taking into account the position of the DM in relation to the turn (cf. the turn-initial uses of "so" in (2)) and to the dependency structure: this latter unit of reference allows to investigate the link between the scope of the DM and its degree of syntactic integration, mainly by comparing coordinating vs. subordinating conjunctions acting as DMs (e.g., *but* vs. *although*). Subordination is hypothesized to correspond to DMs with a local scope, whereas global-scope DMs should be more attracted to "weak clause association" (Schourup 1999: 233), that is, peripheral, syntactically non-integrated positions. Both syntax and co-occurrence with pauses are here taken as indirect yet objective and operational cues to the variability of DM scope, assuming that they offer a more reliable methodological gateway to scope than the highly interpretative and potentially circular annotation of DMs arguments, which might prove particularly challenging in spoken corpora.

3. DisFrEn: Corpus and annotation

The role of syntax and pauses in DM scope will be tested on the English component of *DisFrEn*, a comparable English-French dataset where an inclusive, bottom-up selection of DMs has been annotated for positional and functional variables as well as co-occurrence with pauses and other hesitation phenomena. Space limitations prevent us from providing the full description of corpus design and annotation schemes (see Crible 2017 for more details) yet the major principles and criteria relevant to the present study will be laid out in this section. The data comprises around eight hours of recordings and 86,412 words balanced across eight registers of English, including casual conversations, classroom lessons and political speeches. Transcripts come from the British component of the International Corpus of English (ICE-GB, Nelson, Wallis and Aarts 2002). They are audio-aligned and annotated under the EXMARaLDA software (Schmidt and Wörner 2012).

In *DisFrEn*, discourse markers were identified onomasiologically (i.e., without a closed list), following a broad formal-functional definition (cf. Section 2) operationalized after several phases of testing and identification experiments (Crible and Zufferey 2015). In line with the criteria of procedurality, syntactic optionality and

high degree of grammaticalization (or fixation), a number of related devices were excluded from the DM category, such as filled pauses (*uhm*), tag questions (*isn't it*) or epistemic parentheticals (*I think*). The full list of annotated DMs amounts to 92 English types and 4,249 tokens.

All identified DMs were annotated for several variables, of which four are of particular relevance to the present study. Each DM (including multi-word expressions such as *on the one hand*) was assigned a part-of-speech tag (henceforth POS) or "self-category", that is "the highest node in the tree which dominates the words in the connective but nothing else" (Pitler and Nenkova 2009: 14). Three types of position were then separately identified, taking as the reference unit either the turn (turn-initial, turn-medial, turn-final or whole turn), the dependency structure (integrated vs. peripheral, left vs. right of the governing verb) or the clause (initial, medial, final). In this study, syntactic integration will refer to the annotations of the dependency structure: a DM which occurs within a governed element will be considered integrated, as opposed to peripheral DMs occurring outside the dependency structure. Position, in turn, mainly refers to annotations at turn level and will distinguish turn-initial and non-turn-initial uses of DMs.

Each DM was then functionally disambiguated according to a taxonomy of 30 senses (Table 1) grouped in four macro-functions or domains: this list is partly inspired by the PDTB 2.0 for discourse relations (e.g., cause) and González (2005) for speech-specific functions (e.g., monitoring). A random sample of 15% of the whole corpus was coded twice in order to assess intra-rater reliability: the agreement is substantial both for domains (Cohen's $\kappa = 0.779$) and functions ($\kappa = 0.74$).

Table 1. List of functions grouped by domains

Ideational	Rhetorical	Sequential	Interpersonal
cause	motivation	punctuation	monitoring
consequence	conclusion	opening boundary	face-saving
concession	opposition	closing boundary	disagreeing
contrast	specification	topic-resuming	agreeing
alternative	reformulation	topic-shifting	elliptical
condition	relevance	quoting	
temporal	emphasis	addition	
exception	comment	enumeration	
	approximation		

In the last step of the analysis, all "disfluencies" (e.g., pauses, word fragments, repetitions) co-occurring with DMs were annotated, following Crible et al.'s (2019) multilingual typology. The present study will mainly focus on pauses, either silent (200 ms or longer) or filled (*uh, uhm*). Pause duration is not included in this

analysis given that any threshold (for instance between "short" or "long" pauses) would require taking into account each speaker's average speaking rate, following Little et al. (2013).

In sum, *DisFrEn* offers a relatively large, richly annotated dataset covering syntactic, functional and syntagmatic variables. Despite the absence of prosodic information, the annotated variables under scrutiny in this paper, viz. syntax and co-occurring pauses, are objective and reliable enough to ensure robust analyses of DM scope.

4. Syntax and pauses as indirect measures of DM scope

The following analyses test the extent to which position in the turn, degree of syntactic integration and co-occurrence with pauses can be used as reliable indirect cues to the divide between local and global scope of DMs. They target three pairs of DMs, each representing a different level of granularity: comparing two functions (Section 4.1), two syntactic classes (Section 4.2) and two uses of the same DM (Section 4.3). These pairs were selected for their intrinsic connection to varying degrees of scope: specific hypotheses will be laid out at the beginning of each subsection.

4.1 Function-specific: Topic-shifting vs. topic-resuming

The first pair of DMs potentially associated with different degrees of scope concerns the *topic-shifting* and *topic-resuming* functions, respectively defined as (i) a change of topic within or between turns carrying no or little connection with the previous context (including new subtopics) and (ii) a return to a previous topic after a digression or a non-relevant segment. In terms of scope, topic-shifting and topic-resuming can be distinguished by the type of discourse unit that they introduce (new topic segment vs. regular utterance attached to an existing topic segment) and the typical distance between the related units (adjacent topics vs. utterances separated by a digression of varying length). The expectations are therefore not straight-forward: hierarchically, topic-shifts target higher-level discourse structure (global scope) yet the topic segments themselves are adjacent (local scope), while topic-resuming DMs do not signal a major discourse boundary (local scope) but connect more distant units within a topic segment (global scope).

In *DisFrEn*, 121 occurrences of topic-resuming DMs and 131 topic-shifting DMs were annotated. This includes 15 types for topic-shifting (*actually, and, anyway, but, by the way, I mean, in fact, meanwhile, nevertheless, now, so, then, though, well, you know*) and 12 types for topic-resuming (*and, anyway, but, I mean, no,*

now, okay, so, then, well, yeah, yes). Looking at their syntactic integration is not particularly interesting since both functions overwhelmingly favor the peripheral (i.e., not integrated) initial position in 87% (105/121) and 92% (120/131) of their occurrences, respectively. Position in the turn, however, reveals a strong, statistically significant difference between topic-shifting and topic-resuming as to the proportion of turn-initial uses: 20.7% (25/121) of topic-shifting DMs are turn-initial against only 5.34% (7/131) for topic-resuming ($z = 3.649$, $p < 0.001$).[4] This result points to the specialization of topic-shifting DMs at a higher level of discourse organization, managing hierarchically larger units (i.e., whole turns).

This first positional cue to a more global scope of the topic-shifting function is, however, not confirmed by co-occurring silent pauses, where we observed a similar preference for the [pause+DM] pattern in 62.9% (78/124) and 60.9% (56/92) of turn-medial topic-resuming and topic-shifting DMs, respectively (turn-initial and turn-final DMs were excluded from this analysis since they are, by definition, less prone to co-occurring with pauses). This frequent co-occurrence with pauses in about 60% of all occurrences points to the discourse-structuring role of these DMs, compatible with the hypothesis of their global scope. It is exemplified by the topic-shifting use of *by the way* in (3):

(3) *I think she actually likes it but (0.727) she has a sense of proportion hold on here's a napkin oops (0.280)* by the way *did I mention my dustbin's been blown over in my back garden again* (EN-conv-04)

By contrast, the data shows that only a few of all tokens co-occur with a filled pause (e.g., *uhm*): 15.3% (19/124) for topic-resuming and 10.9% (10/92) for topic-shifting. This finding goes against our expectation of the link between global scope and the discourse-structuring function of filled pauses.

Still, co-occurrence between topic-shifting or topic-resuming DMs and pauses, silent or filled combined, is a much more frequent pattern than isolated uses, which only take up 13% (16/124) for topic-resuming and 17% (16/92) for topic-shifting. The isolated pattern is exemplified below with topic-shifting *actually*:

(4) [current lecturer of acoustics talking about how the acoustics class used to be done and his former classmate Jane]
she was actually *taking it for credit and it was a whole unit (0.420) so poor old little Janey (0.227) we were having a discussion with Bob* actually *about the uh the organization of the course […] Dick's written on […] what do the students think of the course* (EN-conv-06)

4. The *z*-ratio is used to test the significance of the difference between two independent proportions.

The occurrence of isolated uses, as in this example, and the low co-occurrence with filled pauses both tend to qualify the assumption that topic-shifting and topic-resuming systematically function globally and suggest that they might also be used locally. Another interpretation of this result suggests that the absence of filled pauses is not a systematic sign of local scope but might rather indicate a high degree of planning (planned speech) or a high level of interactional pressure on speakers not to lose the floor (interactive speech).

Still, in the majority of cases the DM has a rather far-reaching scope, as shown by the very low frequency of syntactically integrated DMs: only 3.8% (5/131) of topic-resuming and 8.3% (10/121) of topic-shifting DMs occur within governed elements, as in Example (5), where the topic-shifting *then* is inserted before a complement ("in the name"):

(5) [talking about the name of a company called "Ducks and Drake"]
BB_3 *Sir Francis Drake was based here […] and led his ships out to fight them*
BB_1 *ok (0.560) and (0.220) what's the importance of the "ducks"* then *in the name*
BB_3 *the "ducks" are the specialist vehicles we use* (EN-intf-02)

In sum, the two functions appear to act globally in their own distinct way (hierarchical structure vs. distance), which shows that a single measure of DM scope might not be enough: the combination of syntax and pauses offers a more fine-grained picture yet does not suffice to oppose the degrees of scope between topic-shifting and topic-resuming. This first pair was therefore inconclusive and suggests taking a different, more formal approach to DM scope, namely starting from forms instead of functions, as we will now come to see.

4.2 POS-specific: Subordination vs. coordination

The syntactic mechanisms of coordination (or parataxis) vs. subordination (or hypotaxis) have been widely studied, including in relation to DMs (cf. Pawley and Syder 2000 on "clause-chaining" vs. "clause-integrating"; Castellà 2004; Blühdorn 2008). Coordinating conjunctions (henceforth CCs) are very often used as DMs and constitute the most frequent members of the category (especially *and* and *but* in *DisFrEn*, with rare cases of *or*), while subordinating conjunctions (henceforth SCs) such as *because, if* or *although* (27 types in total) are also quite frequent, especially in formal monologues. Given that SCs are syntactically governed and depend on a main verb, they are expected to function locally (i.e., take scope over single and adjacent utterances), in comparison with CCs, whose syntactic independence should be reflected by an attraction to peripheral positions and to pauses.

The data strongly confirms these expectations: 61% of all 679 SCs occur in integrated positions to the right of the governing verb (typically *although*) while the other 39% (263/679) occur to its left (typically *if*). CCs, on the other hand, largely prefer the initial non-integrated slot in 94% of the cases (1654/1760), with a few anecdotal occurrences in final position (cf. Mulder and Thompson 2006 on final *but*) and left- or right-integrated positions, as in Example (6) with alternative *or*, occurring between two verb clauses:

(6) *you can break into the pears if you want to* or *have a piece of choccy you've had plenty of veggies* (EN-conv-01)

These strong syntactic associations are to be expected from the rather circular definition of SCs as syntactically integrated, although the positional behavior of CCs is not as restricted. Co-occurrence with pauses offers a more independent and interesting cue to the variation in scope. CCs (restricted to turn-medial DMs) co-occur with pauses in 56% of the tokens (928/1672) whereas 31% (515/1672) are used in isolation (DM alone). The proportions are perfectly reversed for SCs: they are attracted to the isolated pattern in half of all occurrences (312/669, 48%), against a third which co-occur with pauses (252/669, 38%). These findings show that co-occurrence with pauses reflects the difference in syntactic integration of coordination and subordination, so that this observable feature might be a reliable indicator of a difference in local vs. global scope.

Such an approach to different grammatical classes acting as DMs still covers a lot of variation, and it might be the case that syntactic and syntagmatic behaviors within one class differ depending on specific functions or even particular DM expressions, which motivates the more fine-grained level of analysis in the next section.

4.3 DM-specific: *So* expressing consequence vs. conclusion

The last pair under investigation consists of two uses of the same DM, namely *so* expressing a consequence or a conclusion: these two functions share a semantic core (Arg2 is the result of Arg1), although in the former the relation is semantic or "objective" while in the latter the relation is pragmatic or "subjective" (cf. Pander Maat and Sanders 2000, 2001; Sanders and Evers-Vermeul, this volume). The epistemic distance involved in subjective relations such as *conclusion* could be related to a more global scope, acting on the mental representation of discourse, rather than the local chaining of facts (as in *consequence* relations), which is expected to be reflected in the co-occurrence with pauses (more frequent for conclusive than consequential *so*).

Indeed, only 28% (63) of the 227 conclusive *so* occur in isolation against 49% (61) of the 125 uses as *consequence*, while the [pause+DM] pattern represents 58.5% (133/227) and 39.2% (49/125) of their respective occurrences. This reversal of preferences confirms the attraction between pauses and subjective functions. The most frequent patterns for each function are illustrated in Examples (7) and (8):

(7) *from there we make our way round the citadel […] from there we then go down back to the start point (1.050)* so *it's a an all-encompassing tour covering all (0.227) ages of h- history of Plymouth* (EN-intf-02)

(8) *if I go home to visit say you will (0.240) notice when I come back (0.380) that I'm speaking with a Liverpool accent because my family do […] and it's around me on the Wirral* so *I come back talking* a *little bit more like a Liverpudlian* (EN-intf-03)

In (7), *so* introduces a conclusion to a long passage describing the various stops of a tour around Plymouth. There is some subjective distance between the conclusion ("it's an all-encompassing tour") and its previous context, and the long pause reflects this distance. By contrast, in (8), the fact that the speaker talks with a Liverpool accent is a logical, objective consequence of the fact that this accent is everywhere on the Wirral. These two facts connected by *so* are presented with little or no subjective distance, hence the absence of pauses.

These tendencies tend to confirm the higher scope of subjective functions of DMs. However, they do not systematically apply to all objective-subjective pairs of relations: for instance, *because* and *if* are always more isolated than co-occurring with pauses regardless of their objective or subjective function, which might in turn be explained by our previous finding on subordinating conjunctions and their preference for isolation.

5. Summary and discussion

This study revealed interesting patterns of position and co-occurrence with pauses which illustrate the potential of indirect yet operational cues to access the multi-faceted notion of DM scope. In particular, high degree of syntactic integration and absence of co-occurring pauses was shown to be often associated with local scope, while DMs expressing a more global scope tend to occur outside the syntactic dependency structure, co-occur with pauses and introduce hierarchically larger and/or distant units.

The paper only provides a partial view of the phenomenon of local vs. global scope of DMs and even suggests that there might be more than one type of global

scope (cf. Section 4.1). The notion requires more research from various frameworks: for instance, a constructionist approach to DMs (Fried and Östman 2005; Fischer 2010; Crible 2018) could further our understanding of the variation in scope by uncovering regular patterns of forms (syntactic class and position) and meanings (specific functions in context). Experimental paradigms should then confirm whether these discursive constructions are used and perceived by conversation participants as relevant units of cognitive processing (e.g., [pause+*so*] triggers the expectation of a global-scope relation).

Another promising research avenue is to dig further into the mapping between discourse segmentation, functional analysis and co-occurrence with pauses in order to converge multiple types of evidence for semantic-pragmatic phenomena. However, it is important that all levels of analysis remain independent from each other in order to avoid circularity, as opposed to existing models of spoken discourse segmentation, where the relation and its arguments (cf. RST) or the type of unit and its function (cf. Val.Es.Co Model, see Espinosa-Guerri and García-Ramón, this volume; see also Hidalgo Navarro and Martínez Hernández, this volume) are strongly inter-dependent. An indirect approach to scope, as illustrated in this study, might be more methodologically robust and uncover constructions which are not only descriptively adequate but also "psychologically plausible", as advocated by the programme of cognitive pragmatics (Schmid 2012: 4–5).

Analyzing DM scope, whether directly through full-text segmentation or indirectly through converging formal and functional evidence, always involves some subjectivity on the linguist's part and raises the issue of how far off-line annotations can go without putting words in the speaker's mouth: if functional annotation of DMs is a complex undertaking (e.g., Spooren and Degand 2010), should we strive to add systematic argument identification on top of it? Is sense disambiguation already too subjective and interpretative to be reliable? According to Glynn (2010), there are ways to operationalize the analysis (e.g., documenting guidelines, inter-rater agreement) and converging evidence through statistical modelling of independent variables is strongly encouraged as a growing method for corpus-driven cognitive semantics: "confirmatory techniques, based entirely on highly subjective annotation, not only produce coherent results but results that can accurately predict the data" (Glynn 2010: 260). The exact balance between objectivity and subjectivity, quantitative and qualitative, top-down (direct) and bottom-up (indirect) is yet to be found and the present paper only paves the way for a critical reconsideration of existing approaches to DM scope and, more generally, of the inter-dependence between annotation variables, focusing in particular on the interface between syntax and discourse.

References

Baldridge, Jason, and Alex Lascarides. 2005. "Annotating Discourse Structure for Robust Semantic Interpretation." In *Proceedings of the 6th International Workshop on Computational Semantics (IWCS-6)*, January 12th–14th, Tilburg, The Netherlands, ed. by Hendrik Cornelis Bunt, Jeroen Geertzen, Elias Thijsse 17–29. Tilburg: Tilburg University.

Blühdorn, Hardarik. 2008. "Subordination and Coordination in Syntax, Semantics and Discourse: Evidence from the Study of Connectives." In *"Subordination" versus "Coordination" in Sentence and Text*, ed. by Catherine Fabricius-Hansen, and Wiebke Ramm, 59–85. Amsterdam: John Benjamins. https://doi.org/10.1075/slcs.98.04blu

Bunt, Harry. 2012. "Multifunctionality in Dialogue." *Computer Speech and Language* 25: 222–245. https://doi.org/10.1016/j.csl.2010.04.006

Cabedo, Adrián, and Salvador Pons. 2013. *Corpus Val.Es.Co*. [online: http://www.valesco.es].

Castellà, Josep. 2004. *Oralitat i Escriptura. Dues Cares de la Complexitat del Llenguatge*. Barcelona: Publicacions de l'Abadia de Montserrat.

Clark, Herbert H., and Jean E. Fox Tree. 2002. "Using *uh* and *um* in Spontaneous Speaking." *Cognition* 84: 73–111. https://doi.org/10.1016/S0010-0277(02)00017-3

Crible, Ludivine. 2017. "Discourse Markers and (Dis)fluency in English and French: Variation and Combination in the DisFrEn Corpus." *International Journal of Corpus Linguistics* 22(2): 242–269. https://doi.org/10.1075/ijcl.22.2.04cri

Crible, Ludivine. 2018. "Towards a Constructional Framework of the Polyfunctionality of Discourse Markers." Paper given at the *10th International Conference on Construction Grammar (ICCG-10)*, July 16–18, Paris, France.

Crible, Ludivine, and Sandrine Zufferey. 2015. "Using a Unified Taxonomy to Annotate Discourse Markers in Speech and Writing." In *Proceedings of the 11th Joint ACL-ISO Workshop on Interoperable Semantic Annotation (isa-11)*, April 14th, London, UK, ed. by Harry Bunt, 14–22.

Crible, Ludivine, and Maria-Josep Cuenca. 2017. "Discourse Markers in Speech: Characteristics and Challenges for Corpus Annotation." *Dialogue and Discourse* 8(2): 149–166.

Crible, Ludivine, Amandine Dumont, Iulia Grosman, and Ingrid Notarrigo. 2019. "(Dis)fluency across Spoken and Signed Languages: Application of an Interoperable Annotation Scheme." In *Fluency and Disfluency across Languages and Language Varieties*, ed. by Liesbeth Degand, Gaëtanelle Gilquin, Laurence Meurant, and Anne-Catherine Simon, 17–39. Louvain-la-Neuve: Presses Universitaires de Louvain.

Cuenca, Maria Josep. 2013. "The Fuzzy Boundaries between Discourse Marking and Modal Marking." In *Discourse Markers and Modal Particles. Categorization and description* [Pragmatics and Beyond New Series 234], ed. by Liesbeth Degand, Bert Cornillie, and Paola Pietrandrea, 191–216. Amsterdam: John Benjamins. https://doi.org/10.1075/pbns.234.08cue

Das, Debopam, Maite Taboada, and Paul McFetridge. 2015. *RST Signalling Corpus LDC2015T10*. Philadelphia: Linguistic Data Consortium.

Deppermann, Arnulf, and Susanne Günthner. 2015. *Temporality in Interaction*. Amsterdam: John Benjamins. https://doi.org/10.1075/slsi.27

Estellés Arguedas, Maria, and Salvador Pons Bordería. 2014. "Absolute Initial Position." In *Discourse Segmentation in Romance Languages*, ed. by Salvador Pons, 121–155. Amsterdam: John Benjamins.

Fischer, Kerstin. 2000. *From Cognitive Semantics to Lexical Pragmatics*. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110828641

Fischer, Kerstin. 2010. "Beyond the Sentence: Constructions, Frames and Spoken Interaction." *Constructions and Frames* 2(2): 185–207.

Fried, Mirjam, and Jan-Ola Östman. 2005. "Construction Grammar and Spoken Language: The Case of Pragmatic Particles." *Journal of Pragmatics* 37: 1752–1778. https://doi.org/10.1016/j.pragma.2005.03.013

Glynn, Dylan. 2010. "Testing the Hypothesis. Objectivity and Verification in Usage-based Cognitive Semantics." In *Quantitative Methods in Cognitive Semantics: Corpus-driven Approaches* [Cognitive Linguistic Research 46], ed. by Dylan Glynn, and Kerstin Fischer, 239–269. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110226423.239

González, Montserrat. 2005. "Pragmatic Markers and Discourse Coherence Relations in English and Catalan Oral Narrative." *Discourse Studies* 77(1): 53–86. https://doi.org/10.1177/1461445605048767

Hansen, Maj-Britt Mosegaard. 2006. "A Dynamic Polysemy Approach to the Lexical Semantics of Discourse Markers (with an exemplary analysis of French *toujours*)." In *Approaches to Discourse Particles*, ed. by Kerstin Fischer, 21–41. Amsterdam: Elsevier.

Lenk, Uta. 1998. "Discourse Markers and Global Coherence in Conversation." *Journal of Pragmatics* 30: 245–257. https://doi.org/10.1016/S0378-2166(98)00027-7

Little, Daniel R., Raoul Oehmen, John Dunn, Kathryn Hird, and Kim Kirsner. 2013. "Fluency Profiling System: An Automated System for Analyzing the Temporal Properties of Speech." *Behavioral Research Methods* 45(1): 191–202. https://doi.org/10.3758/s13428-012-0222-0

Lundholm, Kristina. 2015. Production and Perception of Pauses in Speech. PhD diss., University of Gothenburg.

Mann, William, and Sandra Thompson. 1988. "Rhetorical Structure Theory: Toward a Functional Theory of Text Organization." *Text* 8(3): 243–281. https://doi.org/10.1515/text.1.1988.8.3.243

Mulder, Jean, and Sandra Thompson. 2006. "The Grammaticalization of *but* as a Final Particle in English Conversation." In *Selected Papers from the 2005 Conference of the Australia Linguistic Society*, ed. by Keith Allan.

Nelson, Gerald, Sean Wallis, and Bas Aarts. 2002. *Exploring Natural Language: Working with the British Component of the International Corpus of English*. Amsterdam: John Benjamins. https://doi.org/10.1075/veaw.g29

Pander Maat, Henk, and Ted J. M. Sanders. 2000. "Domains of Use and Subjectivity. On the Distribution of three Dutch Causal Connectives." In *Cause, Condition, Concession and Contrast: Cognitive and Discourse Perspectives*, ed. by Bernd Kortmann, and Elizabeth Couper-Kuhlen, 57–82. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110219043.1.57

Pander Maat, Henk, and Ted J. M. Sanders. 2001. "Subjectivity in Causal Connectives: An Empirical Study of Language in Use." *Cognitive Linguistics* 12(3): 247–273.

Pawley, Andrew, and Frances H. Syder. 2000. "The One-clause-at-a-time Hypothesis." In *Perspectives on Fluency*, ed. by Heidi Riggenbach, 163–199. Ann Arbor: The University of Michigan Press.

Pitler, Emily, and Ani Nenkova. 2009. "Using Syntax to Disambiguate Explicit Discourse Connectives in Text." In *Proceedings of the ACL-IJCNLP Conference Short Papers*, 13–16. https://doi.org/10.3115/1667583.1667589

Prasad, Rashmi, Nikhil Dinesh, Alan Lee, Eleni Miltsakaki, Livio Robaldo, Aravind Joshi, and Bonnie Webber. 2008. "The Penn Discourse Treebank 2.0." In *Proceedings of the 6th International Language Resources and Evaluation (LREC'08)*, May, Marrakech, Morocco, ed. by Nicoletta Calzolari, Khalid Choukri, Bente Maegaard, Joseph Mariani, Jan Odjik, Stelios Piperidis, and Daniel Tapias: 2961–2968.

Rendle-Short, Johanna. 2004. "Showing Structure: Using *um* in the Academic Seminar." *Pragmatics* 14(4): 479–498. https://doi.org/10.1075/prag.14.4.04ren

Roberts, Benjamin, and Kim Kirsner. 2000. "Temporal Cycles in Speech Production." *Language and Cognitive Processes* 15(2): 129–157. https://doi.org/10.1080/016909600386075

Sanders, Ted J. M., Wilbert Spooren, and Leo Noordman. 1992. "Toward a Taxonomy of Coherence Relations." *Discourse Processes* 15: 1–35. https://doi.org/10.1080/01638539209544800

Schiffrin, Deborah. 1987. *Discourse Markers*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511611841

Schmid, Hans-Jörg. 2012. "Generalizing the Apparently Ungeneralizable. Basic Ingredients of a Cognitive-pragmatic Approach to the Construal of Meaning-in-context." In *Cognitive Pragmatics*, ed. by Hans-Jörg Schmid, 3–22. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110214215.3

Schmidt, Thomas, and Kai Wörner. 2012. "EXMARaLDA." In *Handbook on Corpus Phonology*, ed. by Jacques Durand, Gut Ulrike, and Gjert Kristoffersen, 402–419. Oxford: Oxford University Press.

Schourup, Lawrence. 1999. "Discourse Markers: A Tutorial." *Lingua* 107: 227–265. https://doi.org/10.1016/S0024-3841(96)90026-1

Spooren, Wilbert, and Liesbeth Degand. 2010. "Coding Coherence Relations: Reliability and Validity." *Corpus Linguistics and Linguistic Theory* 6(2): 241–266. https://doi.org/10.1515/cllt.2010.009

Stent, Amanda. 2000. "Rhetorical Structure in Dialog." In *Proceedings of the 2nd International Natural Language Generation Conference (INLG'2000)*.

Swerts, Marc. 1998. "Filled Pauses as Markers of Discourse Structure." *Journal of Pragmatics* 30: 485–496. https://doi.org/10.1016/S0378-2166(98)00014-9

Unger, Christoph. 1996. "The Scope of Discourse Connectives: Implications for Discourse Organization." *Journal of Linguistics* 32: 403–438. https://doi.org/10.1017/S0022226700015942

Webber, Bonnie, Rashmi Prasad, Alan Lee, and Aravind Joshi. 2016. "Discourse Annotation of Conjoined VPs." In *Conference Handbook of the 2nd Action Conference of TextLink*, April, Budapest, Hungary, ed. by Liesbeth Degand, Csilla Dér, Péter Furkó, and Bonnie Webber: 135–140.

CHAPTER 3

Prosodic versatility, hierarchical rank and pragmatic function in conversational markers

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In the framework of the prosody-markers interface, the present study focuses its attention on a specific functional aspect: the possible relationship between prosodic realization and the higher or lower hierarchical rank of a marker in the discursive structure. We start from the hypothesis that the prosodic realization of certain markers in a given context, according to its particular F0 curve, its accentual realization, its phonic dependence, its position, etc., can condition its hierarchical-structural range. We have taken as a base the Val.Es.Co. Group Corpus (Briz and Val.Es.Co. Group 2002; Cabedo and Pons 2013). The structural segmentation model of discourse adopted as reference standard is that by Briz and Val.Es.Co. Group (2003) and Briz and Val.Es.Co. Group (2014).

Keywords: conversational markers, prosodic versatility, hierarchical rank, pragmatic, polyfunctionality

1. Introduction

It is common to find within the bibliography on discourse markers the idea that their prosodic realization makes a relevant contribution to specifying their function in a given context (Chafe 1993; Elordieta and Romera 2002; Martín Butragueño 2003; Dorta and Domínguez 2004; Pons 2006; Briz and Hidalgo 2008; Hidalgo 2010; Pereira 2011; Cabedo 2013; Martínez Hernández 2015, etc.).[1]

This study focuses on one specific aspect within the framework of this interface (prosody-markers): the possible relationship between prosodic realization and the greater or lesser hierarchical rank of a marker in the discursive structure. Our

1. The polyfunctionality of some discursive markers has been justified on the basis of their prosodic-intonation versatility, and so it is not surprising that recent works such as the DPDE (*Diccionario de Partículas Discursivas del español*, www.dpde.es) include among the descriptive elements of each particle a section devoted to prosody.

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starting point is the assumption that the degree of prosodic enhancement over certain markers (on the basis of their particular F0 curve, its accentual realization, its phonic independence, its position, etc.) may condition their structural-hierarchical role or pragma-discursive function.

Our reference corpus (Briz and Val.Es.Co. 2002; Cabedo and Pons 2013; and Fonocortesía)[2] is oral and conversational; the structural segmentation model of the discourse adopted as a measuring standard is that proposed by Briz and Val.Es.Co. (2003) and Briz and Val.Es.Co. (2014).

2. Markers and Val.Es.Co.'s units system

Val.Es.Co.'s segmentation system of discursive units is organized based on two levels, one of which is monological and the other of which is dialogical.

2.1 Dialogical level and monological level

The dialogical level integrates as units *dialogue* (maximal unit), *exchange* (sequence of interventions by various speakers) and *intervention* (minimal dialogic unit). In terms of the monological level, its maximal unit is *intervention* (an utterance that can be used as the beginning of subsequent speech, reaction to a preceding intervention or reaction and beginning at the same time). In turn, within an intervention it is possible to recognize segments with a lower structural rank; for example, in (1):

(1) *A: Cállate*
B: No, porque no me da la gana. Estoy harto de tu prepotencia
A: Shut up
B: No, because I don't feel like it. I'm sick of your arrogance
(Cabedo and Pons 2013, conversation 29)

We can differentiate a monological unit inferior to the intervention, namely the *act* (an immediate constituent of the former), which is able to operate in isolation in a given context and serve as an intervention by itself. Moreover, intervention 1A fulfils the particular requirements of an act, whereas intervention 1B groups two isolatable segments under equal conditions to 1A: "No, porque no me da la gana"

2. Corpus constructed as part of the *Fonocortesía* project associated with the Val.Es.Co. Group, *Fonocortesía: el componente fónico en la expresión de cortesía y descortesía verbales en español coloquial* (http://fonocortesia.es/, reference FFI2009-07034, FILO subprogramme).

('No, because I don't feel like it') and "Estoy harto de tu prepotencia" ('I'm sick of your arrogance').

However, given the impossibility of isolating the fragment "porque no me da la gana" ('because I don't feel like it') in that context (it could not on its own constitute a linguistic reaction from B to A), we have to consider it as an integral part of a single act: "No, porque no me da la gana" ('No, because I don't feel like it'). Under the Val.Es.Co model, fragments such as "porque no me da la gana" ('because I don't feel like it') are referred to as *subacts* – that is, subunits that are part of an act and recognizable as informational support or contributions but that cannot be isolated in the given context. In this research, we will limit the markers' structural range of action to the monological level – that is, the scope of *intervention, act* or *subact*.

2.2 Towards a typology of the subact: Substantive subacts and adjacent subacts

In accordance with the suggestions of Briz and Val.Es.Co. Group (2003) and (2014), we distinguish between two types of subacts: *substantive* ones *(directive or subordinate)* and *adjacent* ones. We will now look at the differences between these in greater detail.

2.2.1 *Substantive subacts (SS)*

Substantive subacts are segments of the act with propositional content that, according to their structural role in the internal organization of the act, may be *directive* (DSS) or *subordinate* (SSS). The DSS carries the act's illocutionary force, while the SSS is semantically and informationally subordinate to the DSS, as occurs with the causal information in (2):

(2) *A: ¿Vienes al cine?*
B: {No voy a ir} DSS {porque tengo prisa} SSS
A: Are you coming to the movies?
B: I'm not going {DSS} I'm in a hurry {SSS}
(Cabedo and Pons 2013, conversation 29)

SSS can present other different characteristics. They can be truncated, as is the case in (3), due to the speaker's attempting to specify a preceding lexical element:

(3) *P: # {tiramos to(do) (e)l-}SSS {guardamos to(do)s los papeles↑}SSS// {y ese lo hemos tenido que tirar}SSD#*[3]
P: # {we threw all the-}SSS {we kept all the papers↑}SSS// {and that we have had to throw}SSD# (Cabedo and Pons 2013, conversation 29)

In other cases, SSS are *topicalizations* (SSS Top) at the beginning of an act or in an end position; a topicalization is a change of position of a sentence (and/or propositional) constituent to an informationally marked (first or last) position as to its relevance. Moreover, *topicalized subacts* often configure independent intonation groups.

2.2.2 *Adjacent subacts (AS)*

Adjacent subacts are made up of extrapropositional elements that contribute information that cannot be included in the logical form of an utterance; this is precisely the case of many *discourse markers*. In accordance with the type of information contributed, it is possible to put forward a typology of adjacent subacts:

a. *Textual Adjacent Subacts* (TAS). These organize and distribute the speech flow. Some discourse markers frequently have this function:

(4) *A: # {No me doy cuenta de que has apretado el botón que has apretado} # #{**entonces**↑} {estoy hablando con toda la [naturalidad=]*
B: # [Yaa] #
A: = del mundo↓} {te lo prometo↓} #
A: # {I don't realize that you have pressed the button that you have pressed} # # {so↑} {I'm speaking with all the [naturalness=]
B: [#Yeah#]
A: = of the world↓} { I promise you↓} # (Hidalgo 1996: 473, lines 7–10)

b. *Interpersonal Adjacent Subacts* (IAS). These involve the interaction between speaker and listener, as in the case of certain contact-controlling discourse markers such as *¿sabes?* ('you know?'), *¿no?, ¿eh?* ('eh?') when they act as phatic or appellative resources:

(5) *5P3: # M'ha dao↑ ca- mil/} **{¿sabes?}** #// # {y eso↓} / {ee- eso era↓} # # {y he subido a mi casa y mi hermana m'ha dicho pues t'acabo de llamar}/ {no sé qué↓ no sé cuántos↓} #*

3. All the examples presented from number 3 onwards comply with the transcription conventions of Val.Es.Co., available in the Introduction by Briz and Grupo Val.Es.Co. 2002 (see reference section here).

5P3: # He gave me↑ a thousand/} { you know? } #// # {and that ↓} / {ee- that was it↓} # # { and I went up to my house and my sister told me: I just called you }/ { blah blah blah blah↓} #

(Cabedo and Pons 2013, conversation 29)

c. *Modal Adjacent Subacts* (MAS). These introduce some kind of specific modal nuance (attenuation, intensification) with regard to the substantive subact that they adhere to. Examples from this group are expressions such as *digo yo* ('I say'), *no sé* ('I don't know'), etc.:

(6) *E: (…) #**No sé**/ no se trata de ser/ extremista o a rajatabla y de aquí ya↑#*
E: *(…)#* I don't know/ It's not a question of being/ an extremist or strict and from here on↑#

(Briz and Val.Es.Co. Group 2002: 93, lines 461–462)

3. The complex relationship between markers and adjacent subacts

Recognizing an AS raises special problems during the phase of microstructural segmentation of a conversation, and these are particularly significant when the goal is to identify particular discourse markers with that AS. As we have previously indicated, resting upon the foundation of our working hypothesis is the idea that prosody allows us to explain many of the pragmatic-structural relations that markers may establish as occupiers of *intervention, act* and above all (adjacent) *subact*.[4]

3.1 Context of use and structural status of the adjacent subact

We set out from a consideration of the linguistic and pragmatic context to precisely determine marker-AS correspondence, which also includes taking into account prosody. In this area, there appears to be a certain tendency among analysts to make AS and marker coincide (Pons 2006; Pons 2016: 556–558). But if all markers are considered a priori as AS (TAS, MAS, IAS), we will be confusing categorial units (markers) and function units (adjacent subacts). Rather, a marker may or may not be an AS. Of course, it is necessary to specify the implication conditions

4. In this case, we are referring to the contextualising power and the ability to guide the listener's inferences; some of these functions are even coded in the language and, with this study, we intend to clarify what this coding can consist of.

of its prosodic realization before asserting a Marker=AS a priori correspondence.[5] In fact, a given marker can on its own form an act, as is the case in (7):

(7) *A: ¿Quieres venir al cine?*
B: Bueno/ lo que tú quieras.
A: Do you want to come to the cinema?
B: Good/ whatever you want.

Or even intervention, as in (8):

(8) *A: ¿Quieres venir al cine?*
B: Bueno
A: Do you want to come to the cinema?
B: Good

3.2 Prosodic enhancement/non-enhancement, structural relevance and polyfunctionality of discourse markers at the monological level

Prior to the study that we are going to present, we need to clarify when the structural status of the marker or its pragmatic-discursive function are conditioned by its prosodic *enhancement/nonenhancement*. Thus, that marker's status as an AS should not be established on an a priori basis. For example, if the marker forms an intonation group with another marker (or other markers) and is therefore an integral part of an intonation group (subact), it cannot be considered an individual AS (Hidalgo and Padilla 2006). Structurally, a prosodically enhanced and isolated marker and that same marker grouped with another discursive element (or other discursive elements) without its own prosodic enhancement do not function in the same way. The effects of its prosodic realization on its pragmatic function (and, in addition, its perceptive effect on the listener-interlocutor) and, in consequence, its involvement in the discursive structure (AS or integral element of another superior hierarchical unit) are elements of fundamental relevance.[6]

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5. For example, a marker such as *pero* ('but', with tonal suspension) possesses a prosodic realization that channels the speaker's attenuating intention to minimize what will be said next:

A: yo no digo que seas tonto, pero→ *no eres muy listo*
'I'm not saying you're dumb, but→ you're not very smart'

In this case, *pero* is no longer a TAS, but rather a MAS. Accordingly, it is very important to confirm the function of the marker within the context. On many occasions, this function will be specified by prosody.

6. Degand et al. (2014: 247) seem to support a similar idea; they take the view that although adjuncts or discursive markers are not syntactically governed by a main clause, they are semantically

The priority, then, is to better specify the definition of AS (TAS, IAS and also, in many cases, MAS): they do not contribute to interventions' conceptual meaning, or to their truth conditions, but they do contribute to their processing or to the production of certain inferences based on the relationship between what is said and the context. Furthermore, they can be integrated into greater prosodic units. In this latter scenario, within the framework of the prosody-marker interface, two fundamental situations seem to arise, as different works related to this matter reveal:[7]

1. The marker is integrated into a greater prosodic unit that constitutes a full melodic contour that has its own illocutionary force. In this case, the marker is integrated within an act. This frequently occurs in the case of information structurers, connectives, reformulators, discourse operators (for example, *pero, pues, porque*). In these cases, the markers are linked and are conditioned by the discursive possibilities of the segment that they are included in.[8]
2. The marker possesses prosodic enhancement and is independent of a greater prosodic unit. This is often the case with regard to *conversational markers*[9] (*bueno, vamos, hombre, ¿sabes?, venga…*), which contribute to the progress of the conversation (changes of topic, opening of conversation, etc.) with a very diverse range of functions (proposals, offers, evaluation of agreement or disagreement, etc.). They are commonly affixed, structurally speaking, to a higher discursive unit (act, intervention), but they have a greater tendency for prosodic isolability than do the markers mentioned in 1. In fact, some of these conversational markers may function as identifiable and isolatable acts in themselves (for example, *bueno* or *claro*), or even as interventions.

In what follows, then, our methodological approach aims to explain how prosody can help clarify the structural rank of two markers, namely *bueno* and *hombre*,

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or pragmatically linked to the clause's dependent whole: they have a nonautonomous status in the discourse, even if they are syntactically independent.

7. Among other works that consider the prosody-markers interface, we might highlight those of Cepeda (1999); Dorta and Domínguez (2001 and 2004); Romera and Elordieta (2002); Briz and Hidalgo (2008); Martín Butragueño (2003 and 2006); Martínez and Domínguez (2005); Rodríguez Muñoz (2009); Hidalgo (2010); Pereira (2011); Hidalgo (2015 and 2016); Martínez Hernández (2015 and 2016); Regan (2016); Tanghe (2015), etc.

8. It is debatable whether really they are AS here; the problem with recognizing these markers as AS is that they can be subject to external factors that are particular to conversational discourse – for example, talking speed and categorial "exhaustion" (for example, some units can become mere "filler" or verbalized pauses).

9. Here we use this term following the suggestion in Martín Zorraquino and Portolés (1999).

which appear very frequently in conversation and are characterized by their functional and suprasegmental versatility.

4. Methodological approach

4.1 Reference corpus and markers under study

As we have already indicated, the source corpus is from Briz and Val.Es.Co. Group (2002) and from Cabedo and Pons (2013), which respectively comprise 19 and 46 conversations in informal colloquial situations, as well as from the *Fonocortesía* project (see footnote 3). The volume of the corpus managed reaches around 30 hours of recording, i.e., about 1,800 minutes.[10]

For the functional study, we have relied on the *Diccionario de partículas discursivas del español*, henceforth DPDE (Briz et al. 2008), with the objective of confirming or qualifying the results of previous studies that have focused on the prosody of discourse markers (Martín Butragueño 2003, 2006; Serrano Montesinos 2004; Martínez, Domínguez and Urdaneta 2004; Martínez and Domínguez 2006, etc.). Specifically, for the study of *bueno* ('good') and *hombre* ('come on') we have taken into consideration the definitions of both markers as described in DPDE (http://www.dpde.es/#/), so we refer the reader to the information referring to these lexicographical entries. *Bueno* ('good', 'well') is described in three entries:

– *bueno 1*: Presents the member of the speech in which it appears as a continuation of what was previously said

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10. The data collection has taken into account various recording techniques, based on three criteria: (a) Type of recording: secret (participants did not know they were being recorded) or ordinary (the recorder could be seen by the participants); (b) Role of the investigator: – with participant observation (the researcher acts as a participant in the conversation) or without participant observation (the researcher is external to the conversation); (c) Degree of structuring of the conversation: free conversation (without any control by the researcher) or semi-directed conversation (the researcher directs the conversation it towards specific topics and purposes).

In general, secret recording, with or without participant observation, was the most used technique, as it is the most effective way of obtaining data on colloquial Spanish. Besides, since the recording technique is inextricably linked to the decision to use daily interaction frames as far as possible, the recordings were made preferably in familiar spaces for participants. In terms of sociological variables, age, sex and usual language were established as pre-stratified factors: generational strata: 18–25 / 26–55 / >55; sex: male (V) / female (M); usual language: monolingual Spanish (E) / bilingual (B). The socio-cultural level, determined fundamentally by the level of studies and the occupation, was treated as post-stratified variable: high, medium and low. For more information, see Briz and Val.Es.Co. Group (2002: 12–20).

– *bueno 2*: Indicates agreement, in whole or in part, with something previously said or understood
– *bueno 3*: Associated with emphatic pronunciation, it indicates disagreement

On the other hand, "hombre" (roughly equivalent to 'come on') is defined in two entries (Briz 2012):

– *hombre 1*: Appeals courteously to the other, whether male or female, by showing their alliance, agreement and complicity, reinforcing the positive or, more often, mitigating situations of total or partial conflict or disagreement
– *hombre 2*: Reinforces the actions and values of the speaker him/herself, often contrary to those of the interlocutor or a third party, whether male or female. That is, it is used as an intensifier to reaffirm what is said or done by the speaker and disagreements with the other person.

For the qualitative pragma-prosodic study of the discourse markers *bueno* and *hombre*, we used the ICT tool *Praat* (http://www.fon.hum.uva.nl/praat/).

Moreover, with the choice of these two markers, which are not a priori associated with a specific melodic curve, we have opted for two units with a high level of grammaticalization and semantic variability, as well as a great wealth of expressive and pragmatic nuances, without forgetting the frequency of their use in conversation (Martín Zorraquino and Portolés 1999).[11] In terms of the selection of pragmatic-discursive variables, given that the main objective of our research is to correlate them with different prosodic factors, we have opted for meanings provided in the relevant literature (especially Martín Zorraquino and Portolés 1999: 4162–4197 and *DPDE*), selecting from among them the most frequent in our corpus.[12]

The values that were ultimately selected to study the pragma-prosodic interface of *bueno* and *hombre* are indicated in Table 1:

11. Furthermore, their acoustic physiognomy allows a tonal distinction to be made more easily: the consonants in these markers are sonorous segments, and, as a result, they all receive the fundamental frequency (F_0). As a consequence, the entire set of signifiers of these markers (and not just some specific point) has tonal incidence, which facilitates their acoustic analysis.

12. In any case, even though these will not be taken into account in the subsequent analysis, we must not forget the many significant discursive functions that such units exhibit as a result of the variability present in oral discourse. Our mission, in accordance with the defined senses, consists in setting out the different suprasegmental features derived from acoustic analysis for each of the recognized functions.

Table 1. Values of *bueno* and *hombre*

Bueno	*Hombre*
1. Continuity	1. Attenuation. Disagreement
2. Rupture	2. Intensification. Disagreement
3. Agreement	3. Intensification. Agreement
4. Disagreement	4. Argumentative reinforcement
5. Intensification	5. Reformulation

These pragmatic values can be exemplified in our corpus as follows:

a. *Bueno*

1. *Continuity*. It arranges the discursive matter and exercises a demarcative function that regulates the conversation:

(9) *E: Sí pero no siempre↓ no va a ser tan – es que no se trata de ser conservadora ni de nada↓ se trata simplemente→/ oye↓ que cada uno viva su vida y punto/ yo soy muy demócrata↓ mira// yo te voy a decir/ cada uno que viva su vida↓ yo no tengo que arreglarle la vida a mi vecino↑ y punto↓ y ya está/ y* ***bueno*** *y mi vec – ya te digo/ que mi vecino lleve su vida↑ y yo llevaré la mía↓ y ya está↓ que sí↓ yo puedo posiblemente ser muy amiga de mi vecino↓ aunque él tenga unas costumbres y unos vicios y yo tenga los míos/ pero no quita ¿entiendes?*

[L.15.A.2: 491–499]

E: 'Yes but not always↓ it's not going to be so silly that it's not about being conservative or anything ↓ it's just→ / hey ↓ everyone living their life and it's over / I'm very democratic ↓ look // I'm going to tell you / everyone living their life ↓ I don't have to fix my neighbor's life↑ and that's it↓ and well and my neigh- I'm telling you/ that my neighbour will lead his life↑ and I will lead mine↓ and that's it↓ and yes↓ I can possibly be very good friend with my neighbor↓ even though he has some habits and some vices and I have mine/ but it doesn't matter/ you know?'

2. *Rupture*. It may single the opening of the conversation, a change of topic with a sequential rupture, and so on:

(10) *G:* ***Bueno*** *pues a lo que iba/ el chaval este/ o sea→/ pues/ un día↑ un día↑ ¿no?/ decidió apuntarse a la autoescuela↑/ y se apuntó a la autoescuela/ o sea bueno creo que se salió en – en sexto/ no ha terminao ni – ni la Egebé ¿no? se fue con su padre a trabajar*

[L.15.A.2: 1273–1278]

G: 'Well, what I was saying to you/ the kid was this/ that is→/ well/ one day↑ one day↑ right? / he decided to sign up for driving school↑/ and he signed up for driving school/ that is to say well I think he left in- in sixth grade/ he hasn't even finished his primary education, right? he went to work with his father'

3. *Agreement*. It indicates total or partial agreement with something that was previously said or implied:

(11) *L: no tía no/ si lo que no quiero es comer/ yo creo que es→/ peor*
E: sí↓ ***bueno****§*
G: §cómete el yogur/ que ella lo que quiere son las tapas para los vasos [L.15.A.2: 1046–1049]
L: 'no no/ if what I don't want is to eat/ I think it is→/ worse
E: yeah↓ good§
G: § eat the yogurt/ she wants the locks for the glasses'

4. *Disagreement*. It introduces opposition to or disagreement with the interlocutor at the beginning of reactive intervention:

(12) *B: Pues* ***bueno*** *entonces eres un egoísta/ Andrés/ cariño/ es que ¡joder!/// (3") es que eres un egoísta tú y tú y tú↑ y tú y tú↑ te encierras y tú eres todo/ ¡coño! pues si no compartes conmigo las cosas no sé qué quieres que te diga* [ML.84.A.1: 209–212]
B: 'Well then you are selfish/ Andrew/ honey/ fuck you! /// (3'') is that you are selfish you and you and you↑ and you and you↑ you lock yourself up and you are everything/ shit! well/ if you don't share things with me I don't know what you want me to say'

5. *Intensification.* Associated with emphatic pronunciation, it indicates surprise or amazement:

(13) *A: sí sí sí/// el díaa/ ee-// eel día ese que avisaron de que habían entrao aquí↑// estabaa/ estaba yo conn Jesús// estábamos hablando↑/ y entró él↑/ y dice/* ***BUENO↓*** *¿TÚ QUÉ HACES AQUÍ/ eh? (LAUGHTER) a ver si vienes menos ¿eh?/ que él es un cura/ y digo y a mí qué me importa↑ que sea cura/ yo me meto a monja↓ si quiere* [AP.80.A.1: 909–914]
A: 'yes yes yes/// the day// the- on the day they said they came in here↑// I waaas/ I was with Jesus// we were talking↑// and he came in↑/ and he said/ GOOD↓ WHAT ARE YOU DOING HERE/ Huh? *(LAUGHTER)* don't come so much, huh? / he's a priest/ and I say I don't care/ he's a priest/ I'll become a nun/ if he wants me to'

b. *Hombre*

1. *Attenuation of disagreement*. It shows objection to what has been said or implied by the interlocutor, in an attenuated or reduced way:

(14) *A: ¡claro! (LAUGHTER)/// calla que-/ que me río cada vez que veo a Jaime↑ me río*
*S: pero ¡**hombre**!/ ten cuidao que es curilla/* [AP.80.A.1: 819–821]
A: 'Of course! *(LAUGHTER)////* Quiet/ I laugh every time I see Jaime// I laugh.
S: but hey! / be careful, he's a priest!'

2. *Intensification of disagreement*. It expresses a reinforcement or stressing regarding what has been indicated or said by the interlocutor. It is a type of dialogical intensification:

(15) *C: ¿y por qué no te has comprao un – un Pecé?*
*A: ¡coño! cállate ya↓ **hombre**/ porque es el único que conozco*
[H.38.A.1: 804–806]
C: 'And why didn't you buy a- a personal computer?
A: Shit! Shut up now↓ hey/ because he's the only one I know'

3. *Intensification of agreement*. It expresses a reinforcement or stressing regarding what has been indicated or said by the interlocutor. It is a type of dialogical intensification:

(16) *C: y mi suegra no hacía más que decir/ pues→ siempre los ha tenido igual/ cuando los tenía/ tan grandes y tan cruzaos/ y yo le decía/ a tu padre/ ¡QUÉ VOY A TENERLOS SIEMPRE IGUAL!/ mujer/ pues es verdad/ lo(s) has tenido muy grandes/ JULIÁN/ UNA COSA ES GRANDES Y OTRA ES SALIDOS§*
*P: § y saltones / **hombre*** [G.69.A.1: 849–854]
C: 'and my mother-in-law did nothing but say/ well→ she has always had them the same/ when she had them/ so big and so cross/ and I said/ to your father/ I DO NOT ALWAYS HAVE THEM THE SAME! / hey/ because it is true/ you have had them very big/ JULIAN/ ONE THING IS BIG AND ANOTHER IS PROTRUDING EYES §
P: § and bulging / wow'

4. *Argumentative reinforcement.* It represents a form of monological emphasis that serves to convey greater force or importance to the argumentative process that is being undertaken within the intervention (in (17) the appearance of *¡hombre!* serves to reinforce the argument that the presence of bosses, who keep a very close eye on the worker, is an added concern for the employee when he does not get on the metro in time):

(17) *C: y como voy con el metro→/ si tengo la suerte→/ HOY he tenido la suerte/ que hoy no tenía ningún fiscal/ ¡**hombre**!/ ((que no)) estaba/ ni el primer jefe ni el segundo/ hoy que he llegao pronto/ he cogido el metro→/ si cojo el de las nueve menos trece minutos↑/// como le cuesta cinco minutos por bajo tierra↑/ a las nueve en punto estoy en la oficina/ pero si tengo la mala suerte/ °(que la tengo casi todos los días)°/ de perder ese* [G.69.A.1: 894–901]

C: 'and since I'm going with the subway→/ if I'm lucky TODAY I've been lucky/ I didn't have any prosecutor/ come on!/ ((I'm not)) he was/ neither the first boss nor the second/ today I'm early/ I took the subway→/ if I take the thirteen to nine o'clock subway↑// if it costs five minutes underground↑/ at nine o'clock I'm in the office/ but if I'm unlucky/ °(I'm unlucky almost every day)°/ to lose that one'

5. *(Continuative) reformulation.* It represents a form of continuation or rectification (semantic or syntactic correction) on the speaker's part with regard to an utterance (act) under way, or to a previous utterance (act):

(18) *V: no/ sí/ si ya está/// yaa/ prácticamente con el proyecto↑/ya – yaa/ tiene que haber salido de servicios jurídicos↑ un día de estos/// **hombre**/ si SALE/ en los términos que está redactao→/// no está mal* [J.82.A.1: 252–254]

V: 'no/ yes/ yes/ if that is alreaaady /// practically with the project↑ / now- now- / it must have left legal services ↑ one of these days //// come on! /if it comes out / in the terms it's written on →/// it's not bad'

The way to proceed in the analysis has been to locate, from the corpus and at the discretion of the analyst, those uses of *bueno* and *hombre* that coincide with the values highlighted by the literature (see Table 1).

With this in mind, in terms of the distribution of cases of *bueno* and *hombre,* Table 2 indicates the total number of examples studied, in accordance with their functions:

Table 2. Distribution of examples of *bueno* and *hombre*

Bueno		***Hombre***	
Values	**Cases**	**Values**	**Cases**
1	63	1	35
2	55	2	16
3	24	3	16
4	20	4	7
5	12	5	3
Total	**174**	**Total**	77

4.2 Prosodic analysis of *bueno* and *hombre*

4.2.1 *Background*

There are previous studies that refer explicitly to the incidence of the prosodic component in the functional variation of markers. From the phonic point of view Pons (1998: 48) mentions certain phonic determiners that are common in pragmatic connectives:

1. Initial position.
2. Position between pauses.
3. Presence of a particular intonation curve in the case of being located between pauses.
4. Atonic, if by this we refer to it to the most neutral conjunctions (for example, *y, o* or *que*), or tonic if we include in the category some of the so-called illative conjunctions or units such as *bueno, claro, entonces*, etc., which enable connection in a conversational or textual context.

Another question that adds complexity to studying this interface is the assignment of an intonation profile or particular tonal schema for each of the marker's functions, in addition to the delimitation of criteria that might confirm the constitution or otherwise of an isolated melodic contour (Hidalgo 2003; Cabedo 2014). In accordance with this idea, Briz and Hidalgo (1998) have tried to homogenize the tonal flexibility of the markers and their possible functions and introduced the notion of *prosodic environment*, which responds to various factors:

1. The suprasegmental characteristics of the speech fragment prior to the connective.
2. The configuration by the connective of a particular intonation group, which may or may not be limited by a pause (juncture characteristics in the production of the utterance).
3. The intonation-accent characteristics inherent to each connective.

In an instrumental study, Romera and Elordieta (2002) analyse the marker *entonces* with regard to two conversational modalities (free and directed), and they examine different acoustic traits (pauses, F0 adjustments, juncture indicators, tonal levels and phonological reduction) in order to verify whether the senses expressed form independent intonation units. However, in this work, the data relating to pauses, juncture indicators and F0 adjustments suggest that the unit *entonces* is not perceived as an independent prosodic intonation unit.[13] By contrast, Dorta

13. The results obtained from this study demonstrate that the functional discourse unit *entonces* displays a tendency to combine with the proposition that follows it, without forming an

and Domínguez (2004) have established two parameters that indicate a prosodic boundary based on an instrumental analysis of the same marker: preceding and subsequent *pause*, duration of (preceding and subsequent) pauses and *fundamental frequency* (F0) movements – that is, the appearance of a significant *tonal adjustment*. If the *F0 adjustment* is positive or negative and this implies a marked pause, it is possible to speak of a prosodic boundary.[14]

Hidalgo (2010: 90) refines some of these methodological issues and adds that any approach to analysing the *markers-prosody* interface must include at least the following elements in the data analysis *input*:

1. Marker position: beginning, middle or end of the intonation group.
2. Constitution or otherwise of its own melodic contour.
3. Marker profile type in the case of the construction of its own melodic contour.
4. Marker prosodic environment.
5. Marker phonic reduction.

As Martín Zorraquino and Portolés (1999: 4069) indicate, among discourse markers there is a special group that exhibits representative intonation contours and is characterized by the presence of suprasegmental marks that make their functional perception clearer and often demand a conclusion or reaction from the interlocutor. We refer here to *conversational markers*, a group that the selected markers for this study, *bueno* and *hombre*, belong to.

4.2.2 *Methodological approach*

Out of the conversations analysed, we rejected those which contained background noise (which did not allow us to analyse the acoustic parameters in detail), cases of whispered non-modal voice, and cases of simultaneous talk, which also impede prosodic analysis.

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independent prosodic unit. And the authors state that "in general there is no reason for functional discursive units to be independent segments within discourse in particular cases. Rather, it seems that they form part of the second member of a discursive constituent in the form of a bipartite argument structure" (Romera and Elordieta 2002: 262).

14. In the same study, the authors ask whether F0 alone is revealed to be a significant parameter for marking a prosodic boundary. Once the results of their analysis were obtained, in cases in which there was no preceding pause, the level of F0 adjustment became a useful parameter for indicating the prosodic boundary between the marker and the preceding discourse, thereby forming differentiated pragmatic-discursive units. This is what happens with a *consecutive* ***entonces*** of a *prodeterminer* kind through a positive adjustment, and with a *continuative* and *reformulating* ***entonces*** through negative adjustment.

In carrying out our acoustic analysis, we kept in mind some of the variables put forward by Hidalgo (2010) to define independent prosodic units in the study of discourse markers:

1. **Position** of the marker in accordance with the *act* unit when this did not appear to be isolated: *initial, intermediate* or *final*. In the event of amounting to an *act* or *intervention*, the variants handled correspond to *complete act* or *complete intervention* respectively.

Table 3. Variants of the position

Position
Initial
Intermediate
Final
Complete act
Complete intervention

2. **Constitution or otherwise of its own melodic contour** through the presence of pauses and marked F0 movements. If the marker possesses its own melodic contour:

   Analysis of the marker's prosodic environment
   Calculation of the mean (*M*) F_0 **adjustment** values at the end of the preceding discourse and at the start of the discourse that follows the marker (adjustments greater than 20 Hz at high frequencies and at 10 Hz at low frequencies):
   - **Positive adjustment**: at the beginning of the marker there is a significant rise in tone with respect to the end of the previous discourse, or this rise comes about at the start of the discourse that follows the marker
   - **Negative adjustment**: at the beginning of the marker there is a significant fall in tone with respect to the end of the previous discourse, or this fall comes about at the start of the discourse that follows the marker.

Table 4. Variants of pauses and adjustments

Adjustment
Preceding +
Preceding –
Subsequent –
Subsequent +
P+ S+
P+ S–
P– S+
P– S–
No adjustment

3. Presence or absence of **pauses** at the beginning and end of the marker (pauses ≥0.3 seconds):

Table 5. Variants of pauses

Pauses
Preceding
Subsequent
Both
No pauses

4. **Marker profile type (contour) and toneme** (final tone direction)**:** ascending, descending, suspended or circumflex. Calculation of F0 mean (*M*) at beginning and end points of the first syllable and of the end of the last one:

Table 6. Variants of contour and toneme

Contour	**Toneme**
Ascending	Ascending
Descending	Descending
Suspended	Suspended
Circumflex	Circumflex
Integrated	No toneme

Having obtained the data based on the respective analyses, these were put into an Excel sheet for the purposes of evaluation and appraisal. This sheet also included the identification data for the original conversation, the line in which each example appears and the function undertaken in each example by the studied marker (in accordance with the functions described in 4.1). The result is the following table:

Table 7. Variables for analysis

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)

(1) Conversation
(2) Marker
(3) Line
(4) Example
(5) Unit
(6) Function
(7) Position
(8) Contour
(9) Pauses
(10) Adjustment
(11) Duration
(12) Toneme

Once we had constructed the Excel sheet, we inserted a *dynamic table* to cross-tabulate the different variables and interpreting the data in a pertinent way with regard to the interface under study (markers-prosody), as is explained in 5.

5. Analysis and discussion of results

We will now detail the tonal behaviours of the markers *bueno* and *hombre*, based on their acoustic analysis. After having determined the different prosodic variables and their correspondence with *bueno* and *hombre*, we selectively crossed the behaviour of these variables (prosodic) with the structural variables (**unity** and **function**). So, in order to undertake the analysis process, we cross-tabulated the following variables.

1. Unit/function/contour/toneme
2. Unit/function/pause
3. Unit/function/adjustment
4. Unit/function/position

5.1 Analysis of *bueno*

5.1.1 *Cross-tabulation of the variables unit/function/contour/toneme*

Based on Figure 1, in which we have cross tabulated data associated with the variables unit/function/contour/toneme:

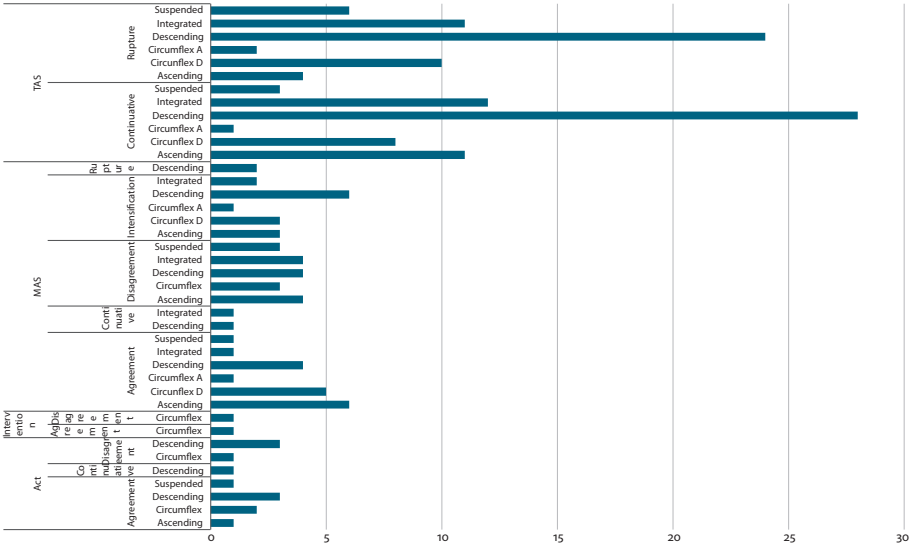

Figure 1. Cross-tabulation of the variables unit/function/contour/toneme

We obtained the following relevant data related to *bueno*:

1. Clear predominance of *bueno* as a TAS (114 cases out of 174), followed by MAS (46 cases out of 174); there were few cases of an Act (12 out of 174) or Intervention (2 out of 174).
2. In its predominant function as a TAS, Table 8 details its distribution in terms of the variables of *contour* and *toneme* in its predominant functions, as a *continuative* TAS (63 cases out of 174) and a *rupture* TAS (55 cases out of 174):

Table 8. Results of contour and toneme as a *continuative* TAS and a *rupture* TAS

Continuative			Rupture		
Contour	**Toneme**		**Contour**	**Toneme**	
Descending	Descending	29	Descending	Descending	24
Suspended	Suspended	3	Suspended	Suspended	6
Integrated	No toneme	12	Integrated	No toneme	10
Circumflex	Descending	8	Circumflex	Descending	8
Ascending	Ascending	10	Ascending	Ascending	4

For the *continuative* TAS value, we observed a balanced tendency with regard to prosodic traits that are **marked** in contours and tonemes: *ascending-ascending* (10 cases) and *integrated-no toneme* (12 cases) against the **unmarked** combination *descending-descending* (29 cases). The same thing occurs in the case of rupture SAT, with a balanced presence with regard to the *integrated-no toneme* (10 cases) and *circumflex-descending* (8 cases) combinations, against the *descending-descending* (24 cases) combination. In neither of these two functions was integration in a principal melodic contour exhibited as a tendency. Table 9 details distribution as a MAS with regard to the variables *cont*our and *toneme* in the function of *agreement* (24 cases out of 174):

Table 9. Results of contour and toneme as an *agreement* MAS

Agreement		
Contour	**Toneme**	
Descending	Descending	7
Suspended	Suspended	2
Integrated	No toneme	1
Circumflex	Descending	7
Ascending	Ascending	6

Here we observed a tendency toward **marked** prosodic traits with regard to contours and tonemes, in the *ascending-ascending* (6 cases) and *circumflex-descending* (7 cases) combinations, against the 7 cases of the *descending-descending* combination.

5.1.2 *Cross-tabulation of the variables unit/function/pause*

Figure 2 shows the result of the cross tabulation of data relating to the variables **unit/function/pause**:

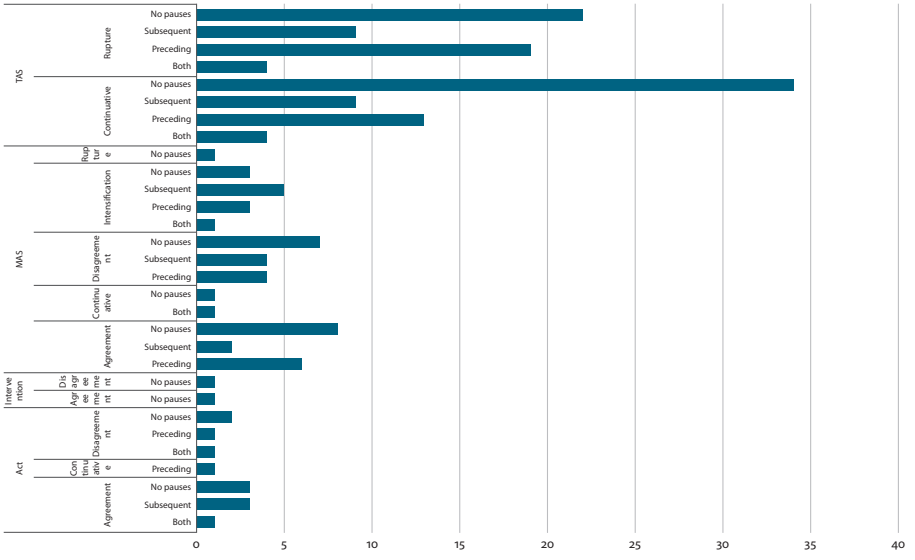

Figure 2. Cross-tabulation of the variables unit/function/pause

A clear balance in all the functional cases of *bueno* can therefore be observed with regard to the presence and absence of pauses. In the examples analysed, at least, the pause seems to condition the type of unit or function that corresponds to the use of *bueno*, since its *presence* predominates in the case of *rupture* TAS (32 with a pause against 22 without a pause) and its *absence* in the case of *continuative* TAS (34 without a pause against 26 with a pause). In the case of *agreement* MAS, although a smaller number of examples were handled, we observed a clear balance between the two alternatives: 8 without a pause against 8 with a pause. The analytical result of these measures can be seen in Table 10:

Table 10. Results of pauses as a *continuative* TAS, a *rupture* TAS and an *agreement* MAS

Continuative TAS		**Rupture TAS**		**Agreement MAS**	
Preceding	13	Preceding	19	Preceding	6
Subsequent	9	Subsequent	9	Subsequent	2
Both	4	Both	4	Both	0
No pauses	34	No pauses	22	No pauses	8

5.1.3 *Cross-tabulation of the variables unit/function/adjustment*

Figure 3 provides the relevant data relating to the cross tabulation of the variables **unit/function/adjustment**:

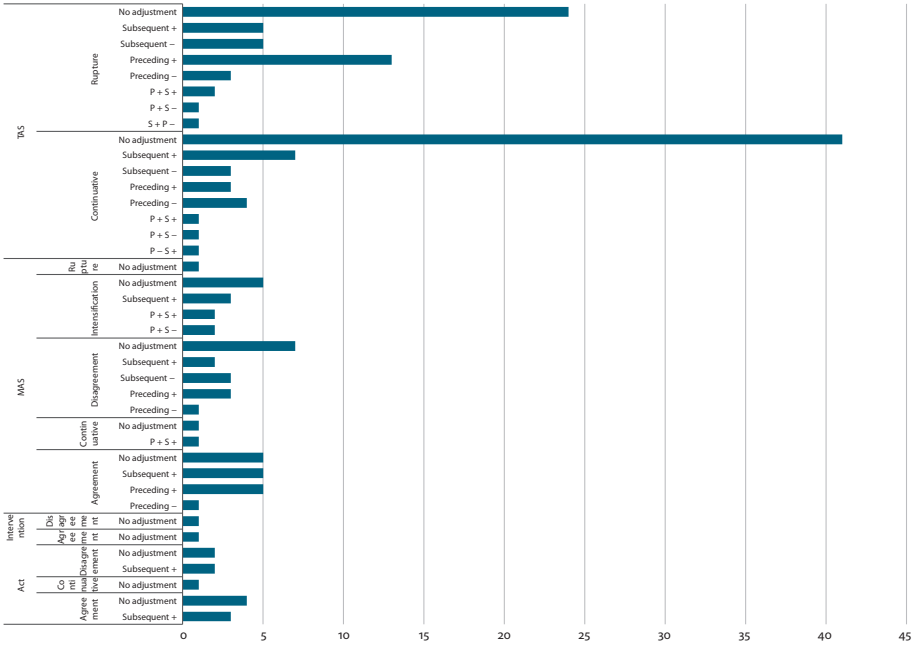

Figure 3. Cross-tabulation of the variables unit/function/adjustment

A clear balance can be found for all the functional cases of *bueno*, though it seems that the variable **Adjustment** conditions the type of unit and function that corresponds to the use of *bueno*, since its *presence* predominates in the case of *rupture* TAS (31 with adjustment against 24 without adjustment) and its *absence* in the case of *continuative* TAS (40 without adjustment against 20 with adjustment). For the case of MAS with *agreement*, the result is even more illuminating: 24 cases without adjustment against 11 with adjustment. Table 11 provides an analytical summary of these data:

Table 11. Results of adjustments as a *continuative* TAS, a *rupture* TAS and an *agreement* MAS

Continuative TAS		**Rupture TAS**		**Agreement MAS**	
Preceding +	3	Preceding +	13	Preceding +	5
Preceding –	4	Preceding –	3	Preceding –	1
Subsequent –	3	Subsequent –	5	Subsequent –	0
Subsequent +	7	Subsequent +	5	Subsequent +	5
P+ S+	1	P+ S+	2	P+ S+	0
P+ S–	1	P+ S–	1	P+ S–	0
P– S+	1	P– S+	1	P– S+	0
P– S–	0	P– S–	0	P– S–	0
No adjustment	40	No adjustment	24	No adjustment	24

5.1.4 *Cross-tabulation of the variables unit/function/position*

Figure 4 provides the pertinent data relating to the cross tabulation of the variables **unit/function/position**.

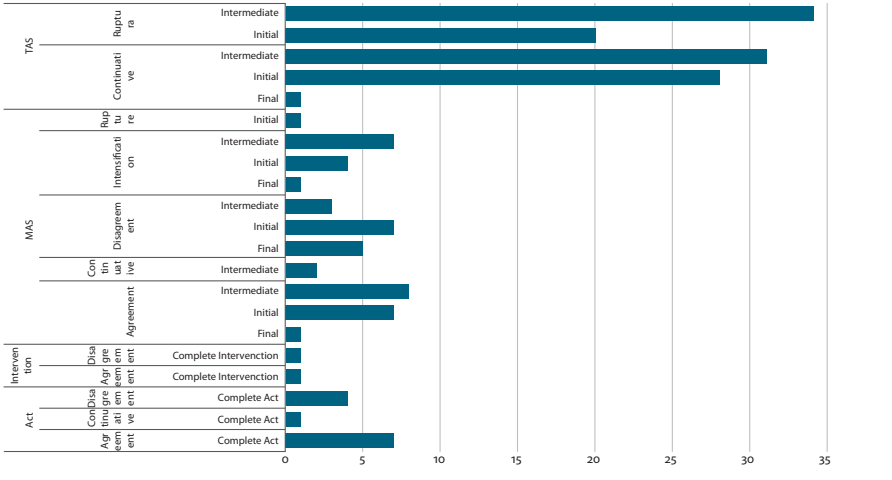

Figure 4. Cross-tabulation of the variables unit/function/position

We observed a clear balance for all functional cases of *bueno* for *initial* and *intermediate* act position. In the examples analysed, at least, it seems to be a factor that determines the type of function or unit occupied by *bueno*: as a *continuative* TAS it usually has an *intermediate* position, while the *initial* position accounts for its action at a *dialogical level* (28 in initial position against 31 in intermediate position). The same thing occurs in the case of *rupture* TAS: even though its predominant position is *intermediate* (34 cases), it also appears in initial position in 20 cases. In

addition, there is an absolute balance for the case of MAS as disagreement: 7 cases in initial position against 8 in intermediate position. Table 12 provides an analytical compilation of these last data:

Table 12. Results of position as a *continuative* TAS, a *rupture* TAS and an *agreement* MAS

Continuative TAS		**Rupture TAS**		**Agreement MAS**	
Initial	28	Initial	20	Initial	7
Intermediate	31	Intermediate	34	Intermediate	8
Final	0	Final	0	Final	0
Complete act	0	Complete act	0	Complete act	0
Complete intervention	0	Complete intervention	0	Complete intervention	0

In summary, from the extracted and analysed data, we can conclude the following about *bueno*:

1. **TAS with rupture value**: in general, there is no integration into a greater melodic unit, since there are significant adjustments, delimiting pauses or marked contour, which makes it possible to depend on the contour. We observed a balanced tendency of **marked/unmarked** prosodic traits with regard to contours. The appearance of both adjustments and pauses predominated with regard to the other values analysed, probably because of a value of rupture, whether through a change of topic or through signalling the opening of the conversation – that is, through expressing a change of topic that marks a sequential rupture and begins a new conversation subject.
2. **TAS with continuity value**: there is not usually integration into a greater melodic unit, since it is possible to observe significant adjustments, delimiting pauses or marked contours, which makes it possible to depend on the contour. We observed a balanced tendency of **marked/unmarked** prosodic traits with regard to contours. However, the descending-descending combination predominated if we compare these data with those of the preceding function. Although the appearance of both adjustments and pauses was balanced, it was a minority occurrence relative to the other values analysed, probably because of the value of continuity, in that the discourse member headed by *bueno* appears as a continuation of what had previously been said. Because of its integration, then, a prosodic boundary mark does not seem to be a relevant factor in recognizing this value. On the other hand, at least with regard to the examples analysed, the position does offer information about its functioning in the discourse: in the case of continuative TAS, its appearance in initial position against an intermediate one accounts for its field of action – that is, the dialogical (28 in initial position against 31 in an intermediate position).

3. **MAS with agreement value:** there is no integration into a greater melodic unit, since significant adjustments, delimiting pauses or marked contours were observed, which makes it possible to depend on the contour. We observed a tendency of **marked** prosodic traits with regard to contours. Although the appearance and absence of pauses are balanced, an absence of adjustment predominates in this value. Its agreement value is sometimes accompanied by attenuating nuances, which is probably what makes it integrate to a greater degree into the main melodic curve. No significant differences were observed in terms of duration.

5.2 Analysis of *hombre*

5.2.1 *Cross-tabulation of the variables unit/function/contour/toneme*

Based on Figure 5, in which we have cross tabulated data relating to the variables **unit/function/contour/toneme**:

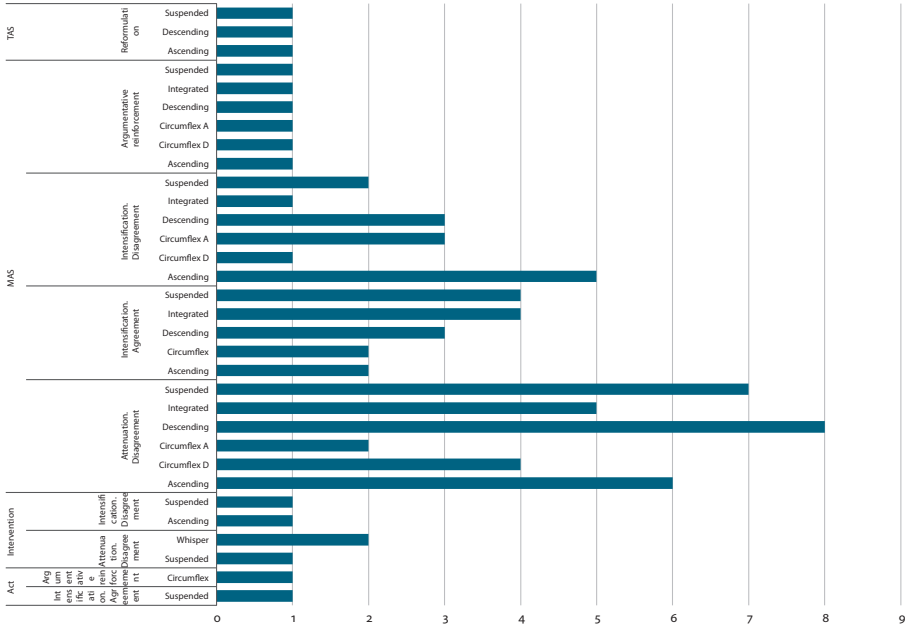

Figure 5. Cross-tabulation of the variables unit/function/contour/toneme

Some interesting data arise:

1. Predominance of use as a MAS (68 cases out of 77); few uses of *hombre* as an Act, Intervention or SAT.

2. The prosodic data obtained for this marker as an intervention or act are fairly aligned with its behaviour as a MAS, something which compels us to expand our study corpus in future research. Nevertheless, in this marker the trait of *duration* exhibits distinguishing features that can help explain its different structural rank. Its mean duration is considerably higher when it functions as an intervention or act:
   a. INTERVENTION: 0'49 sec. (5 cases)
   b. ACT: mean 0'36 sec. (2 cases)
   c. MAS: mean 0'28 sec. (68 cases)
   d. TAS: mean 0'26 sec. (3 cases)
3. The volume of data obtained makes it appropriate to study in detail the prosodic-functional characteristics of *hombre* as a MAS.
4. The predominant function of this marker is that of *attenuation of disagreement* (35 cases out of 77); to a lesser degree the functions of *intensification of agreement* (15 cases out of 77) and *intensification of disagreement* (13 cases out of 77) stand out.
5. As a general trait there is a tendency toward **marked** prosodic traits with regard to contours and tonemes (suspended, circumflex and ascending), against the lower frequency of the descending-descending combination (**unmarked** traits for *hombre*), in the cited MAS or TAS functions:
   – For the function *intensification of disagreement*, in our corpus the only combination to appear is the clearly emphatic *ascending-ascending*, against the greater variety of contour-toneme combinations for the functions *attenuation of disagreement* and *intensification of agreement*.
   – A greater tendency to be integrated into a main melodic contour in the function *intensification of agreement* (4 cases, and none in the two remaining functions) These aspects can be seen in detail in Table 13:

Table 13. Results of contour and toneme as a *attenuation disagreement* MAS, as an *intensification agreement* MAS and as an *intensification disagreement* MAS

Attenuation disagreement MAS		**Intensification agreement MAS**		**Intensification disagreement MAS**	
Contour	**Toneme**	**Contour**	**Toneme**	**Contour**	**Toneme**
Descending	Descending (8)	Descending	Descending (3)	Ascending	Ascending (5)
Suspended	Suspended (7)	Suspended	Suspended (4)		
Circumflex	Ascending (2)	Circumflex	Descending (2)		
Circumflex	Descending (4)	Ascending	Ascending (2)		
Ascending	Ascending (6)	Integrated	No toneme (4)		

5.2.2 *Cross-tabulation of the variables unit/function/pause*

Figure 6 shows the cross tabulation of the variables **unit/function/pause**:

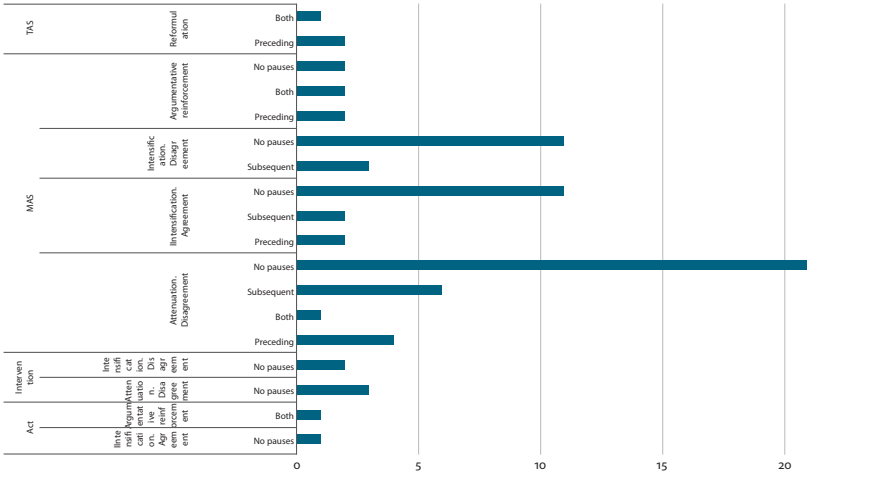

Figure 6. Cross-tabulation of the variables unit/function/pause

We observed a clear predominance of the variant without pauses for the functional cases of *hombre*. The pause does not therefore appear to be a factor that significantly conditions the type of unit or function that corresponds to the use of *hombre*.

5.2.3 *Cross-tabulation of the variables unit/function/adjustment*

Figure 7 contains the cross tabulation of the variables **unit/function/adjustment.**

A detailed review of the data on adjustment allows the conclusion to be made that the function of *attenuation of disagreement* exhibits a clear predominance of the variant *no adjustment* (30 cases out of 35). For the functions of *intensification of agreement* (11 cases) and *intensification of disagreement* (7 cases) the variant *no adjustment* predominates, though there may also be other variants (with adjustment).

It can be observed that the proportion of adjustment in intensification functions increases against those of attenuation, which may be a factor that explains the functional difference of this marker as an intensifier or attenuator.

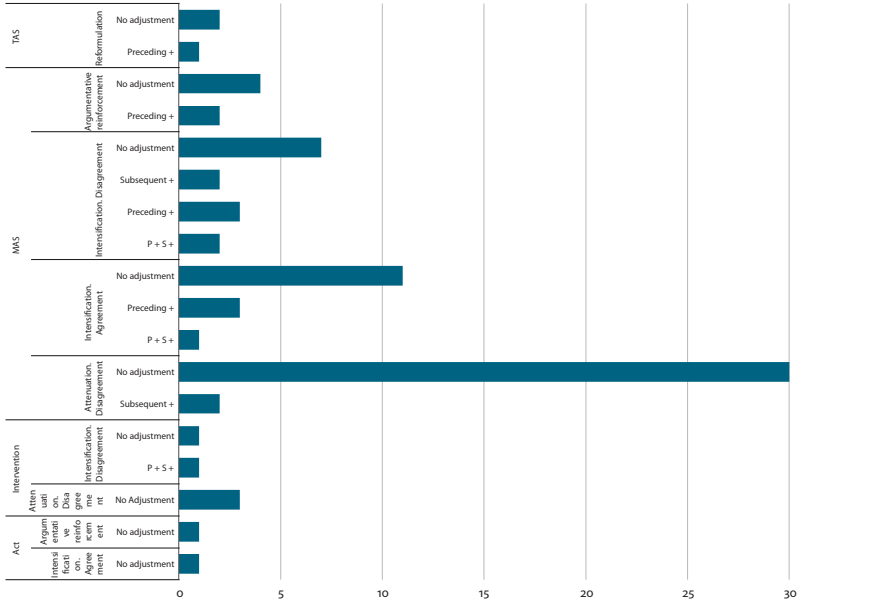

Figure 7. Cross-tabulation of the variables unit/function/adjustment

5.2.4 *Cross-tabulation of the variables unit/function/position*

Figure 8 shows the cross tabulation of the variables **unit/function/position**:

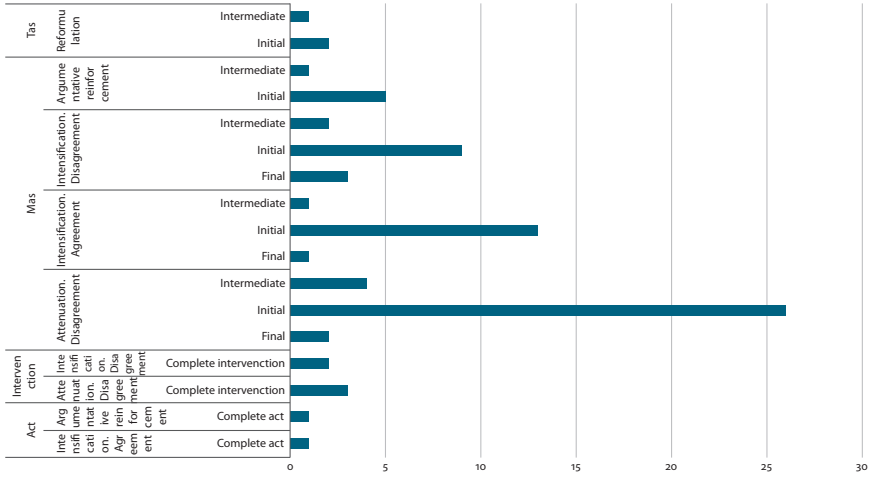

Figure 8. Cross-tabulation of the variables unit/function/position

With regard to the position variable, what stands out is that in cases of *attenuation of disagreement* the *initial* position (26 cases out of 35) clearly predominates; the functions of *intensification of agreement* or *of disagreement* (27 cases in initial position) maintain this general positional tendency of *hombre* as a MAS (with a total of 53 cases out of 77). In the few cases of *hombre* as a TAS, as was expected, this marker always occupies an *intermediate* position.

6. Conclusions

From the volume of data obtained, what fundamentally emerges is the relevance of the prosody structure-function interface in cases of *bueno* as continuative and rupture TAS, and of *hombre* as attenuation of disagreement MAS, taking into account that, at least in the analysed corpus, such characteristics corresponded to their respective preferential structural statuses and their most characteristic functions.

In this respect, we can offer some general conclusions related to the structural and functional scope of these markers, though these conclusions are not yet definitive in view of the limited nature of the data:

1. In general, when a marker functions as a TAS, it exhibits less phonic independence than when it functions as a MAS
2. It seems relevant to take into consideration the type of melodic contour as a key factor in the assigning of a marker's phonic independence, above pause or adjustment, which are not always key factors in its delimitation
3. Even though a contour may be the determining factor in recognizing its phonic independence with regard to a main melodic curve, other factors of a perceptive kind (such as the appearance of pauses of a minimal duration) should also be considered, though for reasons of space we have not considered these in this study

As specific conclusions relating to each of these two markers, we can note the following:

1. The data analysis allowed us to sketch out the prototypical use of *bueno* as a TAS carrying out the function of rupture and continuity. The contours and tonemes associated with this marker are usually unmarked, with pause and adjustment in the case of rupture, and the opposite for continuity, which corresponds to slight functional changes. There is a balance between its initial and intermediate position, since these probably refer respectively to changes in topic or continuative senses in a context of monologic use:

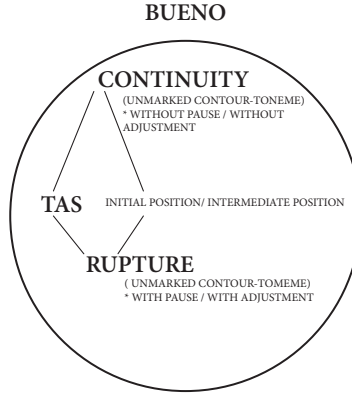

Figure 9. Summary of results for *bueno*

2. The data analysis allowed us to sketch out the prototypical use of *hombre* as a marker. It is generally a MAS that appears in initial act position, carrying out the function of attenuation of disagreement. The contours and tonemes associated with this marker and this function are usually *marked*, that is, not descending. With regard to the variables of pause and adjustment, there is a clear predominance of the variants of no pauses and no adjustment, though the function of intensification allows the appearance of adjustment with greater frequency:

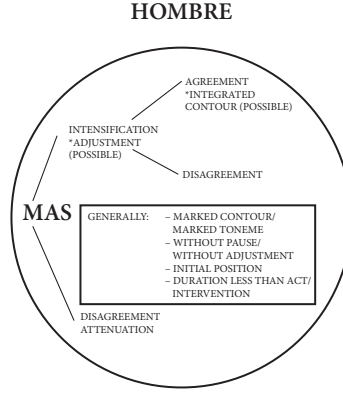

Figure 10. Summary of results for *hombre*

The study of the prosody of markers allows clear functional tendencies to be noted in terms of their role and hierarchical relevance. There is a relationship between a marker's prosodic realization and the frequency with which that marker occupies a particular structural hierarchy (intervention/act/subact) or carries out a particular

pragmatic function, which is different according to the type of marker under consideration. Pursuing this line of research in greater depth would allow us to improve the description of the prototypical characteristics of each marker. This is fundamental for a precise and rigorous description of this category, which should always begin with its predominant hierarchies and functions.

Acknowledgements

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References

Briz, Antonio. 2012. "La definición de las partículas discursivas *hombre* y *mujer*." *Anuario de lingüística hispánica* 28: 27–55.

Briz Gómez, Antonio and Antonio Hidalgo. 1998. "Conectores pragmáticos y estructura de la conversación". In *Los marcadores del discurso, teoría y análisis coords*, by Martín Zorraquino, María Antonia and Montolío Durán, Estrella, 121–142. Madrid: Arco Libros.

Briz, Antonio, and Antonio Hidalgo. 2008. "Marcadores discursivos y prosodia: observaciones sobre su papel modalizador atenuante." In *Estudios de cortesía sobre el español: de lo oral a lo escrito*, ed. by Marta Albelda, Antonio Briz, Josefa Contreras, and Antonio Hidalgo, 390–409. Valencia: Universidad de Valencia.

Briz, Antonio, and Grupo Val.Es.Co. (eds.). 2002. *Corpus de conversaciones coloquiales*. Madrid: Arco Libros.

Briz, Antonio, and Grupo Val.Es.Co. 2003. "Un sistema de unidades para el estudio del lenguaje coloquial." *Oralia* 6: 7–61.

Briz, Antonio, and Grupo Val.Es.Co. 2014. "Las unidades del discurso oral. La propuesta Val.Es.Co. de segmentación de la conversación (coloquial)." *Estudios de lingüística del español* 35(1): 11–71.

Briz, Antonio, Salvador Pons, and José Portolés. 2008. *Diccionario de partículas discursivas del español* [online: www.dpde.es].

Cabedo, Adrián. 2013. "Sobre prosodia, marcadores del discurso y unidades del discurso en español: evidencias de un corpus oral espontáneo." *Onomázein* 28: 201–213. https://doi.org/10.7764/onomazein.28.22

Cabedo, Adrián. 2014. "On the Delimitation of Discursive Units in Colloquial Spanish. Val.Es.Co Application Model." In *Discourse Segmentation in Romance Languages*, ed. by Salvador Pons, 157–183. Amsterdam: John Benjamins.

Cabedo, Adrián, and Salvador Pons (eds.). 2013. *Corpus Val.Es.Co. 2.0*. [online: http://www.valesco.es]. Accessed September 10th, 2017.

Cepeda, Gladys. 1999. "La variación pragmático-discursiva, entonacional y sociolingüística de los conectores conjuntivos de Valdivia, Chile." In *Estudios de variación sintáctica*, ed. by María José Serrano, 103–120. Madrid: Iberoamericana-Vervuert.

Chafe, Wallace. 1993. "Prosodic and Functional Units of Language." In *Transcription and Coding in Discourse Research*, ed. by Jane A. Edwards and Martin D. Lampert, 33–44. New Jersey: Lawrence Earlbaum Associates.

Degand, Lisbeth, Anne Catherine Simon, Noalig Tanguy, and Thomas Van Damme. 2014. "Initiating a Discourse Unit in Spoken French. Prosodic and Syntactic Features of the Left Periphery." In *Discourse Segmentation in Romance Languages*, ed. by Salvador Pons, 243–273. Amsterdam: John Benjamins.

Dorta, Josefa, and Noemí Domínguez. 2001. "Polifuncionalidad discursiva y comportamiento prosódico prototípico del marcador *pues*." *Español actual* 75: 45–54.

Dorta, Josefa, and Noemí Domínguez. 2004. "La prosodia y las funciones de los marcadores del discurso." In *Actas del V Congreso de Lingüística General*, ed. by Milka Villayandre, 757–771. Madrid: Arco Libros.

Elordieta, Gorka, and Magdalena Romera. 2002. "Prosody and Meaning in Interaction: The Case of the Spanish Functional Unit *entonces*." In *Speech Prosody*, ed. by Bernard Bel, and Isabelle Marlien, 263–266. Aix-en-Provence: Laboratoire Parole et Langage, SProSIG.

Hidalgo, Antonio. 1996. Entonación y conversación coloquial. Sobre el funcionamiento demarcativo-integrador de los rasgos suprasegmentales. Ph.D. diss., University of Valencia.

Hidalgo, Antonio. 2003. "Microestructura discursiva y segmentación informativa en la conversación coloquial." *ELUA* 17: 367–386. https://doi.org/10.14198/ELUA2003.17.20

Hidalgo, Antonio. 2010. "Los marcadores y su significante: en torno a la interfaz marcadores-prosodia." In *Los estudios sobre marcadores del discurso en español, hoy*, ed. by Óscar Loureda, and Esperanza Acín, 61–92. Madrid: Arco Libros.

Hidalgo, Antonio. 2015. "Prosodia y partículas discursivas: sobre las funciones de atenuación, intensificación como valores (des)corteses en los marcadores conversacionales." *Círculo de lingüística aplicada a la comunicación* 62: 76–104.

Hidalgo, Antonio. 2016. "Prosodia y (des)cortesía en los marcadores metadiscursivos de control de contacto: aspectos sociopragmáticos en el uso de *bueno, hombre, ¿eh?* y *¿sabes?*" In *Oralidad y análisis del discurso: homenaje a Luis Cortés Rodríguez*, ed. by Antonio Miguel Bañón Hernández, María del Mar Espejo Muriel, Bárbara Herrero Muñoz-Cobo, and Juan Luis López Cruces, 309–336. Almería: Universidad de Almería.

Hidalgo, Antonio, and Xosé Padilla. 2006. "Bases para el análisis de las unidades menores del discurso oral: los subactos." *Oralia* 9: 109–143.

Martín Butragueño, Pedro. 2003. "Hacia una descripción prosódica de los marcadores discursivos. Datos del español de México." In *La tonía. dimensiones fonéticas y fonológicas*, ed. by Esther Herrera, and Pedro Martín Butragueño, 375–402. México: El Colegio de México.

Martín Butragueño, Pedro. 2006. "Prosodia del marcador *bueno*." *Anuario de letras: Lingüística y filología* 44: 17–76.

Martín Zorraquino, María Antonia, and José Portolés. 1999. "Los marcadores del discurso." In *Gramática descriptiva de la lengua española*, ed. by Ignacio Bosque, and Violeta Demonte, vol. 3, 4051–4213. Madrid: Colección Nebrija y Bello, Espasa.

Martínez Hernández, Diana. 2015. "La importancia del factor prosódico en el estudio de los marcadores del discurso: algunos problemas de su análisis acústico-melódico." *Círculo de lingüística aplicada a la comunicación* 62: 105–124. https://doi.org/10.5209/rev_CLAC.2015.v62.49500

Martínez Hernández, Diana. 2016. "Análisis pragmaprosódico del marcador discursivo *bueno*." *Verba* 43: 77–106. https://doi.org/10.15304/verba.43.1888

Martínez, Hernán, Carmen Domínguez, and Lino Urdaneta. 2004. "Estudio fonético-sintáctico de algunos marcadores discursivos: propuesta de formalización parea desambiguarlos automática o informáticamente." *Lengua y Habla* 8: 59–79.

Martínez, Hernán, and Carmen Luisa Domínguez. 2005. "Análisis prosódico de algunos marcadores discursivos en el habla de Mérida, Venezuela." *Lingüística española actual* 28(2): 247–264.

Martínez, Hernán, and Carmen Domínguez. 2006. "Análisis prosódico de algunos marcadores discursivos en el habla de Mérida, Venezuela." *Lingüística Española Actual* XXVIII 2: 247–264.

Pereira, Daniel. 2011. "Análisis acústico de los marcadores discursivos *a ver, bueno, claro, vale, ¿cómo?* y *ya*." *Onomázein* 24: 85–100.

Pons Bordería, Salvador. 1998. *Conexión y conectores. Estudio de su relación en el registro informal de la lengua*. Anexo XXVII de Cuadernos de Filología. Valencia: Universidad de Valencia.

Pons, Salvador. 2006. "A Functional Approach to the Study of Discourse Markers." In *Approaches to Discourse Particles*, ed. by Kerstin Fischer, 76–99. Amsterdam: Elsevier.

Pons, Salvador. 2016. "Cómo dividir una conversación en actos y subactos." In *Oralidad y análisis del discurso: homenaje a Luis Cortés Rodríguez*, ed. by Antonio Miguel Bañón Hernández, María del Mar Espejo Muriel, Bárbara Herrero Muñoz-Cobo, and Juan Luis López Cruces, 545–566. Universidad de Almería.

Regan, Brendan. 2016. "The Prosody-pragmatics Interface in the Pragmaticalization of *¡hombre!* as a Discourse Marker." In *Inquiries in Hispanic Linguistics, from Theory of Empirical Evidence*, ed. by Alejandro Cuza, Czerwionka Lori, and Daniel Olson, 211–239. Amsterdam: John Benjamins. https://doi.org/10.1075/ihll.12.12reg

Rodríguez Muñoz, Francisco. 2009. "Estudio sobre las funciones pragmadiscursivas de *¿no?* y *¿eh?* en el español hablado." *Revista de lingüística teórica y aplicada* 47(1): 83–101.

Romera, Magdalena y Elordieta, Gorka. 2002. "Características prosódicas de la unidad funcional del discurso *entonces*: implicaciones teóricas." *Oralia* 5: 247–263.

Serrano Montesinos, María José. 2004. "La entonación como unidad significativa en el uso de los marcadores discursivos". In *Actas del V Congreso de Lingüística General*, coord. by Villayandre Llamazares, Milka, 2609–2620. Madrid: Arco Libros.

Tanghe, Sanne. 2015. "Prosodia y polifuncionalidad de los marcadores *anda, vamos, vaya* y *venga*." *Círculo de lingüística aplicada a la comunicación* 62: 125–147. https://doi.org/10.5209/rev_CLAC.2015.v62.49501

CHAPTER 4

A preliminary typology of interactional figures based on a tool for visualizing conversational structure

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The aim of this paper is to study interactional structure based on the connections between interventions (or *turns*) in a dialogue. Dialogic discourse is understood as an organization that connects each intervention to other interventions on both sides of it. We use a visualization tool to connect interventions based on the types of reactive and initiative relations between them. The result is a visual representation of the whole conversation, which can be used for the systematic analysis of structural phenomena and the detection of phenomena which might have been previously unnoticed.

Keywords: linguistic visualization tools, interactional structure, figures, Val.Es.Co. segmentation model

1. Introduction

Since the advent of Conversation Analysis (CA) it has been claimed that there is an "interaction order" (Goffman 1983) which makes it possible to study conversation systematically. The structurability of conversation has been explored regarding different levels of analysis, such as turn-taking (Sacks, Schegloff and Jefferson 1974), overall organization (Zimmerman 1984), sequence organization (Schegloff 1968, 1990, 2002, 2009) and turn construction (Degand and Simon 2009; Pons 2014; Sacks, Schegloff, and Jefferson 1974; Val.Es.Co. 2003, 2014). The type of structure that is particularly relevant for this paper is the idea of conversation as "an organization that leaches a turn to the turns on either side of it" (Sacks, Schegloff, and Jefferson 1974). Our aim is to create a typology of interactional patterns (or *figures*) that emerge from the hierarchical relations between turns. To do so, we use the Val.Es.Co. model for discourse segmentation (VAM) and a visualization tool based on that model (Val.Es.Co. visualization tool, or VVT).

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The VVT is a system proposed in Briz (2013) and developed in Espinosa-Guerri (2015, 2016), which makes it easier to observe the relations between interventions graphically and to analyze those relations systematically and exhaustively. The result of the application of the tool is a visual representation of the whole interaction which can be used for the systematic analysis of structural phenomena and the detection of phenomena which might have been previously unnoticed. The figures are relatively independent from sequential analysis and give a complete description of the whole corpus at that level of analysis, without leaving any elements unanalyzed.

This research goal is in line with Sacks's first lectures on *tying rules* (1992), i.e., formal techniques whereby turns are connected to one another – e.g., pronouns, syntactic co-constructions or the adjacent question-answer structure.[1] Consider (1) and its schematic representation (2):

(1) 1 Dan: *Well that's a little different from **last week**.*
2 Louise: *heh heh heh Yes. **Last week** we were in hysterics.*
3 Dan: *No **I mean** Al.*
4 Louise: *Oh **he** was uhm* (Sacks 1992: 732, emphasis added)

(2) *An attempted tied utterance by A*
1. *A tied utterance to (1) by B*
2. *Signaled correction by A*
3. *Tied utterance by B, acknowledging correction, among other things.*

In the rest of this section, we present the VAM (1.1) and the VVT (1.2). In Section 2, we describe the corpus and explain the method used for the elaboration of the typology of figures. In Section 3, we present the typology. In Section 4, we propose a definition of the term *figure* in contrast to the notion of *sequence* (4.1), we compare our figures to previously studied interactional structures (4.2) and we explain the advantages of analyzing the interactional/structural features of entire interactions, rather than focusing on collections of one phenomenon (4.3).

1.1 The Val.Es.Co segmentation model

We base our analysis on the VAM because it includes not only units inside the turn but also dialogic units that relate turns to each other. The model includes three dimensions and eight units (see Table 1).

In this model, a distinction is made between *interventions* (marked by a change of speaker) and *turns* (interventions that receive social acceptance by other speakers).

1. For this example, we use the term *utterance* because it is the term used by Sacks (together with *turn*) although we will normally use the term *intervention*, in line with the VAM.

Table 1. Levels and units in the Val.Es.Co segmentation model

LEVEL	DIMENSIONS		
Dialogic	STRUCTURAL *discourse* *dialogue* *exchange*	SOCIAL *adjacency pair*	INFORMATIVE
Monologic	*intervention act*	*turn*	*subact*

Our analysis is based especially on the types of interventions: *initiative interventions* (iI) trigger a reaction (Example (3), line 1), *reactive interventions* (rI) react to a previous intervention (Example (3), lines 2 and 4) and *reactive-initiative interventions* (r-iI) react to previous discourse and also trigger a reaction (Example (3), line 6).[2] Interventions are associated with speaker transfer when interventions are *continuous*, that is, when they do not suffer any kind of interruption (Example (3), line 6).

(3) 1 *A: y claro/ luego entra también/ en-/ en una relación yaa/ o sea/ m-/ más seria/ ¿no? el// el sacrificio/ porque/ es inevitable/ porque si no al final↑// ¿qué relación es?/ [o seaa]→*
'and of course/ then she goes into-/ into this relationship already/ I mean/ m-/
which is more serious/ right? the// the sacrifice/ because/ it's inevitable/ because otherwise in the end↑//
what kind of relationship is it?// [I meaan]→'

2 *B: [sí sí]*
'[yeah yeah]'

3 *A: no sé↑/ yo creo que/ cualquier relaciónn// necesita hacer sacrificio por alguna de las partes*
'I don't know↑/ I think that/ in every relationship// there needs to be a sacrifice from one of the parties'

4 *B: [sí sí]§*
'[yeah yeah]'

5 *A: § nano*
'§man'

6 *B: o sea si noo↑/ o sea ((es decir))// la vida se (( ))-/ encarga en ponerte en tesituras/ que/ tendrás que sacrificarte/ ¿sabes?*
'I mean yeah noo↑/ I mean ((I mean))// life just (( ))-/ puts you in situations/ where/ you will have to make a sacrifice/ you know?'

(Conversation 0039, Corpus Val.Es.Co 2.0)

2. The notions of *initiation* and *reaction* are adapted by Val.Es.Co. from Roulet et al. (1985).

Frequently, however, there are *discontinuous interventions* and *compound interventions*. The former are interventions where one speaker receives interruptions by another speaker but, regardless of those contributions, he/she continues with his/her discourse plan (Val.Es.Co 2014: 20–21) (Example (3), lines 1, 3, 5). The latter are interventions where one speaker produces two separate contributions in the same turn, of which the first is only reactive and the second is a new initiative move (2014: 24–25) (Example (4), lines 4 and 5).

(4) 1 *A:* *(…) ¿hay alguna tía buena?*
'(…) are there any hotties around?'
2 *B:* *¿en dónde?*
'where?'
3 *A:* *en la autoescuela*
'at the driving school'
4 *B:* *¡je! pff pff sí Juan / lo dejé hace- hace cosa de mes y medio /// ¿sabes? Y ahora me vuelven a (( )) /// (10')*
'He! pff pff yeah Juan/ I quit like- like a month and a half ago/// you know? and now again (( ))/// (10')'
5 *B:* *(te) voy a dejar el aparato / tú*
'I'm going to leave this here/ man'
6 *A:* *(a mí no me des) ese aparato de los dientes / ¿eh guarro?*
'(don't leave me) that thing for your teeth/ how gross'
7 *B:* *entro a las nueve*
'I'm in at nine'
8 *A:* *ayer tuve un sueño erótico*
'I had an erotic dream yesterday'
(Conversation 0011, corpus Val.Es.Co 2.0)

The VAM makes a difference between *immediate relations* and *mediate relations*. In (5), the relation between lines 1 and 2 is immediate, while the relation between lines 1 and 4 is mediate.

(5) 1 *B:* *¿QUE cuándo iréis al pueblo por fin?*
'so when are you going to the country house finally?'
2 *A:* *¿al pueblo? (a ver mañana/ sábado/// pero ¿cómo quieres decir de vacaciones?*
'to the country house? (hmm tomorrow/ Saturday/// but how do you mean on holiday?'
3 *B:* *sí de vacaciones*
'yes on holiday'
4 *A:* *en agosto*
'in August' (Briz and Grupo Val.Es.Co. 2002: 224, lines 1–6)

1.2 Visualization tools for linguistic data: Val.Es.Co. Visualization Tool

A visualization tool is "the graphic representation of raw data, through a process of abstraction, organization and hierarchization" (Friendly 2009: 2). This idea is best understood by comparing the information obtained from an aerial photograph of a city as opposed to a map, where irrelevant information is removed.

Image 1. Raw data

Visualization tools have been designed in virtually all the spheres of knowledge. In Linguistics, there are some widely spread tools like syntactic trees, spectrograms or linguistic atlases. In Discourse Analysis, there are a number of visualization tools such as discourse parsers (Zhao et al. 2012) (Image 3) or *Chat Circles*, for online discourse (Donath, Karahalios, and Viegas 1999) (Image 4).

Image 2. Data after the application of a visualization tool

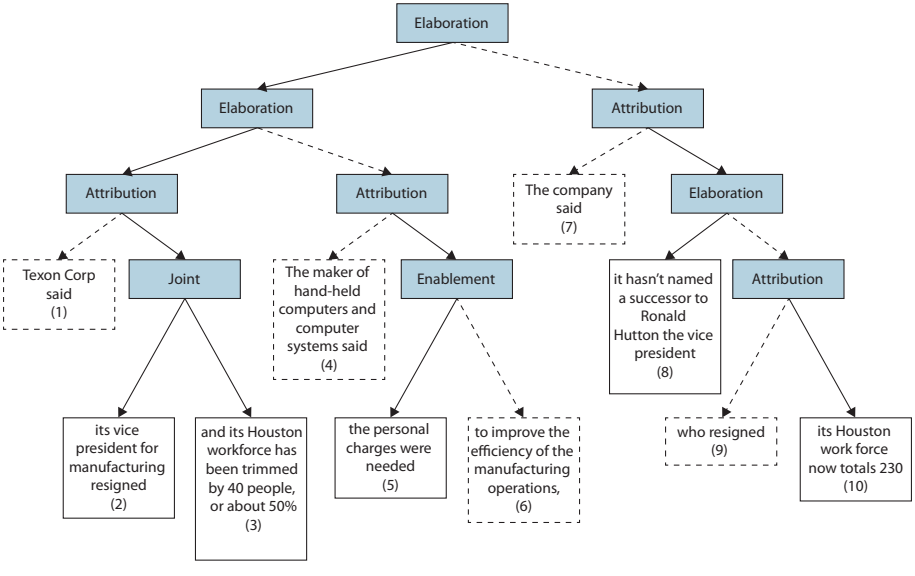


Image 3. Example of a discourse tree (Zhao, Chevalier et al. 2012)

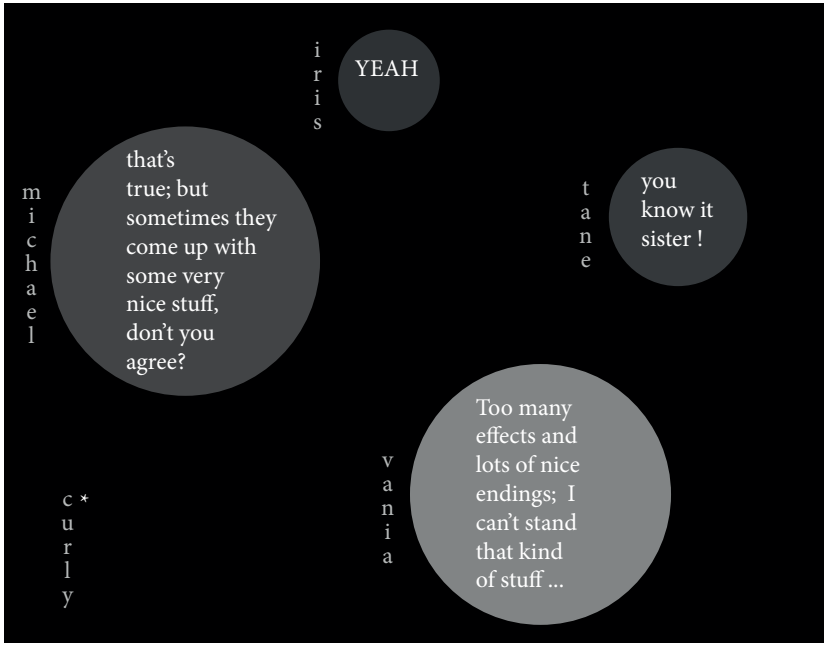
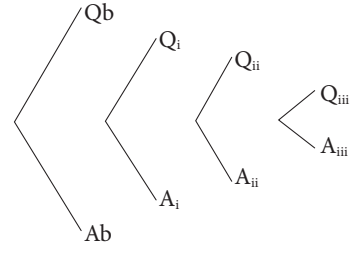


Image 4. Chat Circles (Donath et al. 1999)

In CA, strategies have been designed *ad hoc* for the visualization of small fragments. Three examples are Schegloff's work on insertion sequences (Example 6), Levinson's on pragmatic embedding (Example 7) and Mazeland and Huiskes's on skip connecting (Example 8).

(6) Insertion sequences

A: Are you coming tonight
B: Can I bring a guest?
A: Male or female?
B: What difference does that make?
A: An issue of balance.
B: Female.
A: Sure.
B: I'll be there.



(Schegloff 1972:79)

(7) Pragmatic embedding

S:	Next	(Request to order: 0)
C:	Roast beef on rye	(Order: 0)
S:	Mustard or mayonnaise?	(Q: 1)
C:	Excuse me?	(Repair initiator: 2)
S:	What?	(Repair: 3)
C:	Excuse me, I didn't hear what you said	(Repair: 3)
S:	Do you want mustard or mayonnaise?	(Repair: 2)
C:	Mustard please.	(A: 1)
S:	((provides))	(Compliance to order: 0)

(Levinson 2013)

(8) Skip connecting

TELLER:	*Teller's line*
RECIPIENT:	*Competing line*
TELLER:	*Return to teller's line*

(Mazeland and Huiskes 2001:152)

However, we still lack a unified (or even relatively wide-spread) system that can graphically represent the relationships between interactional units without relying on verbal code. None of the visualization systems mentioned above were designed for the representation of entire conversations. They offer explanatory diagrams of previously observed conversational phenomena, which is why they are not suitable for detecting conversational patterns. Furthermore, not only do the visualization tools themselves not take into account entire dialogues, but also the analyses behind them are necessarily partial.

The VVT is applied based on the notions of initiative intervention, reactive intervention and reactive-initiative intervention. Every intervention is linked using diagonal lines to those interventions to which it reacts and those interventions which are triggered by it. Each speaker is assigned a different color. For example, in (9), speaker B is black and speaker A is grey:

(9)

1 B: *y ella aquí no tiene familia ¿no?*
'and she doesn't have a family here right?'

2 A: *no*
'no'

(Val.Es.Co Corpus 2.0, Conversation 0039)

If the second intervention is a reactive-initiative intervention, the picture repeats itself. The sustained repetition of this type of move generates a zigzag pattern (10).

(10)

1 B: *y ella aquí no tiene familia ¿no?*
'and she doesn't have a family here right?'

2 A: *no*
'no'

3 B: *¿y con quién vive?// ¿con compañeras de piso?*
'and who does she live with?// housemates?'

4 A: *con tres compañeras de piso/ una de ellas muy simpática nano↑// supongo que te pondría bastante cerdo↑§*
'with three housemates/ one of them really nice man↑// I think she'd make you quite horny↑§'

(Corpus Val.Es.Co. 2.0, conversation 039)

When the intervention is interrupted by the other speaker with collaborative or phatic tokens, the resulting picture is different. In (11) two reactive interventions from B are inserted into A's discourse, without interrupting it. It is not until line 6 that B finally takes the floor.

(11)

1 A: *y claro/ luego entra también/ en-/en una relación yaa/o sea/ m-/más seria/ ¿no? el// el sacrificio/ porque/ es inevitable/ porque si no al final↑// qué relación es?/ [o seaa]→*
'and of course/ then she goes into-/ into this relationship already/I mean/ m-/ which is more serious/ right? the// the sacrifice/ because/ it's inevitable/ because otherwise in the end↑/ what kind of relationship is it?// [I meaan]→'

2 B: *[sí sí]*
'[yeah yeali]'

3 A: *no sé↑// yo creo que/ cualquier relaciónn// necesita hacer sacrificio por alguna de las partes*
'I don't know↑/ I think that/ in every relationship// there needs to be a sacrifice from one of the parties'

4 B: *[sí sí]§*
'[yeah yeah]§'

5 A: *§nano*
'§man'

6 B: *o sea si noo↑// o sea ((es decir))//la vida se (( ))-/ encarga en ponerte en tesituras/ que/ tendrás que sacrificarte/ ¿sabes?*
'I mean yeah noo↑/ I mean ((I mean))// life just (( ))-/ puts you in situations/ where/ you will have to make a sacrifice/ you know?'

(Val.Es.Co Corpus 2.0, Conversation 0039)

The dashed line is drawn next to the line where the discontinuous intervention ends. If the discontinuous intervention is reactive instead of initiative or

reactive-initiative, then the dashed line will be placed at the beginning of the discontinuous intervention instead of at the end (12).

(12)

1 Roger: ((about the new Pike)) Oh this place is disgusting. //
Any day of the week.

2 Jim: I thiiik that Pop is// depressing, it's just-

3 Roger: But you go- you go- take-

4 Jim: Those guys are losing money. hehh

5 Roger: But you go clown- dow- down to th'New Pike there's a
buncha // people, oh: : an' they're old, an they're
pretending they're having fun, but they're really not.

6 (Jim): [((cough))

7 Ken: How c'n you tell: Hm?

8 Roger: They're- they're tryina make a living, but the place is
on the decline, 's like a de//generate place.

9 Jim: So's Pop.

(Sacks, 1992: 348)

An intervention which cannot be related to any other interventions in the conversation, is considered an *independent intervention* and it is signaled by a horizontal line. This type of intervention is a verbal reaction to non-verbal stimuli, when that verbal reaction does not generate a verbal response. In (13), B's intervention does not relate to other verbal contributions.

(13)

1 A: *del centro de Noruega al NORTE↑ el norte de Noruega↑ que por lo visto↑ sí quee es verdad que en general era maayor la infidelidad↓/*
'(...) from the center of Norway to the NORTH↑ the North of Norway↑ which apparently↑ it IS true that in general infidelity was more frequent↓

2 B: °*(gracias)*°//
'°(thanks)°'

3 A: *la infidelidad de los hombres que de las mujeres↑ pero quee deel-*
'infidelity in men was more frequent than in women↑ but that from-'

(Val.Es.Co Corpus 2.0, Conversation 0031)

Finally, we use an *x* to represent interventions which cannot be analyzed, either because their content could not be transcribed due to the quality of the audio (14) or because the absence of contextual information does not allow us to determine the function of the intervention (15).

(14)

B: *está bien el día ¿eh?*
'it's a nice day huh?'

×¿: *(( ))*

A: *(RISAS) no está mal (()) §*
'(LAUGHS) it's not bad (( ))'

(Val.Es.Co Corpus 2.0, Conversation 0033)

(15)

1 B: *yo el queso no me lo comí*
'I didn't eat the cheese'

2 A: *eso es lo que dirás tú*
'that's what you say'

×3 B: *aah*
'oh'

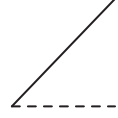
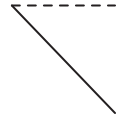
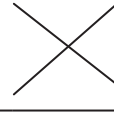
4 A: *el papá se va a pescar el- el domingo*
'dad is going fishing on- on Sunday'

5 B: *¿y no se lleva a la mamá?*
'is he not taking mom?'

(Val.Es.Co Corpus 2.0, Conversation 0011)

In a nutshell, the whole visualization system can be applied by using six graphic conventions, each associated with one type of intervention:

Table 2. Types of interventions and their graphic representation

Initiative intervention	
Reactive intervention	
Initiative discontinuous intervention	
Reactive discontinuous intervention	
Independent intervention	
Non-analyzable intervention	

2. Methodology

Everyday conversation is the primary and fundamental domain of interaction: it antedates the development of institutional discourse "both phylogenetically in the life of society and ontogenetically in the life of the individual" (Heritage 2009: 305). Institutional discourses involve the narrowing of the array of practices found in conversation. One of the long-term objectives of this project is to use the typology presented here to analyze institutional discourses as marked situations compared to conversation. In this regard, it is useful to start with the analysis of a reduced corpus.

Our corpus is reduced in two ways. First, all of the interactions in the corpus include only two participants. Second, only three genres are included: conversations, Sociolinguistics research interviews and broadcast interviews. Conversation is included because of its unmarked or "bedrock" status (Heritage 2009). Including interviews in the corpus is a methodological decision: it does not imply that interviews have some kind of special status compared to other genres. The two types of interviews are selected because of their very different degrees of interactional dynamism. The PRESEEA interviews are quite rigid in their interactional structure. The broadcast interviews are more dynamic. They are not traditional interviews where participants are confined to questioning and answering: there is ample flexibility regarding turn-taking and topic selection. We believe this might have an effect on the distribution of figures. In this paper, we present the (provisional) typology including all the interactions analyzed so far, regardless of their genre.

The corpus contains 5 spontaneous conversations (1400 interventions, 14370 words) (Val.Es.Co Corpus, Cabedo and Pons online), 3 Sociolinguistics research interviews (434 interventions, 40293 words) (PRESEEA project 2014-) and 5 broadcast interviews (1043 interventions, 22320 words) (García-Ramón 2019). Spanish is the language used in all the interactions analyzed. The interviewees in the broadcast interviews are Spanish politicians and experts in different fields. Our basic unit of analysis is the intervention; the number of words is specified above because it gives an idea of the dimensions of our corpus. It should also be noted that interventions are generally longer in the interviews (especially in the PRESEEA interviews) than in ordinary conversation. Therefore, there will necessarily be more words from the interviews.

The potential visual patterns in multi-party interactions are much more numerous than those of two-party interactions. A preliminary typology that contains the patterns of *only* two-party interactions in *only* three genres can be the first step towards the elaboration of a more comprehensive typology of interactional figures. Such a typology would potentially be able to represent any fragment of any interaction, regardless of its particular features. Such an analysis is beyond the scope of this paper.

There exist ambiguous cases where the application of VVT is not straightforward; the decisions regarding how particular segments should be analyzed depend to a certain degree on the analyst. The authors of this paper have based their decisions on a number of criteria described in Espinosa-Guerri (2016), such as (a) topic selection, (b) continuity of a speaker's discourse plan, (c) repetitions, (d) deictic elements, (e) discourse particles and (f) prosody.

We consider that a graphic representation is a figure when it is visually recognizable and different from the previous and subsequent graphic segments. All of the figures in the typology appear in the corpus more than once. However, frequency is not the main condition to include a figure in the typology. The typology includes all the possibilities in the corpus, so each intervention in the corpus is a part of at least one figure.[3] We use the term *figure* instead of *pattern* because the latter typically refers to relatively frequent phenomena.

3. A preliminary typology of interactional figures

The result of the application of the VVS to our corpus is a typology of nine figures (Image 5):

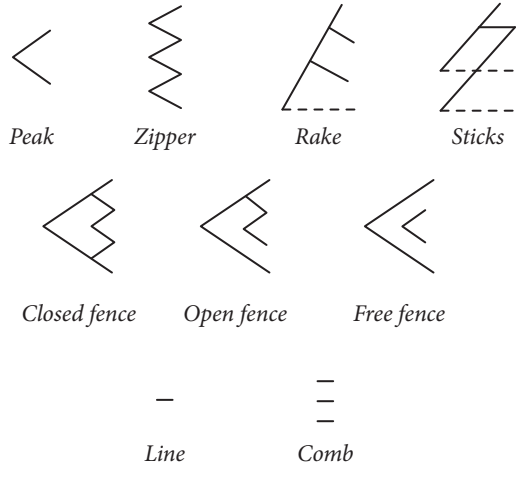


Image 5. Provisional typology of interactional figures

3. Non-analyzable interventions are excluded from this statement.

3.1 Peak: Independent exchange

The figure called *peak* occurs when there is an independent exchange formed by one initiative intervention and one reactive intervention. In (16) B does not respond to A's recrimination in line 6. Instead, there is a topic shift (line 7). The adjacency pair in lines 5–6 does not have a continuation and, therefore, it is isolated, in the form of a peak.

(16)

1 A: *(…) ¿hay alguna tía buena?*
'(…) are there any hotties around?'

2 B: *¿en dónde?*
'where?'

3 A: *¿en la autoescuela*
'at the driving school'

4 B: *¡Je! pff pff sí Juan / lo dejé hace- hace cosa de mes y medio /// ¿sabes? y ahora me vuelven a (()) /// (10')*
'he! pff pff yeah Juan/I quit like- like a month and a half ago/// you know? and now again (( )) /// (10')'

5 B: *(te) voy a dejar el aparato / tú*
'I'm going to leave this here/ man'

6 A: *(a mí no me des) ese aparato de los dientes / ¿eh guarro?*
'(don't leave me) that thing for your teeth/ how gross'

7 B: *entro a las nueve*
'I'm in at nine'

8 A: *ayer tuve un sueño erótico*
'I had an erotic dream yesterday'

(…)

(Conversation 0011, corpus Val.Es.Co 2.0)

3.2 Zipper: Consecutive reactive-initiative interventions

If there are at least two consecutive reactive-initiative interventions, then the resulting figure is a *zipper*. Example (17) is a sequence of several questions and answers between an interviewer (Ir) and a politician (Ie).

(17)

1 Ir: *¿tú eres católico?*
'are you a Catholic?'

2 Ie: *no// yo soy ateo*
'no// I'm an atheist'

3 Ir: *¿eres ateo?*
'you're an atheist?'

4 Ie: *seh*
'yeah'

5 Ir: *¿proFUNdamente ateo?*
'proFOUNDly atheist?'

6 Ie: *soy ateo// a secas (RISAS)*
'I'm an atheist// let's leave it at that (LAUGHS)'

7 Ir: *hombre// los hay quee- agomsticos/ los hay que [tienen sus dudas]*
'I mean// some are- agnostic/ others [have their doubts]'

(Interview to politician Pedro Sánchez, García-Ramón 2019)

This pattern corresponds to the idea that we have of conversation, *a priori*. The idea that the *zipper* constitutes the default pattern in ordinary conversation is related to what Jefferson (1978) called *next-positioning*. It also relates to Pomertanz's (1978) *chains of action*. Also Briz (2010) refers to the predominance of reactive-initiative interventions in everyday interaction, as opposed to more rigidly scripted genres, where interventions would be predominantly only initiative or only reactive.

The *zipper* does not necessarily emerge in question-answer sequences: it comes with any type of chain where one intervention relates directly to the two adjacent interventions, e.g., in syntactic co-constructions (18).

(18)

1 A: *[pero es que↑]*
'[but the thing is↑]'

2 B: *tampoco es ético*
'if's not really ethical'

3 A: *tam- tampoco es ético/ (( ))*
'it's- not really ethical/ (( ))'

(Val.Es.Co Corpus 2.0, Conversation 0033)

3.3 Rake: Discontinuous intervention

This figure occurs when one or several interventions are produced while another intervention (i.e., the discontinuous intervention) is underway. The non-discontinuous interventions – typically *continuers, acknowledgement tokens* and *news receipt objects* (Heritage and Greatbatch 1991: 109) – do not cause real speaker transfer. In (19) the interviewee (Ie) is a well-known Spanish surgeon, Pedro Cavadas. Ie is explaining to the interviewer (Ir) the importance and the risks associated with transplants. Ir produces several phatic interventions through which she manifests that she is receiving and understanding the information. Even in the intervention in line 8, which is longer, the function is still merely to show reception of the message. All of Ie's discourse (lines 1 to 9) can be read as a whole. Ir's interventions do not modify the course of Ie's intervention and they could be eliminated without affecting the coherence of Ie's discourse.

(19)

1 Ie: *es la última/[la última]*
'it's the last one/ [it's the last one]'

2 Ir: *[es la última]*
'[it's the last one]'

3 Ie: *porque un trasplante NO ES una buena solución / lo que pasa es que estamos en el año dos mil quince y es la única solutión que tenemos / para algunas cosas*
'because a transplant is NOT a good solution the thing is we're in year 2015 and it's the only solution we've got/ for some things'

4 Ir: *hm hmm*

5 Ie: *el manejo médico de los trasplantes / SIgue siendoo / regular solo // no sabemos suficiente*
'the medical management of transplants/ is STILL/ only ok// we don't know enough'

6 Ir: *hm hmm*

7 Ie: *coma para // hacer que- / para engaÑAR a un organismo / para que acepte tejido de otro / individuo // que no reaccione ante ese- / ante ese tejido↑ / pero sí que reaccione frente a bacterias a /aa agentes infecciosos /o a tumores propios //no sabemos ENGAÑAR //al sistema de defensa / de [forma]*
'to// make it-/ to FOOL an organism/ into accepting something from another// individual// so that it does not react to that-/ to that element↑/ while reacting to bacteriaa/ infectious agents/ or it's own tumors// we don't know how to FOOL// the defense system/ so [that]

8 Ir: *[decirle] al cuerpo esta caraa es [la mía]*
'[telling a] body *this face is* [*mine*]'

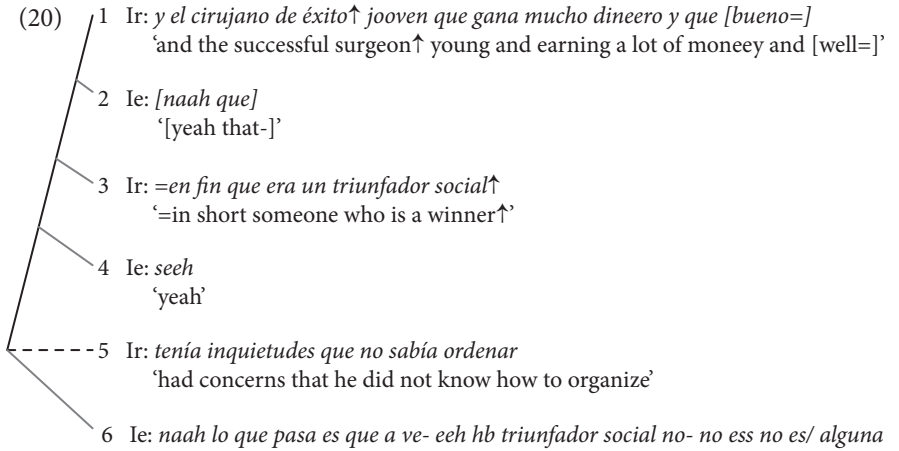
9 Ie: *[de forma] taan selectiva*
'[in SUCH]/ a selective manner'

10 Ir: *pero eso quiere decir que / los trasplantes tienen una vida corta*
'but that means that/ all transplants have a short life'

11 Ie: *TOdos los trasplantes- a ver / un paciente trasplantado vive menos que un paciente no trasplantado // en general para órganos NO vitales*
'ALL transplants- you see/ a patient who has had a transplant lives less than a patient that hasn't/ in general for NON vital organs'

(Interview to surgeon Pedro Cavadas, García-Ramón 2019)

The same figure appears when the reactive interventions are failed attempts at gaining the floor, as in (20):



(Interview to surgeon Pedro Cavadas, García-Ramón 2019)

Both the figure just described (Section 3.3) and the two following (Sections 3.4. and 3.5) are broadly related to the notion of *skip connecting* (Sacks 1992: 348) in different ways. This will be discussed in Section 4.2.

3.4 Sticks: Parallel discontinuous interventions

This figure appears when there are two discontinuous interventions which are parallel. This results from two phenomena: the first is *technical competition*; the second is a misinterpretation of a transition relevant place (TRP).

Let us discuss the first scenario, technical competition. Example (21) is from a TV interview with Pedro Sánchez (a politician from the Spanish Socialist Party). Ir and Ie ignore each other throughout a relatively extended series of turns. The issue that is important for our analysis is not the fact that there is phonetic overlap; the relevant issue here is that Ie and Ir do not design their turns as responses to what has been said by the other. Each intervention is a continuation of the speaker's own previous discourse which does not take into account the contributions of the other speaker.

(21)

1 Ie: *noo pero Risto estás fracturando// no solamente el conjunto de España*
'noo but Risto you are breaking// not only all of Spain'

2 Ir: *¡no fracturando pero stás preguntando! [¿qué fractura es preguntar?]*
'not breaking! but you're asking! [how is asking breaking?]'

3 Ie: *[¿tú crées que hoy la] sociedad catalana está*
'[and you think today the] Catalan society is'

4 Ir: *fracturar es decir [me voy// eso es]*
'breaking is saying [*I'm leaving*// that is]'

5 Ie: *[más fracturada?]*
'[more broken?]

6 Ir: *fracturar es decir-*
breaking is saying-

7 Ie: *¡esa es la pregunta!*
'that is the question!'

8 Ir: *no// esa es- la pregunta es ¿quieres irte?*
'no// that is- the question is *do you want to leave?*'

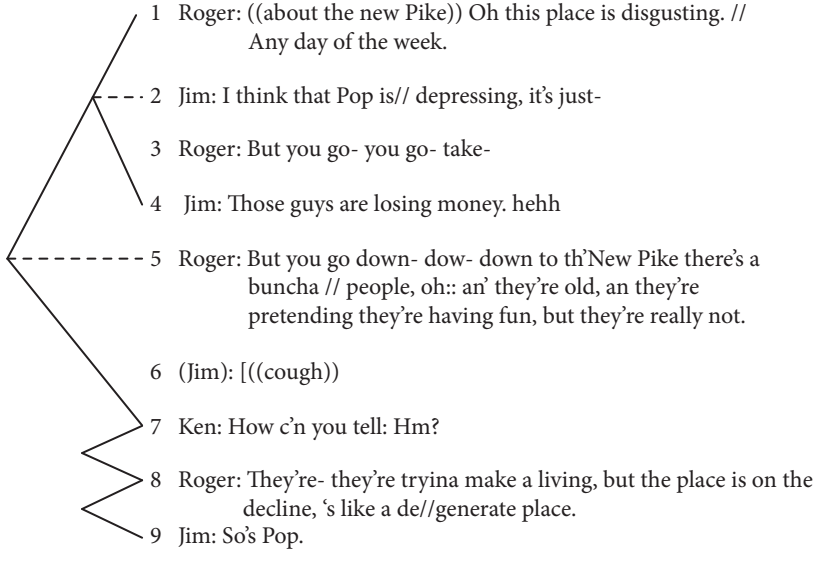
(Interview to politician Pedro Sánchez, García-Ramón 2019)

Evidence for this is that each one of the discourses can be read independently, as in (22):

(22) Ie: do you think that Catalan society is more broken? that is the question!
Ir: not breaking! but you're asking! how is asking breaking? breaking is saying *I'm leaving*// that is breaking is saying-

The figure ends when one of the interventions (Example (18), line 8) is clearly a response to a fragment of discourse produced by the other speaker. At that moment, interaction is restored. When the speaker who gets a reaction from the other is the first speaker in the figure, then the resulting figure is the figure shown in the previous example. When the "winner" is the second speaker in the figure, the figure varies (23).

(23)



(Sacks 1992:348)

In (23), the intervention by Jim is reactive, not reactive-initiative, so the lines representing the discourse of the two speakers intersect instead of being parallel. Jim ceases to compete for the topic when he makes an intervention ("So's Pop") which is tied to Roger's contributions. The use of "so is" syntactically depends on the previous assessment by Roger ("the place is on the decline, 's like a de//generate place") and, therefore, Jim reacts clearly to the discourse produced by the other speaker. After the competition over the floor, one of the speakers gets the other to react (and, therefore in a way, he "wins" what Sacks called *tying competition*).

This figure can also appear without there being an intentional competition by the speakers. It is enough if speaker B starts the intervention before speaker A finishes, i.e., when B misinterprets a TRP (24).

(24)

1 A: *pues eso/ tío/ me comentaba quee/ mira/ ahora por ejemplo/ yo estoy ahara estoy aquí a gusto/ y me ha llamado ella porque está-/ está sola↑/ esperándome en el-/ en el Old River/// (1,04) y claro/ es que es-/ es que es una desazón↑/ nano/ es una//es un/ me cago en la puta↑/ ¿por qué-?*
'yes that's the thing/ man/ she was saying to me that/ look/ now for example/ I'm here now having a good time/ and she just called me because she is-/ she's on her own↑/ waiting at the-/ at the Old River/// (1,04) and of course/ it's-/ it's so uneasy↑/ man/ it's a// it's a/ fuck man↑/ why-?'

2 B: *[sí sí sí]*
'[yeah yeah yeah]'

3 A: *[¿por qué?]/ o sea/ por qué me como yo este fregao?*
'[why?]/ I mean/ why do I have to take this mess?'

4 B: *[sí sí sí]*
'[yeah yeah yeah]'

5 A: *[o sea]*
'[I mean]'

6 B: *o sea*
'I mean'

7 A: *¿qué pasa?*
'what's wrong?'

8 B: *¿por qué ella no me quiere lo suficiente como para respetarme?*
'why doesn't she love me enough to respect me?'

9 A: *e-/ (RISAS)*
'e-/ (LAUGHTER)'

10 B: *y quedarse en su puta casa hasta que a mí me dé por llamarla↑*
'and stay in her fucking home until I want to call her you know?'

11 A: *(( ))/ exacto*
'(( )/ exactly'

12 B: *¿sabes?*
'you know?'

(Corpus Val.Es.Co. 2.0, Conversation 0039)

In line 6, B interprets that A has finished his intervention: line 3 as a non-rhetorical question and, therefore, as a TRP. This causes the end of A's intervention and the beginning of B's to be produced alongside each other, until A finally ends his turn.

3.5 Fence: Frame exchange

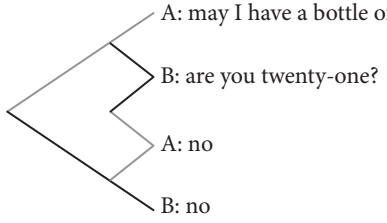
In the VAM, one unit can contain a unit of the same level which will be dependent or integrated as a constituent of the first unit (Briz 2004). This is the case of the figure called *fence*, which is produced when there is a main adjacency pair or a discontinuous intervention inside of which another kind of verbal interaction is

produced. What is produced inside of the *fence* can be just one intervention or a whole independent dialogue. Depending on what happens inside of the main exchange, we can distinguish between three types of *fence*: (1) *closed fence*, (2) *open fence* and (3) *free fence*.

3.5.1 *Closed fence*

In the first type (*closed fence*) (25), the first and the last interventions in the subordinate interaction (lines 2 and 3) are tied to the interventions that constitute the superordinate adjacency pair (lines 1 and 4). This figure is characteristic of situations where, to resolve a first pair part, participants need to develop a related – though in some sense digressive – interactional move.

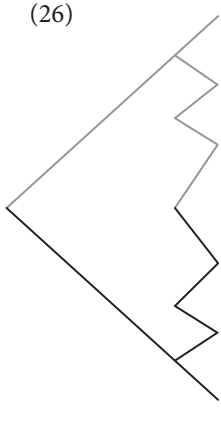
(25)



(Merritt 1976, cited in Levinson 1983)

In (26) the interviewee Esperanza Aguirre (conservative party) is asked implicitly about another conservative politician (Bárcenas) who has become a symbol of corruption in the party. Because Ir does not give the name of the politician, the second part of the adjacency pair remains latent throughout the fragment, and is finally produced in line 6. Even across longer sequences, conversationalists will recall *what* the main issue of the adjacency pair was, and can therefore handle pragmatic recursion in a quite fine-grained manner (Levinson 2013).

(26)



1 Ir: *el desP Acho dee- de ese señor↑ / ¿dónde está?*
'that man's OFFice↑ / where is it?'

2 Ie: *¿quién?*
'who?'

3 Ir: *de ese señor que habla en los mítines yo creo quee nombran a ALguien que es ESE seÑOR*
'that man who people talk about at the party's events I think they mention someone who is *THAT mAN*'

4 Ie: *¿te refieres al señor Bárcenas?*
'you mean Mr. Bárcenas?'

5 Ir: *(PALMADA, como diciendo "creo que ESE ES")*
'GESTURE MEANING "I RECOGNIZE THE NAME")'

6 Ie: *well he's at the sixth floor/ [(( ))]*
'pues ese estaba en la sexta planta / [(( ))]'

(Interview with politician Esperanza Aguirre, García-Ramón 2019)

3.5.2 *Open fence*

The second type (*open frame*) occurs when the elements inside of the superordinate pair or utterance are linked to the main frame but only at the beginning (27).

(27)

1 Ie: *¿qué te parece a ti Podemos?*
'what do you think of Podemos?'

2 Ir: *¿quieres saber mi opinión?/ ¿como ciudadano normal?*
'you wanna know my opinion? / as a normal citizen?'

3 Ie: *¿qué quieres decir? ¿yo no soy un ciudadano normal?*
'what do you mean? I'm not a normal citizen? (LAUGHS)'

4 Ir: *bueno en el momento en que cobráis del salario público todo cambia*
'well the moment your salary starts coming from public money then it all kind of changes'

5 Ie: *¿en serio?/ le preguntaré a mi mujer (RISAS)*
really? / I'll ask my wife (LAUGHS)

6 Ir: *no te digo // para mí Podemas↑ // te voy a poner una metáfora / es como si enviáramos un fotógrafo / un fotoperiodista* =
'I'll tell you / for me Podemos is like / I'll give you a metaphor / for me it's like we're sending a photographer (…)'

(Interview with politician Pedro Sánchez, García-Ramón 2019)

3.5.3 *Free fence*

The third type (*free fence*) is generated when the superordinate frame contains elements that do not relate to the frame interactionally. In (28) B offers A something to eat, which generates a digression from the main dialogue.[4] Once the secondary action is finished, A and B resume their previous dialogue. The internal exchange has total autonomy, it produces a delay in the main exchange, but it does not alter its content.

4. We use the term *dialogue* in the following technical sense: a dialogue is the conversational unit that starts with an exclusively initiative intervention and ends with an exclusively reactive intervention (as opposed to initiative-reactive interventions) (Val.Es.Co. 2014).

(28)

1 A: *[entonces] yo pensaba ya de- de- mee parece que te lo comenté o a ti o aa--*
sí↓ lo comenté contigo ¿no? lo de la recuperación y tal↓ que hacíais/
'[so] I thought already of- of- I think I told you about it or to- yes↓ I talked to you about it right? about recuperation exams↓ that you did/'

2 B: *¿quieres media?§*
you want half?§

3 A: *§yy- mm ¡ay! sí↓ vale/// (2')*
'§ and- mm oh! yes!↓ ok/// (2")'

4 A: *y YO no pensaba hacerles nada especial↑// peroo/ no sé↓ ya por- por el hombre este↑/// igual sí conviene que le hagaa alguna cosa pero claro↓ entonces ya no es solo a él↑ [ya a-]*
and I was thinking of doing nothing special↑// buut/ I don't know↓

be- because of this man↑/// it might be convenient to do something

but then of course↓ then it's not only to him↑ [it's to-]

B *[mira]*
'[look]'

(Val.Es.Co. Corpus 2.0, Conversation 0031)

The same figure appears when inside the main dialogue is just one intervention without any relation to the rest of the conversation (29).

(29)

1 B: *hombre↓// a mí me da igual que sea-/// que sea de una manera↑ que sea de otra/// (5' ') me da igual que sea de una manera- ↑ (RISAS)*
'well↓// I don't care if it's-/// if it's one way?↑ or another/// (5' ') I don't care if it's one way- ↑ (LAUGHS)'

2 A: *¡ay! ¡cuidado!*
'oh! careful!'

3 B: *que sea de una manera o que sea de otra/ entiendo que la gente que habéis ido// en principio// lo que sea//pero que las cosas-/ y si es eso lo que habíais leído quee/ teníais la posibilidad del certificado de horas y de certificado [de aprobado ↑]*
'That it's one way or another/ I understand that people who participated// in principle// whatever// but thing-/ and if that is what you had read thaat/ you had/ the possibility to get a certificate showing the number of hours and the [qualification then↑]'

(Val.Es.Co. Corpus 2.0, Conversation 0031)

3.6 Line: Independent intervention

There are interventions which are not tied interactionally to any other interventions (30). This occurs when one speaker produces an intervention which responds to a

non-verbal stimulus that might be internal (like a feeling) or external (like a gesture from another speaker, a contextual event, etc.).

(30)

A: *no pero sí dijo que el sábado en casa// ¿tu hermano ha venido ya?*
no but he did say that on Saturday/// is your brother here yet?

B: *sí creo que está por ahí en casa// ahora mismo entra aquíí a incordiar// dirá ¿qué hacéis qué hacéis?*
'yeah I think he's hanging around at home// right now he's gonna come in here bugging// he'll say *what what are you doing?*'

A: *aquí// de charreta*
'here// just talking'

B: *que siempre (()) de lo mismo ((no sé qué))/// ays*
always (( )) the same thing ((blablabla))/// ays

A: *¡madre mía las nueve ya!*
'my God it's nine already!'

B: *ya*
'I know'

A: *estoy más cansá ((me tenía que quedar)) [aquí]*
'I'm so tired ((I should stay)) [here]'

B: *[no sé dónde he] dónde el reloj ¿eh? ¿dónde lo he dejado?*
'[I don't know where I] left the watch huh? where did I leave it?'

A: *en la cocina/ estábamos haciendo la cena*
'in the kitchen/ we were cooking dinner'

(Val.Es.Co. Corpus 2.0, Conversation 0033)

3.7 Comb: Series of independent interventions

This figure occurs when there are several consecutive independent interventions (31).

(31)

1 A: *hostia la cazadora/ se la queda tu perro/ doc/ °(¿qué pasa?)°/no I'he dicho no I' he dicho nada a mi madre de que venía aquí*
'fuck/ the jacket/ your dog is keeping it/ doc/ °(what's up)°/ I didn't say I didn't say anything to my mom about staying here'

2 B: *se lo imaginará ¿no?*
'she'll imagine won't she?'

3 A: *hum*
'Mhm'

4 B: *está roncando A/ (RISAS) ay mare mía*
'he's snoring/ oh wow'

5 A: *me estoy meando/ me voy a ir a mear porque si noo→*
'I need to take a leak/ I'm gonna go pee 'cause otherwise→'

6 B: *pue bueno/ mañana ehcursiión→*
'so well/ trip tomorrow→'

7 A: *me voy a mear ¿vale? prepárame la merienda*
'I'm gonna go pee ok? prepare me a snack'

8 B: *vale ¿qué quieres?*
'ok what do you want?'

(Val.Es.Co. Corpus 2.0, Conversation 0033)

It may seem that there is some kind of relation between "I need to take a leak" (line 5) and "I'm gonna go pee" (line 7) and, in fact, there is a semantic relation. However, in interactional terms, A's intervention in line 5 is an independent contribution: it is the product of an internal stimulus of the speaker. Until line 7, this contribution does not become an interactionally relevant action.

Both these interventions and the one in described in (30) are linked to the physical context. This kind of phenomenon (i.e., situations where interventions are linked to the physical context but not each other) is, according to our data at least, a specific feature of informal dialogue.

4. Discussion and conclusions

4.1 Some thoughts on the notion of *figure*

As pointed out in Section 1, conversational structure has been analyzed from multiple perspectives. Studies have analyzed the internal structure of turns-at-talk (e.g., Val.Es.Co. 2003, 2014; Degand and Simon 2009). The different movements that are

used in an orderly manner to achieve the correct development of a recognizable type of sequence (opening sequence, closing sequence, complimenting sequence, etc.) have also been described. However, we seem to lack an intermediate level of analysis for the relationship between interventions in interaction.

The type of relation between interventions we refer to, associated with our notion of *figure*, is to a certain extent independent of the exact mold associated with any given sequence type. This does not exclude the possibility that there may in fact be relationships between figures and sequence types, but the nature of the structures themselves is different. We therefore believe that the structural connections between interventions warrant a separate level of analysis and that this level must be distinguished from higher levels (the construction of sequence types) and lower levels (turn construction). This analysis is the logical consequence of applying a visualization tool based on a model that describes discourse units through structural (rather than informative) criteria, such as the VAM.

Initially, we define the concept of *figure* as *a distinguishable structure which is generated by the grouping of turns-at-talk, according to the initiative and reactive relations between interventions.*

Figures emerge as a result of the existence of different ways of connecting interventions, beyond adjacency relations. It is important to stress the role of different types of connection mechanism (repetitions, deictic elements, discourse particles, etc.) on the occurrence of figures. These elements function as clues or footprints that speakers use to connect bits of dialogue and they allow the analyst to recognize the specific connections between interventions. Figures are different from sequences in that (a) they are less topic-related and (b) they are not necessarily associated with the conscious interactional goals of speakers (e.g., closing a dialogue, complimenting, greeting, etc.).

In this analysis, the topic is one criterion taken into account. However, it is not the principal criterion. We cannot ignore the informational content of the dialogue, but the analysis is at a more structural level. The limits of a topic can co-occur with the limits of a figure (32), but this is not systematic. In (33) there is a change of topic but this does not entail a change in the figure or the opening of a new dialogue. This happens because topic changes can happen abruptly (as in (32)) or progressively (as in (33)).

(32)

A: *¿ja! ese bocadillo que hay ahí te lo hice y no te lo comiste*
'ha!// that sandwich there I made it and you didn't eat it'

B: *no me lo comí porque resulta que no me gustaba el queso*
'I didn't eat it because I happen not to like cheese'

A: *POS→/ el bocadillo de ayer tenía QUESO*
'WELL→/ yesterday's sandwich had CHEESE'

B: *yo el queso no me lo comí*
'I didn't eat the cheese'

A: *eso es lo que dirás tú*
'that's what you say'

B: *aah*

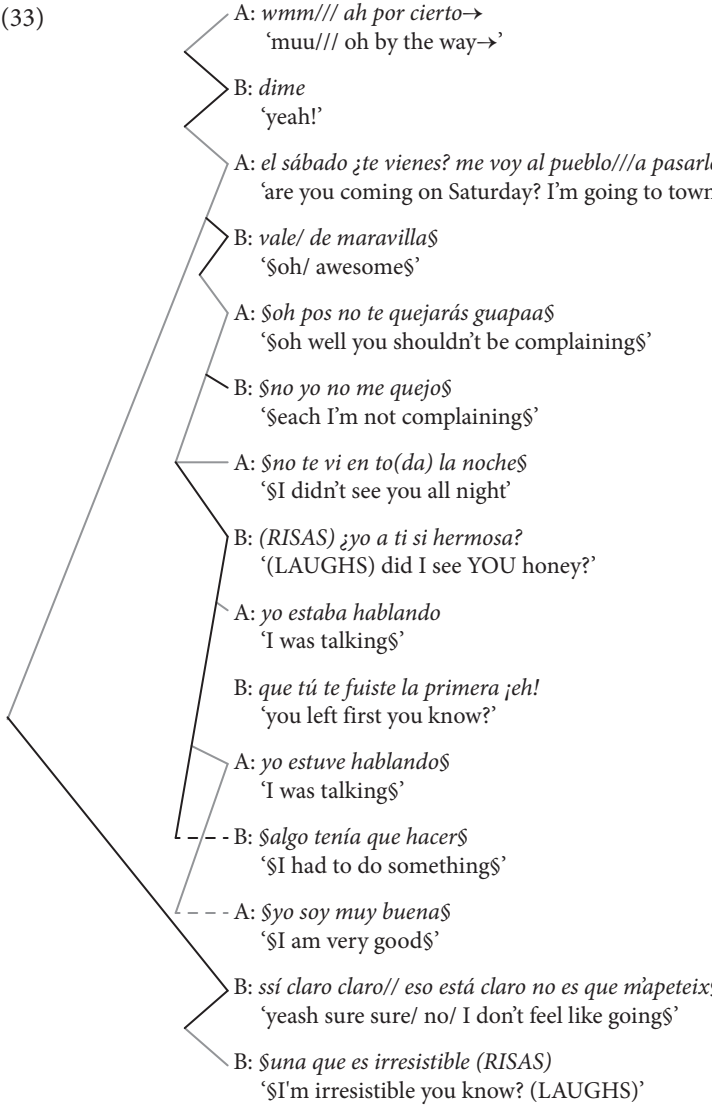
A: *el papá se va a pescar el- el domingo*
'dad is going fishing on Sunday'

B: *¿y no se lleva a mamá?*
'is he not taking mom?'

A: *noo/// (6") podían ir a por champiñones/ ¿eh Jose?*
'noo/// (6") they could go collect mushrooms/ huh Jose?'

(Val.Es.Co. Corpus 2.0, Conversation 0011)

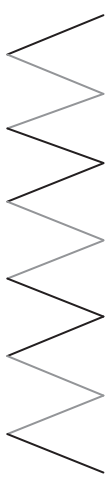
(33)



(Val.Es.Co. Corpus 2.0, Conversation 0033)

A figure can coincide with one or several types of sequence. In the following examples, the same figure (*zipper*) is used to represent an interrogative sequence (34) and a syntactic co-construction inside a narration sequence (35). The figure itself, however, remains recognizable, analyzable and relevant (see Section 4.2).

(34)



1 Ir: *¿tú eres católico?*
'are you a Catholic?'

2 le: *no// yo soy ateo*
'no// I'm an atheist'

3 Ir: *¿eres ateo?*
'you're an atheist?'

4 le: *seh*
'yeah'

5 Ir: *¿proFUNdamente ateo?*
'proFOUNDly atheist?'

6 le: *soy ateo// a secas (RISAS)*
'I'm an atheist// let's leave it at that (LAUGHS)'

7 Ir: *hombre// los hay quee- agnósticos/ los hay que [tienen sus dudas]*
'I mean// some are- agnostic/ others [have their doubts]'

(Interview to politician Pedro Sánchez, García-Ramón, forthcoming)

(35)

1 A: *[pero es que↑]*
'[but the thing is↑]'

2 B: *tampoco es ético*
'it's not really ethical'

3 A: *tam- tampoco es ético/ (( ))*
'it's- it's not really ethical/ (( ))'

(Val.Es.Co. Corpus 2.0, Conversation 0039)

Sequence organization is independent from figure organization. A change of action or intention does not necessarily entail a change of figure. Inside the same sequence, several figures can be distinguished, and the end of a sequence is not necessarily also the end of a figure. We consider the structure of discourse as an entity in itself, independently from the intentions of interlocutors.

This difference can also be observed in the process of elaboration by speakers. Sequence types usually relate to activities that are intentionally or at least consciously carried out by speakers, who are perfectly able to name them using the metalinguistic categories (e.g., greeting, apology, digression). On the other hand, a figure emerges because of the way interventions are related to each other, independently of the plans and strategies of speakers. They are not categories that exist as such for speakers. Analytically, these are very different starting points. This does not mean that there are no relations between the two types of category. Similarly

(in another domain of Linguistics), there does not need to be a systematic relation between syntactic functions and the semantic arguments that prototypically occupy those functions, although there are obvious relations between syntax and semantics.

4.2 Our figures versus previously studied phenomena at the level of interactional structure

In this section, we offer brief descriptions of the phenomena analyzed in the literature on interactional structures in order to compare them to the figures in our typology. There is a perception that the figure that we have termed *zipper* constitutes the default pattern of conversation. Maybe due to this expectation, studies on interactional structure have tended to focus on sequences where interventions are related to non-adjacent interventions (Sacks 1992; Mazeland and Huiskes 2001; Levinson 2013). Therefore, this sections focuses on the figures that emerge when there are non-adjacent relations, namely: *rake, sticks* and the three types of *fence*.

Our *rake* relates to what Sacks (1992: 349) termed *skip-connecting*. This phenomenon displays two characteristics: (1) the speaker tries to connect with an intervention produced by himself and (2) the speaker connects specifically with the intervention that is last-but-one. Therefore, "there is no skip-connecting over long distances" (Sacks 1992: 349). When both parties are skip-connecting and doing it mutually, we get the figure called *sticks*, which corresponds to Sacks's *technical competition*. Here "competition" does not necessarily mean speakers are involved in an argument. Rather, there is competition in the sense that parties do mutual skip-connecting: speakers are competing for the development of some line in conversation by alternating speakerships:

> Competition in conversation is that parties do mutual skip-connecting. People competing for the development of some line in conversation proceed by alternating speakerships, each engaged in skipping the last and tying to his prior – his prior being the last-but-one – to develop the line that he began to take.
>
> (Sacks 1992: 350)

Countering the claim that skip-connecting occurs typically across two turns, some studies on digression suggest that there are ways to skip-connect over longer distances. Mazeland and Huiskes (2001) analyze cases in which a turn is connected with a turn that is farther away in a fairly unproblematic fashion (36):

(36) 38 *Bob:* *well (.) then- then the rain stopped (.) wonder*
39 *of all wonders (.) hh then we started to walk (.)*
40 *it was already night by then (.) or already evening time*
41 *it was already dark then (.) then we started to walk (.)*

42		*and uh:: (.) we did about four*	
43		*or five kilometers or something:-*	
44	*Eric:→*	*-in the dark?=*	*repair initiation*
45	*Bob:*	*-yes*	
46		*(.)*	
47	*Eric:*	*oh (.) we supposed (.) that (.) that you guys were*	
48		*finished (.) as soon as it were dark (.) was-*	
49	*Bob:*	*-well (.) we just walked on then*	
50		*because we didn't have a place to sleep yet*	
51		*(.)*	(Mazeland and Huiskes 2001: 146)

Regarding the second characteristic proposed by Sacks, Levinson suggests that it is possible in interaction to reply to first pair parts of adjacency pairs which were uttered long before by another speaker. In other words, Levinson applies the idea of embedding to conversation:

> [T]he construal depends not on the syntax and semantics so much as the speech act or illocutionary force: regardless of form or semantic content, the dependencies holds across utterances paired by function – across 'adjacency pairs' in the terminology of conversation analysis. (Levinson 2013: 155)

Levinson argues that speakers are capable of managing without great difficulty a number of levels of embedding in the elaboration of adjacency pairs (analogously to what happens in syntactic embedding). Thus, although Levinson's main focus is not the concept of skip-connecting itself, he actually provides enlightening examples of the possibility of tying interventions that (1) respond to a fragment produced by another speaker and (2) do so across long distances.

The three types of *fence* described above are examples of tying across long distances. The *closed fence* generally relates to *insertion sequences* (Schegloff 1972): these are cases where, in order to respond to a first pair part, it is necessary to have previously resolved some issue that determines the form that the second pair part will take. We did not find any examples in the corpus where a *closed fence* did not correspond to an insertion sequence.

The *open fence* is related to Jefferson's (1972) *side sequences* and Mazeland and Huiskes's (2001) *continuations*. This figure apparently involves some kind of conversational phenomena where there is deviation from the main course of action (Examples (22), (23), (24)). However, this time, the correlation is not straightforward: some of the examples of side sequences provided by Jefferson do not correspond to *fences* (in our notation) but to other figures, such as the *zipper* (37).

(37)

A: One, two, three ((pause)), four, five, six ((pause)), seven, eight, nine, ten.

B: Eleven?-eight, nine, ten?

A: Eleven, eight, nine, ten.

B: Eleven?

A: Seven, eight, nine, ten.

B: That's better

(Jefferson 1972:295)

Jefferson considers (37) to be a side sequence because there is a deviation from A's intervention when B and C request clarification of A's counting. Thus, there are two levels of topic. However, in a more structural analysis, the VVT shows that this phenomenon can be represented simply using the *zipper*, in which all interventions are at the same level.

Finally, the *free fence* is linked in the corpus to what the Val.Es.Co research group has termed *side dialogue*: it appears on the margin of the conversational structure and it does not relate to the interpersonal goals of participants (Briz 2006: 60). Therefore, side dialogues are independent from the main dialogue (38). However, not all the side dialogues correspond to *free fences*, which only appears when the main dialogue is reestablished after the side dialogue (Espinosa-Guerri 2016). If the main dialogue is not reestablished, then the resulting figure is not a *free fence*, but something else (39). In (39), the side dialogue is merely an independent pair: there is no intervention which is maintained in standby state while the side dialogue is produced; rather, the main dialogue is halted in interactional terms, and a new one is generated which is disconnected to all previous interaction.

(38)

1 A: *[entonces] yo pensaba ya de- de- mee parece que te lo comenté o a ti o aa- sí↓ lo comenté contigo ¿no? lo de la recuperación y tal↓ que hacíais/*
'[so] I thought already of- of- I think I told you about it or to- yes↓ I talked to you about it right? about recuperation exams↓ that you did/'

2 B: ¿quieres media?§
'you want half?§'

3 A: *§ yy- mm ¡ay! sí↓ vale/// (2?)*
'§ and- mm oh! yes!↓ ok/// (2?)'

4 A: *y YO no pensaba [hacerles=]*
'and I was thinking of doing'

5 B: *[tranquila]*
'don't worry'

6 A: *= nada especial↑// peroo/ no sé↓ ya por- por el hombre este↑/// igual si conviene que le hagaa alguna cosa pero claro↓ entonces ya no es solo a él↑ [ya a-]*
'nothing special↑ buut/ I don't know↓ be- because of this man↑/// it might be convenient to do something but then of course↓ then it's not only to him↑ [it's to-]'

(Val.Es.Co Corpus 2.0, Conversation 0031)

(39)

B: *no/ ya sabes que no creo que vaya/ así que no insistas más*
'no/ I already said I don't think I'll come/ so don't insist'

A: *no pero si dijo que el sábado///*
'no but he did say that on Saturday///'

A: *¿tu hermano ha venido ya?*
'is your brother here yet?'

B: *sí creo que está por ahí en casaa// ahora mismo entra aquí a incordiar// dirá ¿que qué* hacéis?
'yeah I think he's hanging around at home// right now he's gonna come in here bugging// he'll say *what are you doing?*'

A: aquí/ de charreta
'here// just talking'

B: que siempre (( )) de lo mismo ((no sé qué))/// ays
always, (( )) the same thing ((blablabla))/// ays

A: *¡madre mía las nueve ya!*
'my God it's nine already!'

B: *ya*
'I know'

A: *estoy más cansá ((me tenía que quedar)) [aquí]*
'I'm so tired ((I should slay)) [here]'

B: *[no sé dónde he] dejado el reloj ¿eh? ¿dónde lo he dejado?*
'[I don't know where I] left the watch huh? where did I leave it?'

A: *en la cocina/ estábamos haciendo la cena*
'in the kitcen/ we were cooking dinner'

B: *sí creo que está en la cocina*
'yes I think it's in the kitchen'

(Val.Es.Co Corpus 2.0, Conversation 0033)

This shows that figures are not a graphic translation of conversational phenomena already described in the literature, although they are certainly related in some way to such phenomena. Figures are interactive structures at a more abstract level than and disconnected from thematic progression (Espinosa-Guerri 2016).

Regarding the different degrees of contiguity between related interventions, there are four types of figures (Table 3):

Table 3. Types of figures according to the degree of proximity between connected interventions

Interactional relations between immediately consecutive interventions	– *Peak* – *Zipper*
Interactional relations between interventions at a two-turn distance	– *Rake* – *Sticks*
Interactional relationships over longer distances	– *Closed frame* – *Open frame* – *Free frame*
Interventions with no interactional relationships to other interventions	– *Line* – *Comb*

Therefore, regarding the degree of proximity between related interventions, there are figures in which the proximity is always the same (*peak, zipper, rake, sticks*) while there are figures in which the proximity varies (*frames*). Finally, there are two figures where there is no interactional relationship between interventions, which constitute a qualitatively different group, precisely for this reason (*line, comb*).

4.3 Partial and global descriptions of structural interactional phenomena

Studies on structural interactional phenomena mentioned throughout this paper are partial in the sense that they analyze collections of the same phenomenon in different conversations, but they do not analyze entire conversations. This study is concerned with the global description of the interactional structure of dialogic texts. Our goal with this type of approach is to detect and classify all the possible interactional structures. This allows us to reach some conclusions and opens interesting perspectives for the future:

1. **Proposing a typology of interactional structures that does not leave any elements unanalyzed.** Our typology is currently provisional because it is based on the analysis of a small corpus. However, it would be possible, in principle, to create a typology that is relatively exhaustive. To do so, we would need to include, on the one hand, other discourse genres and, on the other, multi-party

interactions. This is an ambitious project, but the possibility that this might be done is in any event an exciting idea in itself.

2. **Detecting elements in interaction that might have gone unnoticed.** Because this system requires the analyst to explicitly state the relationships between every intervention and the rest of the interventions in the same interaction, it favours the detection of certain objects in interaction which might have gone unnoticed. In fact, every time a segment does not match the existing typology, this is an alert that there is an interesting phenomenon taking place, which deserves closer examination. Therefore, the typology functions as a problem detector (in a positive sense). For example, when trying to link every intervention in an interaction to previous and subsequent discourse, we noticed that some interventions did not actually hold any such relations to other interventions. This is the analytical procedure through which independent interventions (i.e., the figures called *line* and *comb*) became part of the typology presented here. This in turn led us to try to find an explanation as to why this kind of figure appeared only in some situational contexts and not others. This problem is explored in more detail in a separate study (Espinosa-Guerri and García-Ramón forthcoming).
3. **Types of speaker.** It might be the case that interventions produced by a certain speaker are generally part of one type of figure. If this is the case, then this kind of analysis can prove useful in elaborating a study on conversational roles. For instance, it would be possible to explore whether there is any relation between the types of figures produced by a speaker and the roles described by Kerbrat-Orecchioni and Plantin (1995) in their work on the *trilogue* (*porte-parole, animateur, évaluateur*, etc.).
4. **Measuring the degree of dynamism or rigidity in different discourse genres.** It has been repeatedly suggested that the rigidity of dialogic genres regarding interactional patterns is a matter of degree (Briz 2010). We could say, for example that interviews are less flexible than conversations but more flexible than courtroom interactions. The system presented here provides a specific method for measuring this, so that degrees of dynamism can be quantified (Espinosa-Guerri and García-Ramón 2017). We would expect, for example, for interviews to have more *peaks* and less *fences* than ordinary conversation. If this is not the case, then the assumptions about interviews (or about particular types of interviews) should perhaps be revised. The measuring of dialogic genres regarding turn-tying was actually one of Sacks concerns in his first lectures, although he never came up with a precise way of carrying this enterprise out: "I haven't worked out a measuring system to compare conversations in this regard, but I take it that might be doable in any event" (Sacks 1992: 157).

References

Briz, Antonio. 2004. "El análisis de las conversaciones: órdenes y unidades." *Interlingüística* 15: 3–20.

Briz, Antonio. 2006. "La segmentación de una conversación en diálogos." *Oralia* 9: 45–71.

Briz, Antonio. 2010. "Lo coloquial y lo formal, el eje de la variedad lingüística." In *De moneda nunca usada. Estudios dedicados a José María Enguita*, ed. by Rosa María Castañer, and Vicente Lagüens, 125–133. Zaragoza: Institución Fernando el Católico.

Briz, Antonio. 2013. "El relato coloquial." In *Comunicación presentada en el XXVIII Congreso de hispanistas italianos*, November 27th–30th, Pisa, Italia.

Briz, Antonio, and Grupo Val.Es.Co. 2002. "Corpus de conversaciones coloquiales". *Anejo de la Revista Oralia*. Madrid: Arco/Libros.

Cabedo, Adrián, and Salvador Pons (eds.). *Corpus Val.Es.Co 2.0*. [online: http://www.valesco.es]. Accessed September 18th, 2017.

Degand, Liesbeth, and Anne-Catherine Simon. 2009. "Minimal Discourse Units in Spoken French: On the Role of Syntactic and Prosodic Units in Discourse Segmentation." In *Discourse 4*. [http://discours.revues.org/5852]. Accessed September 18th, 2017.

Donath, Judith, Karrie Karahalios, and Fernanda Viegas. 1999. "Visualizing Conversation." *Proceedings of the Thirty-Second Annual Hawaii International Conference on System Sciences* vol. 2: 20–23.

Espinosa-Guerri, Guadalupe. 2015. "Hacia una visualización sistemática de la conversación coloquial." In *Nuevas investigaciones lingüísticas*, ed. by Ángela Benito, Pedro Espino, and Bruno Revenga, 341–406. Cantabria: Editorial Universidad Cantabria.

Espinosa-Guerri, Guadalupe. 2016. "Los dientes de sierra: una herramienta para el estudio de la estructura interactiva del discurso dialógico." *Normas* 6: 13–26. https://doi.org/10.7203/Normas.6.8828

Espinosa-Guerri, Guadalupe, and Amparo García-Ramón. 2017. "Conversational Structure and Discourse Genres: A Contrastive Study of Informal Conversations, Sociolinguistic Interviews and Broadcast Interviews." In *15th International Pragmatics Conference*, July, 16th-21st, Belfast, Ireland.

Espinosa-Guerri, Guadalupe, and Amparo García-Ramón. Forthcoming. "Deixis extrema, intervenciones independientes y los límites de la conversación coloquial."

Friendly, Michael. 2009. *Milestones in the History of Thematic Cartography, Statistical Graphics, and Data Visualization* [online: http://www.math.yorku.ca/SCS/Gallery/milestone/milestone.pdf]. Accessed September 18th, 2017.

García-Ramón, Amparo. 2019. Epistemicidad en interacción: (a)simetrías epistémicas en secuencias de acuerdo y su relación con la construcción de roles funcionales en conversaciones y entrevistas. Ph.D. dissertation, University of Valencia.

Goffman, Erving. 1983. "The Interaction Order." *American Sociological Review* 48: 1–17. https://doi.org/10.2307/2095141

Heritage, John. 2009. "Conversation Analysis as Social Theory". In *The New Blackwell Companion to Social Theory*, ed. by Brian S. Turner, 300–320. Oxford: Blackwell. https://doi.org/10.1002/9781444304992.ch15

Heritage, John, and David Greatbatch. 1991. "On the Institutional Character of Institutional Talk: The Case of News Interviews". In *Talk and Social Structure: Studies in Ethnomethodology and Conversation Analysis*, ed. by Deirdre Boden, and Don H. Zimmerman, 93–137. Cambridge: Polity Press.

Jefferson, Gale. 1972. "Side Sequences". In *Studies in Social Interaction*, ed. by David N. Sudnow, 294–333. New York: Free Press.

Jefferson, Gale. 1978. "Sequential Aspects of Storytelling in Conversation". In J. Schenkein, *Studies in the organization of conversational interaction*, 219–248. New York: Academic Press. https://doi.org/10.1016/B978-0-12-623550-0.50016-1

Kerbrat-Orecchioni, Catherine, and Christian Plantin. 1995. *Le trilogue*. Lyon: Presses Universitaires de Lyon.

Levinson, Stephen C. 2013. "Recursion in Pragmatics." *Language* 89: 149–162. https://doi.org/10.1353/lan.2013.0005

Mazeland, Harrie, and Mike Huiskes. 2001. "Dutch 'but' as a Sequential Conjunction. Its Use as a Resumption Marker." In *Studies in Interactional Linguistics*, ed. by Margret Selting, and Elisabeth Couper-Kuhlen, 141–169. Philadelphia: John Benjamins. https://doi.org/10.1075/sidag.10.08maz

Pomerantz, Anita. 1978. "Compliment Responses: Notes of the Co-operations of Multiple Constraints." In *Studies in the Organization of Conversational Interaction*, ed. by Jim Schekein, 79–112. New York: Academic Press. https://doi.org/10.1016/B978-0-12-623550-0.50010-0

Pons, Salvador. 2014. *Models of Discourse Segmentation in Romance Languages*. Amsterdam: John Benjamins.

PRESEEA. 2014. *Corpus del Proyecto para el estudio sociolingüístico del español de España y de América*. Alcalá de Henares: University of Alcalá [online: http://preseea.linguas.net]. Accessed September 18, 2017.

Roulet, Eddy, Laurent Filliettaz, Anne Grobet, and Marcel Burger. 2001. *Un modèle et un instrument d'analyse de l'organisation du discours*. Bern: Peter Lang.

Sacks, Harvey, Emanuel Schegloff, and Gale Jefferson. 1974. "A Simplest Systematics for the Organization of Turn-Taking for Conversation." *Language* 50(4): 696–735. https://doi.org/10.1353/lan.1974.0010

Sacks, Harvey. 1992. *Lectures on Conversation*. Oxford: Basil Blackwell.

Schegloff, Emanuel. 1968. "Sequencing in Conversational Openings." *American Anthropologist* 70(6): 1075–1095. https://doi.org/10.1525/aa.1968.70.6.02a00030

Schegloff, Emanuel. 1972. "Notes on a Conversational Practice: Formulating Place." In *Studies in Social Interaction*, ed. by David Sudnow, 75–119. New York: MacMillan, The Free Press.

Schegloff, Emanuel. 1990. "On the Organization of Sequences as a Source of 'Coherence' in Talk-in-Interaction." In *Conversational Organization and its Development*, ed. by Bruce Dorval, 51–77. Norwood, New Jersey: Ablex.

Schegloff, Emanuel. 2002. "On 'Opening Sequencing': A Framing Statement." In *Perpetual Contact: Mobile Communication, Private Talk, Public Performance*, ed. by James E. Katz and Mark Aakhus, 321–325. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511489471.025

Schegloff, Emanuel. 2009. "A Practice for (Re-)Exiting a Sequence: and/but/so + uh(m) + Silence." In *Language in Life, and a Life in Language: Jacob Mey – A Festschrift*, ed. by Bruce Fraser, and Ken Turner, 365–374. Bingly: Emerald. https://doi.org/10.1163/9789004253209_047

Val.Es.Co. 2003. "Un sistema de unidades para el estudio del lenguaje coloquial." *Oralia* 6: 7–61.

Val.Es.Co. 2014. "Las unidades del discurso oral." *Estudios de Lingüística del Español* 35: 13–73.
Zhao, Jian, Fanny Chevalier, Christopher Collins, and Ravin Balakrishnan. 2012. "Facilitating Discourse Analysis with Interactive Visualization." *IEEE Transactions on Visualization and Computer Graphics* 18(12): 2639–2648. https://doi.org/10.1109/TVCG.2012.226
Zimmerman, Don H. 1984. "Talk and Its Occasion: The Case of Calling the Police." In *Meaning, Form and Use in Context: Linguistic Applications*, ed. by Deborah Schiffrin, 210–228. Washington: University Press.

CHAPTER 5

Causal relations between discourse and grammar

Because in spoken French and Dutch

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The chapter presents a cross-linguistic study of the subordinating conjunctions *parce que* in French and *omdat* in Dutch (both corresponding to English *because*) at the interface between discourse and grammar. It is argued that causal subordinate conjunctions do not always mark a causal relation at the discourse level, because they do not always link two independent utterances or speech-acts. Such subordinating conjunctions, however, can gain discourse status, when they are used paratactically; as may be witnessed from accompanying discourse behavior such as co-occurring discourse markers, filled pauses, declination reset, etc. Thus, the aim of this study is to gain deeper insight into the discursive consequences of the grammatical options of coordination and subordination.

Keywords: subordination, Dutch, French, causality, discourse markers, grammar, discourse, corpus analysis

1. Introduction

Causal connectives have long since been described as markers of discourse structure and discourse coherence, in particular as signals of causal coherence relations (Gernsbacher 1997; Sanders and Spooren 2007, 2009; Canestrelli, Mak and Sanders 2013). In the words of Canestrelli, et al. (2013: 1395): "It is generally assumed that causal connectives provide crucial information about the discourse representation; they signal that a causal relation is to be established between two text segments. These markers are therefore assumed to provide processing instructions which specify the enfolding discourse structure". This direct link between "connectivehood" and "discoursehood" is hardly ever questioned. Causal connectives do however come in different syntactic kinds, mainly as coordinating and

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subordinating conjunctions, or conjunctive adverbials. Debaisieux (2004, 2016) convincingly questioned the status of subordinating conjunctions as elements of discourse. This line of reasoning will be further pursued here. More specifically, I will try to show that the distinction between coordinating and subordinating conjunctions is an important one carrying consequences at the discourse level. This is in line with Blühdorn's (2008: 80) claim that "[t]he interaction between hierarchical and non-hierarchical connections in syntax, semantics and discourse can only be described in appropriate detail on the basis of independent and explicit theories of each of the three domains of language structure". This view requires us to revise the way in which we define the discourse level. Namely, not only as "language above the sentence or above the clause" (Stubbs 1983: 1), but also as language in use (Brown and Yule 1983; Fasold 1990). In the former approach, discourse is contrasted with "syntax" or "sentence grammar", in the latter it is contrasted with language as a codified system.[1] Here, I will try to show that these two approaches can be reconciled. As language in use, discourse reflects how speakers put the language system to use in utterances, chunks, and stretches of speech, making use of lexical, syntactic, semantic and pragmatic information. Thus, discourse comes with the affordances the grammar gives us. As speakers, we may stretch these grammatical "rules" and bend them to new uses in discourse, which eventually may enter the grammar again as renewed grammatical constraints in a continuous cycle (cf. Ariel 2009). This requires linguists "to study grammar and discourse together in order to understand how language comes to be what it is" (Du Bois 2003: 47).

Focusing on French *parce que* and Dutch *omdat* (both corresponding broadly speaking to English *because*) in (spontaneous) spoken language, I will claim here that taking into account the syntactic status of discourse connectives in addition to their semantic profile allows a more satisfying account of their use in discourse. More precisely, I will argue that causal subordinate conjunctions do not always mark a causal relation at the discourse level, because they do not always link two independent utterances or speech-acts. Such subordinating conjunctions, however, can gain discourse relational status, when they are used paratactically; as may be witnessed from accompanying discourse behavior such as co-occurring discourse markers, filled pauses, declination reset, etc. In sum, the aim of this study is to gain deeper insight into the discursive consequences of the grammatical options of coordination and subordination (see also, Diessel and Hetterle 2011; Scheffler 2005).

1. I would like to thank one of the reviewers for helping me make explicit these contrasts.

2. Causal connectives, subjectivity and discourse

Dutch and French causal connectives have been studied amply in the literature, more specifically in the discourse coherence literature. Much of this work concentrates on the causal pairs *car – parce que* in French (Groupe Lambda-L 1975; Degand and Pander Maat 2003; Degand and Fagard 2012; Zufferey 2012) and *want-omdat* in Dutch (Degand 1998; Pit 2007; Sanders and Spooren 2013, 2014; Spooren et al. 2010), observing a division of work between the two connectives building up the pair. More precisely, there is a tendency for French *car* and Dutch *want* to express so-called subjective causal relations or claim-argument relations, i.e., causal relations that are construed by or presented from the perspective of the speaker, while *parce que/omdat* show a tendency to present causal relations in a factual, objective way as consequence-cause relations (Canestrelli et al. 2013). In their cross-linguistic study, Stukker and Sanders (2012) add German *denn-weil* to the picture and find indications for the pervasiveness of the distinction between subjective and objective causal relations. In addition, the studies suggest that French, German and Dutch causal connectives are sensitive to this conceptual distinction in parallel ways (p. 176).

The authors furthermore stress that these observations are not black and white distinctions but reflect prototypical uses. An additional point of attention regarding these studies should be that most of them rely on mainly written data. This latter aspect is of importance, since the mode may affect the type of causal relations expressed by the connectives. This is the case both for French and for German. In spontaneous spoken French, *car* is extremely rare (in terms of frequency); leaving *parce que* to take over the more subjective uses (Simon and Degand 2007; see also Debaisieux 2002).[2]

An aspect that is hardly discussed in these studies is the syntactic difference between the two members of the causal pairs under investigation. Namely, *want/car/denn* are coordinating conjunctions and *omdat/parce que/weil* are subordinating conjunctions. Linking this syntactic difference to the semantic/pragmatic profile sketched so far, we could draw the very preliminary conclusion that coordinating conjunctions establish subjective relations between two independent speech events, while subordinating conjunctions express objective causal relations as a single speech event. This isomorphic mapping does not hold. Instead, there is need to work out how causal relations work at the syntactic, semantic and discourse-relational level (Blühdorn 2008).

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2. Degand and Fagard (2012) present this subjective use of *parce que* as a case of subjectification over time, Debaisieux (2016), however, shows that this subjective or pragmatic use of *parce que* was available to speakers from the beginning of the French language.

3. *Parce que* in grammar and discourse

In her analysis of *parce que* in spoken French, Debaisieux (2016) refers to numerous studies, in several languages, pointing out that subordinating conjunctions, like *parce que*, are polyfunctional in that they can introduce both dependent and independent sentences. In Example (1) *parce que* relates two propositions into one single causal speech event: because of her car being parked very far away, her friends made fun of the speaker; while in (2) *parce que* establishes an argumentative relation between two independent speech events: the speaker expresses her opinion about writing style, which she motivates in the framework of poetry writing. As argued in the previous section, the latter relation is often described in terms of subjectivity, epistemicity or speaker perspective, while the causal relation in (1) is said to be of propositional, ideational or objective nature.

(1) *ouais ils ont s se sont foutus de ma gueule tout le trajet // **parce qu**'elle était garée super loin ///* (LOCAS-F, conv-i_1_loc1)[3]
'yeah they made fun of me during the whole walk *parce que* it [the car] was parked really far away.'

(2) *mais sachez que // au dix septième /// euh le classicisme c'est vingt ans // et pourtant vingt ans // qui ont donné en fait // leur nom à tout le siècle **parce que** ce courant /// était le courant /// entre guillemets // préféré /// euh de louis quatorze ///* (LOCAS-F, conv-f2)
'but [you should] know that in the seventeenth century uh classicism is twenty years and yet twenty years that have in fact given its name to the whole century *parce que* that movement was as it were the preferred of uh Louis XIV.'

Debaisieux (2016: 80) observes that so far the literature on morpheme polyfunctionality has had a strong bias towards pragmatic solutions. Most authors rely on the opposition between a marker functioning in subordinate clauses and a connective functioning in discourse patterns, without any syntactic analysis of the different structures the morphemes are involved in.

She then convincingly argues that both the syntactic and the pragmatic properties of the two *parce que* uses should be taken into account, thus motivating two distinct "levels of syntactic combinations", which she labels micro-syntactic "constructions"[4] and macro-syntactic "configurations". In a construction, "*parce que* is

3. The data used for this study come from the Louvain Corpus of Annotated Speech – French (LoCAS-F, Degand, Martin, and Simon 2014). Short // and longer /// pauses have been left in the transcription, the syntactic and prosodic annotations have been removed here.

4. Note that the term 'construction' does not refer to the 'construction grammar framework' in the sense of Goldberg (2006), Hoffmann and Trousdale (2013), Croft (2001), or others.

a conjunction which introduces a subclause that is both embedded and dependent to the main clause predicator". In a configuration, "*parce que* is a conjunction which links two syntactically independent utterances which are pragmatically grouped" (Debaisieux 2016: 80). The syntactic behavior of *parce que* at the microsyntactic and macrosyntactic levels are different. This will be laid out briefly in the following sections, and I will then turn to the consequences of these distinctions in discourse.

3.1 Microsyntactic and macrosyntactic *parce que*

On the basis of the rich literature on French spoken grammar, Debaisieux describes three external syntactic properties that distinguish *parce que* in a Construction from its use in a Configuration: (i) the pronominal proportion criterion, (ii) the syntagmatic criterion, and (iii) the contrasting option. When all three criteria are applicable, *parce que* is used in a Construction, if not, the use is configurational. The pronominal proportion criterion reveals that the *parce que*-clause is a dependent clause. In practice, this criterion is operationalized by replacing the *parce que*-clause by the interrogative pronoun *pourquoi* ('why'/'whatfore'). The second criterion is operationalized by the possibility of clefting the *parce que*-clause (*c'est parce que X, que …*, 'it's because X, that …'), thus indicating "the proximity relation between a given constituent and its verbal predicator" (Smessaert et al. 2005: 484). The third criterion consists in the possibility of contrasting the *parce que*-clause with a *mais*-clause (*pas parce que…, mais parce que*, 'not because…, but because…').

The three criteria apply well to Example (1), thus indicating that this is a *parce que* Construction. The criteria do not apply well to Example (2), because the *parce que* constituent is not embedded and not dependent. In addition to these external syntactic properties, Debaisieux lists a number of internal syntactic properties, which further distinguish constructions from configurations. For sake of space and focus these will not be developed any further here.

According to Debaisieux, it is important to give a syntactic account of the distinction between Construction as a network of grammatical dependency relations and Configuration that belongs to the discourse level of analysis. However, because of the formal link between the constructional and configurational uses of *parce que* and the obligatory initial position of all *parce que* uses, Debaisieux warns against considering configurational *parce que* as a discourse marker. According to her, "even in their discursive use, conjunctions behave differently from discourse markers or particles." (Debaisieux 2016: 92). I disagree with the argument given. First, because discourse markers and particles do not form a homogeneous class, therefore there is not something like a 'common behavior'. Second, because Debaisieux herself has convincingly shown that there are systematic syntactic differences

between constructional and configurational *parce que*. Rather than calling for a macrosyntactic level, distinct from the discourse level, I would like to claim that macrosyntactic structures pave the way for independent discourse structure uses. Thus, there are reasons to merge Debaisieux' configurational *parce que* uses with the category of DMs, and to distinguish them from the conjunctive uses (constructional in Debaisieux' terms). My main argument will be that DM *parce que*, like any other DM, is "either outside the syntactic structure or loosely attached to it" (Brinton 1996: 34), in a relation of "weak clause association" (Schourup 1999: 232). It follows that in discourse, DM *parce que* serves to introduce a separate speech event or "rhetorically categorized unit" (utterance or speech act) (Blühdorn 2008).

3.2 Conjunctive and DM *parce que* in discourse

In this section I mean to show that *parce que* comes in two 'flavors', as conjunction and as DM. The hypothesis is as follows: As a conjunction, *parce que* integrates "a clause as an adjunct in a Construction by means of a government relation" (Debaisieux 2016: 90); semantically, it establishes a causal relation between cause and effect, represented in discourse as a single discourse event. Thus, it does NOT introduce a causal discourse/coherence relation. As a DM, *parce que* links independent clauses or syntactic constructs; semantically, it establishes a relation of causal type (cause-effect, justification, …), represented in discourse as a paratactic causal relation between two independent discourse events. In the following, I will focus on the distinction between conjunction *parce que* and DM *parce que*, pointing to the syntactic and semantic differences when needed.

The data used for this study come from the Louvain Corpus of Annotated Speech – French (LoCAS-F, Degand, Martin and Simon 2014). This dataset comprises authentic spoken French in 14 different communicative situations, such as spontaneous face-to-face conversations, radio interviews, political addresses, varying in terms of degree of preparation, degree of interaction, number of speakers, etc. While fairly small (3h38, 41.322 tokens), the corpus is enriched with segmentation information (syntactic clauses, intonation units, basic discourse units, cf. Degand and Simon 2009) and various annotations (syntactic sequences, discourse markers, disfluencies, prosodic boundaries, intonation contours…). Of interest here is the way we annotated *parce que* in the corpus. Discourse markers were identified as linguistic expressions relating their host utterance to the discourse situation, where they can fulfill a threefold role contributing to the discourse organization (textual coherence), to the speaker/hearer interaction (interpersonal meanings), and/or to speaker attitudes (Degand 2014). In addition to this functional description, we took a strong syntactic bias limiting discourse marker status to those expressions that

were syntactically detachable from a sentence (Schiffrin 1987), i.e., the weak clause association criterion mentioned above. Thus, in LOCAS-F, DMs are always outside the dependency clause. Concretely, this criterion was operationalized using the clefting operation (cf. supra). Retrieving all *parce que* occurrences from LOCAS-F, I found 124 tokens of which 56 are conjunctions (integrated in the dependency clause) and 68 are discourse markers. I systematically applied all of Debaisieux' (2016) external and internal syntactic criteria to the sample. This resulted in the recategorization of a number of *parce que* occurrences. The final sample contains 41 conjunctions and 83 DMs. In other words, in our data, 33% of *parce que* occurrences are not identified as DMs, i.e., as potential markers of a discourse relation, because they occur within a dependency clause. Is this justified? To answer this question I will systematically analyze the *parce que* sample with respect to its discourse behavior, i.e., prosodic pattern, speaker-hearer management, referential chains, disfluencies and production phenomena.

3.2.1 Parce que*: Prosodic patterns*

LOCAS-F has been annotated with prosodic boundaries. These come in two types: Major and intermediary prosodic boundaries that segment the flow of speech into intonation units (for more details about the annotation procedure, see Simon and Christodoulides 2016), with an indication of their intonation contour. Since prosodic patterns reflect discourse behavior and semantic configurations of connectives and DMs (Ford 1994; Hansson 1999; Simon and Degand 2007; Raso 2014, see also Sanders and Evers-Vermeul, this volume), I expect conjunctive and DM *parce que* to diverge on these features, if they do indeed differ at the semantic and/or discourse level. Considering the overall occurrence of prosodic boundaries (major and intermediary) with the two types of *parce que* under investigation, results indicate that conjunctive and DM *parce que* do not diverge significantly from one another (X^2 (yates) = 1.38, $df = 1$, $p = 0.2401$; $n = 124$; N.S.). This is not in line with our expectations, since we expected conjunctive *parce que* to co-occur less with prosodic boundaries than DM *parce que.* Furthermore, whenever there is a co-occurring boundary with either type of *parce que*, there is no difference in the type of intonation contour (X^2 (yates) = 0.003, $df = 1$, $p = 0.8625$; $n = 105$). Thus, the results of the prosodic patterning of the two types of *parce que* give no evidence for a distinct discourse behavior. Both types co-occur more frequently with prosodic boundaries than without, and there is no significant distinction between conjunction and DM for: (i) location of any prosodic boundary, (ii) presence of major intonation boundary, or (iii) type of intonation contour.[5]

5. It is worth noting that Dehé (2017) found similar counter-evidence for parentheticals in spoken English.

3.2.2 Parce que*: Disfluencies and production phenomena*

Discourse Markers are typical of spoken language, in which they may occur as traces of the production process. It follows that DM *parce que* should co-occur more with disfluencies and other production phenomena than conjunctive *parce que*. This is confirmed, at least partially, by the data analysis. Only six cases of *parce que* co-occur with a filled pause (*euh*), but of these five are DMs. Although this result is not telling in quantitative terms, qualitatively it makes sense that DM *parce que* co-occurs more often with filled pauses than conjunctive *parce que*. Clustering of filled pauses and DMs is indeed more frequent at the boundaries of utterances (Crible, Degand and Gilquin 2017). The same observation is made for the clustering of *parce que* with other DMs. Of the fourteen *parce que* occurrences that are immediately adjacent to other DMs, thirteen are DMs (see (3)–(4)). These are either cases of stalling, giving the speaker more time to plan or formulate their utterance (3), or cases of embedding in which *parce que* introduces a new independent complex clause (4).

(3) [teachers talking about their students during a school trip to Rome]
*ils vont nous embêter toute la soirée /// voire toute la nuit // hein /// **parce que** bon // enfin quoique ils se seront // levés // tôt ///* (LOCAS-F, conv-i_2)
'they are going to annoy us all evening even all night isn't it (hein) parce que bon enfin quoique they will have woken up early'

(4) *dans un second temps je vais rappeler notre analyse des phrases interrogatives /// **parce que** comme c' est à partir de cette analyse-là qu'on a /// émis des hypothèses sur les phrases interrogatives // en fait c' est quand même // bien de savoir ce qu' on a vu ///* (LOCAS-F, cnf_3)
'secondly I will recall our analysis of interrogative sentences parce que since it's from that analysis that we formulated hypotheses about interrogative sentences in fact it is still good to know what we have seen'

DM *parce que* frequently goes together with false starts, reformulations or interrupted utterances. Of the fourteen segments of that type, only one involves a conjunctive *parce que*. This again confirms that *parce que* in its DM status fulfills different discourse functions than conjunctive *parce que*, among which utterance planning takes a predominant position.

3.2.3 Parce que *and co-referential chains*

It has been shown that relational and referential coherence interact (Kehler 2001; Stede 2016). More precisely, segments that are closely related semantically tend to show tighter co-reference patterns. Concretely, I expect conjunctive *parce que* to link more frequently segments with coreferring arguments (as lexical or pronominal noun phrases). This should be less the case for DM *parce que*. Figure 1 presents

the distribution of the two types of *parce que* in co-reference patterns. Results show that the two types differ significantly from one another (X^2 (yates) = 8.47, df = 1, $p < 0.005$; n = 118). More precisely, the analysis of the standardized residuals shows that conjunctive *parce que* does indeed link co-referring segments more often than DM *parce que*.

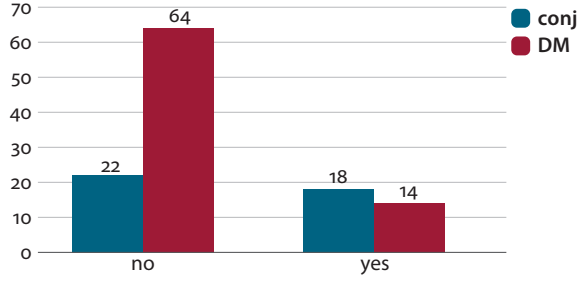

Figure 1. Co-reference patterns with conjunctive and DM *parce que*

3.2.4 Parce que *and turn management*

A final observation regarding the discourse status of the *parce que* segments concerns turn management. Discourse Markers have indeed been frequently described as turn or speaker-hearer management devices (Degand and van Bergen 2018; Fischer 2000; Taboada 2006), hence DM *parce que* should be more frequent in that locus. First, it appears that *parce que* only rarely occurs at turn transitions, as only five of such uses are found in the sample. However, when *parce que* is used at a transition, it is always a DM, not a conjunction.

3.3 *Parce que*: Preliminary conclusion

Debaisieux (2016) convincingly showed that *parce que* comes in two distinct syntactic patterns, which I have here called conjunctive *parce que* (at work in Debaisieux' construction) and DM *parce que* (in Debaisieux' configuration). I hypothesized that these two syntactic forms actually reflect that the expressions are used at different levels: syntax and discourse, respectively. More precisely, I suggested that subordinate conjunctive *parce que* marks a syntactically dependent and semantic causal relation but not a *discourse* relation, because it does not link independent discourse segments. On the other hand, DM *parce que* was hypothesized to mark a local semantic causal relation AND a causal discourse relation between independent discourse segments. The aim of the data analysis was to confirm the status of the segments linked by *parce que*. While the unfilled pause analysis was not conclusive in this respect, I have shown that DM *parce que* segments are indeed more

independent than conjunctive *parce que* segments. Evidence comes from the higher frequency of disfluency and production phenomena with DM *parce que*, its higher involvement in speaker-hearer management, and its lesser degree of coreference between the linked segments.

In the following sections, I will focus on a specific syntactic use of Dutch *omdat*, the translational equivalent of *parce que* with the aim of finding out whether a similar distinction can be made between a grammatical and discourse use of this conjunction.

4. V2-*omdat* in (spontaneous) spoken Dutch

Syntactically, Dutch *omdat* is a subordinating conjunction. It follows that it complies with the specific V-late constituent order constraint, rather than with the main clause V2-constraint, that determines that in Dutch (as in German) the finite verb should occupy the second slot of the sentence, with only one constituent in the first slot. This is illustrated in the following constructed examples with the coordinating conjunction *want* (for/because) obeying the V2-constraint because it links two matrix clauses (5), while subordinating *omdat* follows the V-late rule, as it links a matrix clause with a dependent clause, in either order (6–7). Next to coordinating *want* and subordinating *omdat,* spoken Dutch sees the sporadic emergence of an apparent coordinating use of *omdat* (8), in which the finite verb occupies the second slot (V2-rule) (see also Sanders and Evers-Vermeul, this volume).

(5) *Ik ga naar de Handlebar* ***want*** *ze hebben daar goeie koffie.*
'I go to the Handlebar *want* they have there good coffee'

(6) *Ik ga naar de Handlebar* ***omdat*** *ze daar goeie koffie hebben.*
'I go to the Handlebar *omdat* they there good coffee have'

(7) ***Omdat*** *ze er goeie koffie hebben, ga ik naar de Handlebar.*
'*Omdat* they there good coffee have, go I to the Handlebar.'

(8) *ik uhm tussen de middag moesten we mijn zus en ik altijd bij mijn oma eten.* ***omdat*** *oma woonde alleen en mijn moeder vond dat zielig dus wij moesten dat oplossen* (CGN, fn000634)
'at noon my sister and I had to have our lunch with Granny *omdat* Granny lived alone and my mother thought that was sad so we had to fix that.'

In discourse studies, little attention, if any, has been given to these syntactic differences, while the focus has been on the semantic differences or differences in the types of discourse relations expressed (see Section 2). In their 2010 paper, Persoon, Sanders, Quené and Verhagen seek a semantic explanation for this use of

V2-*omdat* (co-*omdat*, in their terms). The starting point of their corpus study is the above-mentioned semantic divide between *want* for the expression of more subjective relations and *omdat* for more objective relations (see Section 2). In this context, Persoon et al. (2010) hypothesize that co-*omdat* takes a position in-between (subjective) *want* and (objective) *omdat.* Their investigation is threefold. First, they want to find out whether co-*omdat* is comparable to the so-called (coordinating) epistemic *weil* (Keller 1995), which in spoken German is taking over from coordinating *denn* to express subjective causality (see also Kempen and Harbusch 2016 for a recent study). Such a language change explanation is however not satisfactory for Dutch, because (coordinating, subjective) *want* is highly frequent, both in the written and spoken modes, and is not giving way to *omdat*. Their second line of investigation follows the text-linguistic premises of Sweetser's (1990) domain analysis. The conclusion of the analysis is that co-*omdat* is used to express both objective and subjective properties. In their words, co-*omdat* "can be used to present a causal relation that does indeed carry obvious subjective features, but yet needs to be interpreted objectively" (Persoon et al. 2010: 272, my translation). In other words, co-*omdat* calls for an objectifying interpretation of an otherwise subjective relation. The authors' third and final step is to investigate the prosodic characteristics of co-*omdat*. Results show a divergent profile (compared to subordinating *omdat* and coordinating *want*) in terms of declination reset and articulation rate, but these cannot be related to distinct functional profiles.

While Persoon et al.'s study gives us some insight into the functional semantic profile of co-*omdat*, it does not explicitly answer the question of why *omdat* is sometimes used with main clause order. In line with the study on *parce que*, my hypothesis is that V2-*omdat* plays a discourse specific role that is different from subordinating *omdat.* My focus will thus be on the potential discrepancy between discourse and grammar in the use of this subordinating conjunction (see Degand 2016 for a preliminary study).[6] The data for this study have been extracted from the Corpus of Spoken Dutch (CGN, van Eerten 2007), more precisely from the subcorpus 'face-to-face conversation', the language variety is Netherlandic Dutch, and the age group is 18–24.[7] A total of 1015 *omdat*-occurrences was retrieved, of which 33 or 3.25% appear in main clause order. When needed this sample was contrasted with a random selection of 33 subordinating *omdat* occurrences from

6. An alternative explanation is given by Kempen and Harbusch (2018), who suggest that V2-*omdat* results from a mismatch between (lexical-semantic) conjunction selection and (syntactic) V2/VF selection, which "proceed partly independently, and sometimes miscommunicate".

7. The selection of this age group is motivated by the fact that V2-*omdat* seems to be a recent phenomenon that is more likely to occur in younger speakers.

the same subcorpus. The data sample being small, the results will be indicative rather than conclusive.

4.1 The syntactic status of V2-*omdat*

The first conclusion to rule out is that V2-*omdat* be considered as a syntactic error. After all, V-late word order is a strong normative rule in Dutch subordinating clauses (Haeseryn et al. 1997). However, in our sample, not a single instance of V2-*omdat* is (self-)corrected, neither for the conjunction, nor for verb order. Something else is happening here in native speakers' language use, which I will try to uncover starting with the syntactic status of V2-*omdat*.

In syntactic coordination, the two linked segments have equal status with respect to the coordinator. In Dutch, these are mostly two main clauses and the coordinator is not part of the connected segments. It follows that the segment introduced by the coordinator cannot be preposed, nor can the two segments be inverted without change of meaning. These syntactic constraints apply equally to the coordinating conjunction *want* and to V2-*omdat,* which is further confirmed by the fact that of the 33 V2-*omdat* occurrences, 28 can be substituted by *want*. However, the five occurrences that cannot be substituted point towards the particular status of V2-*omdat*. First, clustering of a coordinating and subordinating conjunction is possible (*maar omdat…* 'but because'), but not of two coordinating conjunctions (**maar want*). Here, V2-*omdat* keeps its combinatorial possibilities. Another restriction is the construction *dat komt omdat* ('this is because'), which does not allow the coordinating conjunction *want*, while V2-*omdat* is allowed. Thus, syntactically, V2-*omdat* is not a 'real' coordinating conjunction. Morpho-syntactically it retains its subordinating properties, while it links two independent clauses like a coordinating conjunction. It follows that V2-*omdat* is constrained in its external syntactic properties as DM *parce que* is (see Section 3.1), because it introduces an independent rather than a dependent (causal) clause. Tentatively one could suggest that by choosing a subordinating conjunction in a paratactic construction, the speaker gives equal syntactic status to the linked segments, without losing the morphosyntactic flexibility of a subordinating conjunction. Rather than speaking of syntactic coordination for V2-*omdat*, I prefer to talk of (functional) parataxis.

4.2 The semantic status of V2-*omdat*

Semantic relations can be symmetrical or asymmetrical. In the former case, the "relata have equal semantic functions and equal semantic weight" (Blühdorn 2008: 70). It follows that the segments can be reversed without any change of meaning. This is

not the case for asymmetrical connections that "cannot be inverted without significant semantic consequences. They have different relational (thematic) roles. One of them is being connected (…), the other is what it is being connected to (…)". (Blühdorn 2008: 70). Causal semantic connections are always asymmetrical, be they linked by syntactic coordination (*want*), syntactic subordination (*omdat*), or parataxis (V2-*omdat*). In terms of semantic (a)symmetry, there is apparently no reason to prefer one form of syntactic clause linking over the other. This does not mean that the meaning encoded by *want* vs. *omdat* is the same, however (see Section 2), and it does not tell us whether V2-*omdat* encodes or is used in a specific semantic context (cf. Persoon et al. 2010). In Degand (2016), I performed a subjectivity analysis on the 33 V2-*omdat* occurrences. The results show an objective use in a majority of cases (60%), i.e., in line with the prototypical use of subordinating *omdat*. With 40% (13/33) used in a subjective context, one could tentatively conclude that V2-*omdat* might be used to objectify a subjective context, but this is not very convincing, and most of all it does not explain why *omdat* is used with main word order.

4.3 The discourse status of V2-*omdat*

In line with the study on *parce que*, I aim to uncover here whether subordinating *omdat* and V2-*omdat* behave differently in discourse. In particular, I want to find out whether the diverging syntactic status (dependent vs. independent clause) is reflected at the discourse level and whether this could have an impact on the discourse relational status of the conjunction. Keeping the semantic divide between *want* and *omdat* in mind, my line of reasoning will be as follows: In formulating their first segment, speakers plan a (semantic) causal relation, which they signal in the most neutral way (objective causality) because their second argument is not fully worked out. When they get to the second segment, they start a new discourse segment. In contrast, with subordinating *omdat*, the planning phase includes both the semantic causal relation and the second argument, without any in-between replanning. Whether this is a plausible hypothesis will be examined on distributional data only, leaving any psycholinguistic experimental work for the future.

The prosodic analysis shows that, in terms of unfilled pauses, V2-*omdat* is prosodically integrated with the first segment: 27 out of 33 come without a pause before the conjunction, thus confirming that the causal relation is planned in one go with the first segment. This is similar to subordinating *omdat* (27/33). As for the independent status of the second segment, this is only partially confirmed: only 11 are immediately followed by an unfilled pause, but for subordinating *omdat*, this is still less (3/33). On the other hand, V2-*omdat* is followed by a declination reset in approximately half of the cases (17/33). To some extent, this might indicate that the

discursive independence of the segment following *omdat* is prosodically marked. This discursive independence appears more strongly from disfluencies and production phenomena co-occurring with V2-*omdat*. In more than 57% of the cases (19/33) V2-omdat is followed by a reformulation of the segment (9), this is only the case for 4/33 of the subordinating *omdat* cases.

(9) *ja nou ja en nee maar ook* ***omd omdat*** *z kijk ze willen wel een grote parkeergarage in Groningen hebben maar vanwege dat verkeerscirculatieplan d'r komt al bijna geen verkeer in in in 't centrum* (CGN, fn000695)
'yes now yes and no but also *omd omdat* th look they do want a big parking garage in Groningen but because of the traffic circulation plan there is almost no traffic anymore in the center.'

Furthermore, 10 V2-*omdat* occurrences are followed by a filled pause (*uh*), while none of the subordinating *omdat* cases is. Unlike DM *parce que*, V2-*omdat* does not cluster with other DMs (only two cases of clustering), but it is more involved in speaker-hearer management pattern, i.e., at the beginning of a new turn (8/33). The coreference pattern of V2-*omdat* also seems to confirm the independent discourse status of the following segment. A coreferent pattern corresponds to a pattern in which there is explicit mention of (at least) one same referent in the two related segments (through anaphoric or lexical repetition). This is the case for 57% (19/33) of the subordinating *omdat* cases, and only for 43% (14/33) of the V2-*omdat* cases. In other words, the co-reference pattern too seems to confirm that the V2-*omdat* segment has a more autonomous discourse status than the subordinating *omdat* segments. A final observation points into the same direction, namely that V2-*omdat* segments can be complex clauses themselves (cf. (10), in which *omdat* is followed by a when-clause) or show variation in their information structure (cf. (11), in which the temporal adjunct is topicalized). These are instances of what Debaisieux (2016) called configurations. They are incompatible with subordinating *omdat*.

(10) *… ik wil niet nu van spullen van tweedehandsbeurzen afhankelijk worden. [nee nee.] maar i voor mijn computer* ***omdat*** *als ik nu iets onder Word opsla dan kan ik gewoon echt koffie gaan zetten tussendoor.* (CGN, fn000363)
'I don't want to depend on second hand markets [no no] but for my computer *omdat* when I now save something under Word I can go make myself some coffee in the meantime'

(11) *en daarvoor uh dus die maandag* ***omdat*** *dinsdag dan kon niet iedereen geloof ik.* (CGN, fn000682)
'and before that uh so that Monday *omdat* Tuesday then not everybody could make it I believe'

4.4 Preliminary conclusion on *omdat*

In this section, I have questioned the syntactic, semantic and discourse status of the conjunction *omdat*. It appears that when *omdat* appears in V2-position, it does express a similar semantic relation as subordinating *omdat*, namely one of causal asymmetry. Syntactically, however, the two *omdat* uses differ. As a (traditional) subordinating conjunction, *omdat* links a main clause with a causal adjunct in the form of a dependent and embedded clause. Formally, this comes together with subordinate V-late constituent order. When used with matrix V2 constituent order, *omdat* links two independent main clauses in a paratactic relation, close to syntactic coordination, but keeping some of the morphosyntactic properties of subordination. This syntactic difference has consequences on the discursive use of *omdat*, where V2-*omdat* demonstrates features of discourse independence for the segment it introduces: less prosodic integration, more disfluency, less coreference, more turn transitions. Thus, the V2-*omdat* segment gains discourse status that allows it to enter into a causal discourse relation, not only in a semantic or syntactic connection.

5. Discussion and conclusion

In this article, I have tried to question the postulate in coherence relation studies that (causal) conjunctions like *parce que* and *omdat* should be considered automatically as discourse connectives, i.e., as markers of a discourse relation. While I have myself happily contributed to this line of research, I believe that discourse researchers should pay more attention to the grammatical component of language, where I see grammar as the conventionalized system of lexical, syntactic, semantic and pragmatic rules. Among these are rules of clause combining with two main options for the two languages under investigation: coordination and subordination. In line with Blühdorn (2008), I propose that discourse relations hold between independent units of discourse (see, e.g., Degand and Simon 2009 for a proposal of spoken discourse segmentation or Steen's (2005) notion of basic discourse act), not between grammatical clauses.

Yet, in discourse, speakers stretch the grammatical affordances to new uses, which might over time grammaticalize and conventionalize (see also Ariel 2009; Du Bois 2003; Waltereit 2011). Applying this to the conjunctions *parce que* and *omdat*, I would like to suggest that the grammatical constraints of syntactic subordination are stretched in partially similar ways leading to discourse relational uses.

For *parce que*, the external and internal syntactic properties of subordination are not applicable to DM *parce que* (configurational, macrosyntactic *parce que* in

Debaisieux' [2016] terms), while the positional constraints (initial position of the host segment) still hold. In discourse, the syntactic constraints of subordination affect the autonomy potential, as embedded adjunct clauses are not used as independent speech events, which, I speculated, might affect their potential to express a discourse relation. When these syntactic constraints are removed, the *parce que* clause can become a "rhetorically categorized unit" (Blühdorn 2008) as was demonstrated through the (qualitative) prosodic, referential and disfluency analysis. In French, this "discourse relational use" is a frequent phenomenon.

For Dutch *omdat*, I suggested that the V2 constituent order is the expression of a similar discourse use. The syntactic constraints of subordination, most strikingly expressed by the V-late rule, are put aside in order to give discursive autonomy to the *omdat* segment. Again, this discursive autonomy appears from prosodic, referential and disfluency properties that are different from subordinating *omdat*. In contrast to French, this phenomenon is very infrequent in Dutch, probably because the causal coordinating conjunction *want* is highly frequent in spoken language, even more frequent than *omdat* (Spooren et al. 2010). Therefore, the question remains: why use *omdat* in a paratactic relation, when there is the way more frequent *want*? For German, with the same constituent order constraints as Dutch, Kempen and Harbusch (2016: 1) propose that *weil*-V2 (the German equivalent of V2-*omdat*) "arises when pragmatic and processing factors drive the encoder to discontinue the current sentence, and to plan the clause following *weil* in the form of the main clause of an independent, new sentence." In other words, there is "miscoordination between the mechanisms for lexical retrieval and grammatical encoding", which is again due to the very high frequency of *weil*. While the frequency explanation does not hold for Dutch, the same authors suggest in their 2018 paper that a similar mismatch between conjunction selection and matrix vs. dependent clause selection holds for Dutch too, be it less frequently, because coordinating *want* is indeed very frequent and is planned as an autonomous utterance taking V2 by default.

A potential explanation may come from Diessel and Hetterle's (2011) cross-linguistic study of causal adverbial clauses. They found that "causal clauses tend to be more independent of the associated main clause than other semantic types of adverbial clauses" (p. 21). Speculating, I would like to suggest that this higher (syntactic) independence may pave the way for innovative discourse patterns.

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References

Ariel, Mira. 2009. "Discourse, Grammar, Discourse." *Discourse Studies* 11(1): 5–36. https://doi.org/10.1177/1461445608098496

Blühdorn, Hardarik. 2008. "Subordination and Coordination in Syntax, Semantics and Discourse: Evidence from the Study of Connectives." In *"Subordination" versus "Coordination" in Sentence and Text: A Cross-Linguistic Perspective*, ed. by Cathrine Fabricius-Hansen, and Wiebke Ramm, 59–85. Amsterdam, Philadelphia: John Benjamins. https://doi.org/10.1075/slcs.98.04blu

Brinton, Laurel J. 1996. *Pragmatic Markers in English: Grammaticalization and Discourse Functions*. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110907582

Brown, Gillian, and George Yule. 1983. *Discourse Analysis*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511805226

Canestrelli, Anneloes R., Willem M. Mak, and Ted J. M. Sanders. 2013. "Causal Connectives in Discourse Processing: How Differences in Subjectivity Are Reflected in Eye Movements." *Language and Cognitive Processes* 28(9): 1394–1413. https://doi.org/10.1080/01690965.2012.685885

Crible, Ludivine, Liesbeth Degand, and Gaëtanelle Gilquin. 2017. "The Clustering of Discourse Markers and Filled Pauses: A Corpus-Based French-English Study of (Dis)Fluency." *Languages in Contrast* 17(1): 69–95. https://doi.org/10.1075/lic.17.1.04cri

Croft, William. 2001. *Radical Construction Grammar: Syntactic Theory in Typological Perspective*. Oxford, Cambridge: Oxford University Press. https://doi.org/10.1093/acprof:oso/9780198299554.001.0001

Debaisieux, Jeanne-Marie. 2002. "Le fonctionnement de parce que en français parlé : Étude quantitative sur corpus." In *Romanistische Korpuslinguistik, Korpora und gesprochene Sprache*, ed. by Claus D. Pusch, and Wolfgang Raible, 349–376. Tübingen: Gunter Narr.

Debaisieux, Jeanne-Marie. 2004. "Les conjonctions de subordination: Mots grammaticaux ou mots de discours? Le cas de *parce que*." *Revue de semantique et pragmatique* 15–16: 51–67.

Debaisieux, Jeanne-Marie. 2016. "Toward a Global Approach to Discourse Uses of Conjunctions in Spoken French." *Language Sciences* 58: 79–94. https://doi.org/10.1016/j.langsci.2016.04.001

Degand, Liesbeth. 1998. "Het ideationele gebruik van *want* en *omdat*: een geval van vrije variatie." *Nederlandse Taalkunde* 3: 309–326.

Degand, Liesbeth. 2014. "'So very fast very fast then' Discourse Markers at Left and Right Periphery in Spoken French." In *Discourse Functions at the Left and Right Periphery: Cross-linguistic Investigations of Language Use and Language Change*, ed. by Kate Beeching, and Ulrich Detges, 151–178. Studies in Pragmatics, Volume 12. Leiden, Boston: Brill. https://doi.org/10.1163/9789004274822_008

Degand, Liesbeth. 2016. "Omdat ik heb tot half één tentamen. Over nevenschikkend omdat in context." *Nederlandse Taalkunde* 21(3): 419–431. https://doi.org/10.5117/NEDTAA2016.3.DEGA

Degand, Liesbeth, and Benjamin Fagard. 2012. "Competing Connectives in the Causal Domain: French *car* and *parce que*." *Journal of Pragmatics* 44(2): 154–168. https://doi.org/10.1016/j.pragma.2011.12.009

Degand, Liesbeth, Laurence Martin, and Anne-Catherine Simon. 2014. "LOCAS-F : Un corpus oral multigenres annoté." In *CMLF 2014 – 4ème Congrès Mondial de Linguistique Française*, 2613–2626. Berlin: EDP Sciences. https://doi.org/10.1051/shsconf/20140801211

Degand, Liesbeth, and Henk Pander Maat. 2003. "A Contrastive Study of Dutch and French Causal Connectives on the Speaker Involvement Scale." In *Usage-Based Approaches to Dutch*, ed. by Arie Verhagen, and Jeroen Maarten van de Weijer, 175–199. Utrecht: Lot.

Degand, Liesbeth, and Anne-Catherine Simon. 2009. "On Identifying Basic Discourse Units in Speech: Theoretical and Empirical Issues." *Discours* 4 [online: http://discours.revues.org/index5852.html] https://doi.org/10.4000/discours.5852

Degand, Liesbeth, and Geertje van Bergen. 2018. "Discourse Markers as Turn-Transition Devices: Evidence from Speech and Instant Messaging." *Discourse Processes* 55(1): 47–71. https://doi.org/10.1080/0163853X.2016.1198136

Dehé, Nicole. 2017. *Parentheticals in Spoken English. The Syntax-Prosody Relation*. Cambridge: Cambridge University Press.

Diessel, Holger, and Katja Hetterle. 2011. "Causal Clauses: A Cross-Linguistic Investigation of their Structure, Meaning and Use." In *Linguistic Universals and Language Variation*, ed. by Peter Siemund, 23–54. Berlin: Walter de Gruyter. https://doi.org/10.1515/9783110238068.23

Du Bois, John W. 2003. "Discourse and Grammar." In *The New Psychology of Language: Cognitive and Functional Approaches to Language Structure*, ed. by Michael Tomasello, 2, 47–87. London: Erlbaum.

Fasold, Ralph. 1990. *The Sociolinguistics of Language: Introduction to Sociolinguistics*. Oxford: Wiley-Blackwell.

Fischer, Kerstin. 2000. "Discourse Particles, Turn-Taking, and the Semantics-Pragmatics Interface." *Revue de Sémantique et Pragmatique* 8: 111–137.

Ford, Cecilia E. 1994. "Dialogic Aspects of Talk and Writing: Because on the Interactive-Edited Continuum." *Text – Interdisciplinary Journal for the Study of Discourse* 14: 531–554. https://doi.org/10.1515/text.1.1994.14.4.531

Gernsbacher, Morton A. 1997. "Coherence Cues Mapping during Comprehension." In *Processing Interclausal Relationships. Studies in the Production and Comprehension of Text*, ed. by Jean Costermans, and Michel Fayol, 3–21. Mahwah, New Jersey: Lawrence Erlbaum Associates.

Goldberg, Adele E. 2006. *Constructions at Work: The Nature of Generalization in Language*. Oxford: University Press.

Groupe lambda-L. 1975. "Car, parce que, puisque." *Revue Romane* 10: 248–280.

Haeseryn, Walter, Kirsten Romijn, Guido Geerts, Jaap de Rooij, and Maarten van den Toorn. 1997. *Algemene Nederlandse spraakkunst*. 2nd ed. Groningen, Deurne: Martinus Nijhoff, Wolters Plantyn.

Hansson, Petra. 1999. "Prosodic Correlates of Discourse Markers in Dialogue." In *ETRW on Dialogue and Prosody*, Veldhoven, The Netherlands. [online: http://www.isca-speech.org/archive_open/archive_papers/dia_pros/diap_099.pdf.]

Hoffmann, Thomas, and Graeme Trousdale. 2013. *The Oxford Handbook of Construction Grammar*. Oxford: Oxford University Press. https://doi.org/10.1093/oxfordhb/9780195396683.001.0001

Kehler, Andrew. 2001. *Coherence, Reference, and the Theory of Grammar*. Chicago: CSLI publications.

Keller, Rudi. 1995. "The Epistemic *Weil*." In *Subjectivity and Subjectivisation. Linguistic Perspectives*, ed. by Dieter Stein, and Susan Wright, 16–30. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511554469.002

Kempen, Gerard, and Karin Harbusch. 2016. "Verb-Second Word Order after German *Weil* 'Because': Psycholinguistic Theory from Corpus-Linguistic Data." *Glossa: A Journal of General Linguistics* 1(1). https://doi.org/10.5334/gjgl.46

Kempen, Gerard, and Karin Harbusch. 2018. "A competitive mechanism selecting verb-second versus verb-final word order in causative and argumentative clauses of spoken Dutch: A corpus-linguistic study." *Language Sciences* 69: 30–42. https://doi.org/10.1016/j.langsci.2018.05.005

Persoon, Ingrid, Ted Sanders, Hugo Quené, and Arie Verhagen. 2010. "Een coördinerende omdat-constructie in gesproken Nederlands? – Tekstlinguïstische en prosodische aspecten." *Nederlandse Taalkunde* 15(3): 259–282. https://doi.org/10.5117/NEDTAA2010.3.EEN_454

Pit, Mirna. 2007. "Cross-Linguistic Analyses of Backward Causal Connectives in Dutch, German and French." *Languages in Contrast* 7: 53–82. https://doi.org/10.1075/lic.7.1.04pit

Raso, Tommaso. 2014. "Prosodic Constraints for Discourse Markers." In *Spoken Corpora and Linguistic Studies*, ed. by Tommaso Raso, and Heliana Mello, 411–467. Amsterdam: John Benjamins. https://doi.org/10.1075/scl.61.14ras

Sanders, Ted, and Wilbert Spooren. 2007. "Discourse and Text Structure." In *Handbook of Cognitive Linguistics*, ed. by Dirk Geeraerts, and Hubert Cuykens, 916–943. Oxford: Oxford University Press.

Sanders, Ted, and Wilbert Spooren. 2009. "The Cognition of Discourse Coherence." In *Discourse, of Course*, ed. by Jan Renkema, 197–212. Amsterdam, Philadelphia: John Benjamins. https://doi.org/10.1075/z.148.20san

Sanders, Ted, and Wilbert Spooren. 2013. "Exceptions to Rules: A Qualitative Analysis of Backward Causal Connectives in Dutch Naturalistic Discourse." *Text and Talk* 33(3): 377–398. https://doi.org/10.1515/text-2013-0018

Sanders, Ted, and Wilbert Spooren. 2014. "Causality and Subjectivity in Discourse: The Meaning and Use of Causal Connectives in Spontaneous Conversation, Chat Interactions and Written Text." *Linguistics* 53(1): 53–92. https://doi.org/10.1515/ling-2014-0034

Scheffler, Tatjana. 2005. "Syntax and Semantics of Causal *denn* in German." In *Proceedings of the 15th Amsterdam Colloquium*, 215–220. Amsterdam.

Schiffrin, Deborah. 1987. *Discourse Markers*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511611841

Schourup, Lawrence. 1999. "Discourse Markers." *Lingua* 107(3–4): 227–265. https://doi.org/10.1016/S0024-3841(96)90026-1

Simon, Anne Catherine, and Liesbeth Degand. 2007. "Connecteurs de causalité, implication du locuteur et profils prosodiques: Le cas de *car* et de *parce que*." *French language studies* 17(3): 323–341. https://doi.org/10.1017/S095926950700302X

Simon, Anne Catherine, and George Christodoulides. 2016. "Frontières prosodiques perçues : corrélats acoustiques et indices syntaxiques." *Langue française* 191(3): 83–106. https://doi.org/10.3917/lf.191.0083

Smessaert, Hans, Bert Cornillie, Dagmar Divjak, and Karel van den Eynde. 2005. "Degrees of Clause Integration: From Endotactic to Exotactic Subordination in Dutch." *Linguistics* 43(3): 471–529. https://doi.org/10.1515/ling.2005.43.3.471

Spooren, Wilbert, Ted Sanders, Mike Huiskes, and Liesbeth Degand. 2010. "Subjectivity and Causality: A Corpus Study of Spoken Language." In *Empirical and Experimental Methods in Cognitive/Functional Research*, ed. by Sally Rice, and John Newman, 241–255. Chicago: University of Chicago Press.

Stede, Manfred. 2016. *Handbuch Textannotation: Potsdammer Kommentarkorpus 2.0*. Potsdam: Universitätsverlag Potsdam.

Steen, Gerard. 2005. "Basic Discourse Acts: Towards a Psychological Theory of Discourse Segmentation." In *Cognitive Linguistics: Internal Dynamics and Interdisciplinary Interaction*, ed. by Francisco Ruiz de Mendoza Ibáñez, and Sandra Peña Cervel, 283–312. Berlin: Mouton de Gruyter.

Stubbs, Michael. 1983. *Discourse Analysis: The Sociolinguistic Analysis of Natural Language*. Chicago: University of Chicago Press.

Stukker, Ninke, and Ted Sanders. 2012. "Subjectivity and Prototype Structure in Causal Connectives: A Cross-Linguistic Perspective." *Journal of Pragmatics* 44(2): 169–190. https://doi.org/10.1016/j.pragma.2011.06.011

Sweetser, Eve. 1990. *From Etymology to Pragmatics: Metaphorical and Cultural Aspects of Semantic Structure*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511620904

Taboada, Maite. 2006. "Spontaneous and Non-Spontaneous Turn-Taking." *Pragmatics* 16(2/3): 329–360. https://doi.org/10.1075/prag.16.2-3.04tab

Van Eerten, Laura. 2007. "Over het Corpus Gesproken Nederlands." *Nederlandse Taalkunde* 3: 194–215.

Waltereit, Richard. 2011. "Grammaticalization and Discourse." In *The Oxford Handbook of Grammaticalization*, ed. by Bernd Heine, and Heike Narrog. Oxford: Oxford University Press.

Zufferey, Sandrine. 2012. "'Car, parce que, puisque' Revisited: Three Empirical Studies on French Causal Connectives." *Journal of Pragmatics* 44(2): 138–153. https://doi.org/10.1016/j.pragma.2011.09.018

CHAPTER 6

A corpus-based comparative study of concessive connectives in English, German and Spanish

The distribution of *although, obwohl* and *aunque* in the Europarl corpus

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This contribution presents a comparative, corpus-based study of the arguably most common concessive connectives of English, German and Spanish, i.e., *although, obwohl* and *aunque*. Concessive connectives cover a broad range of contexts and the question arises to what extent *prima facie* equivalents such as the three connectives under analysis in this study differ with respect to parameters of concessivity identified in the relevant literature. The study shows that *obwohl* differs significantly from *aunque* and *although* in exhibiting a strong bias towards 'canonical' concessivity, while the latter connectives (*aunque* to a greater extent than *although*) are also commonly used in non-canonical, specifically 'relativizing' concessives. Some further distributional differences are identified (with respect to the level of linking, the givenness status and the topic-comment structure of the concessive), but they are largely consequences of the asymmetries in the 'basic' type of semantic relation (canonical, relativizing, adversative). As far as structural properties of the concessive clauses are concerned, *obwohl*-clauses differ from *although*- and *aunque*-clauses in that they rarely precede the main clause. This tendency cannot be explained in terms of length, or the functional parameters under investigation, and is thus regarded as a property of the connectives themselves.

Keywords: concessivity, adversative, relativizing, rich annotation, information structure, position of subordinate clause

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1. Introduction

This study[1] deals with concessive clauses introduced by the three arguably most common concessive connectives of English, German and Spanish (cf. Section 2), i.e., *although, obwohl* and *aunque,* as illustrated in the English example in (1a) and its translations into German and Spanish in (1b) and (1c).[2]

(1) EP-10-05-05-014 (original English, emphasis mine)
   a. I voted in favour of the Van Dalen report on maritime transport strategy up to 2018, **although** our amendment on including maritime transport in the ETS was rejected by large majority (roll-call vote).
   b. Ich habe für den Van Dalen-Bericht über die Seeverkehrsstrategie bis 2018 gestimmt, **obwohl** unser Änderungsantrag bezüglich der Miteinbeziehung des Seeverkehrs in das Emissionshandelssystem (ETS) von einer großen Mehrheit abgelehnt wurde (namentliche Abstimmung).
   c. He votado a favor del informe Van Dalen sobre la estrategia de transporte marítimo hasta 2018, **aunque** se rechazó nuestra enmienda sobre la inclusión del transporte marítimo en el ETS por una amplia mayoría (votación nominal).

As is well known, concessives vary systematically in their interpretation. The following two dimensions have figured centrally in the relevant literature:

- the specific type of relation holding between the main and subordinate clause (e.g., concessive vs. adversative; cf. *inter alia* König 1985; Rudolph 1996; Carbonell-Olivares 2009), and
- the level of linguistic analysis at which the concessive relation holds (e.g., content vs. illocutionary vs. textual; cf. *inter alia* Crevels 2000a; Crevels 2000b; Latos 2009).

Moreover, concessive clauses may exhibit differences with respect to information structural properties, in particular:

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1. Earlier versions of this paper were presented at the *3rd International Conference on Linguistic & Psycholinguistic Approaches to Text Structuring* (Valencia, 24–26 January, 2016) and at the *Olinco 2016 Conference* (Palacký University Olomouc, 9–11 June, 2016). I would like to thank the audiences for valuable feedback. Furthermore, I have greatly benefited from comments made by V. Atayan, D. Hole, E. König and P. Siemund. Any inaccuracies are of course my own responsibility.

2. All sentences have been taken from the Europarl corpus/version 7, cf. Koehn (2005) and Cartoni and Meyer (2012); the identifier at the top indicates the number of the document; see Section 2 for further remarks on the data.

– the givenness of the subordinate clause (given vs. new; see for instance Chafe 1976; Schwarzschild 1999; Rochemont 2016), and
– the topic-comment structure of the sentence (e.g., the presence of a topic contrast; cf. Büring 2003; Gast 2010; Büring 2016).

Finally, concessive clauses have been shown to vary in terms of their structural properties (cf. Diessel 1996; Wiechmann and Kerz 2013), specifically with respect to

– the length of the concessive clause, and
– the position of the concessive clause relative to the main clause.

The present study sets out to determine to what extent these properties have an influence on the distribution of (clauses introduced by) *although, obwohl* and *aunque* (see for instance Rudolph 1996; Carbonell-Olivares 2009; Wiechmann and Kerz 2013 for empirical studies of English carried out in a similar spirit).[3] The focus is on original (non-translated) data. Translations into the other languages will be provided as well, mainly for illustrative purposes.

It will be shown that *obwohl* differs from *although* and *aunque* primarily in two respects: (i) it is rarely used in concessives which I call 'non-canonical' – most importantly, its use in a 'relativizing' function is rare, and (ii) clauses introduced by *obwohl* are significantly underrepresented in a position preceding the main clause, in comparison to clauses introduced by *although* and *aunque.* A further tendency that can be observed concerns topic-comment structure: *obwohl* is significantly underrepresented in combination with contrastive topics, in comparison to *although* (though it does not differ significantly from *aunque* in this respect).

Following this introduction Section 2 contains some remarks on the data and the process of annotation. Section 3 provides some theoretical background (definitions of concessivity and adversativity). The functional variables (parameters of variation) are introduced in Section 4, and the results for these variables are presented in Section 5. Section 6 contains an analysis of the structural variables (position and length). Section 7 combines both groups of variables (functional and structural), and Section 8 summarizes the results and discusses some implications.

3. Aarts (1988) is an early quantitative study of English concessives; Hilpert (2013) contains an analysis of concessive parentheticals in English, taking into account similar types of variables as have been used in the present study; Schützler (2017) and Schützler (2018) deal with the distribution of concessives in varieties of English on the basis of a similar approach.

2. Data and annotation

I extracted a random sample of 100 (original) examples for each of the concessive connectives *although, obwohl* and *aunque* from the Europarl corpus (version 7; cf. Koehn 2005; Cartoni and Meyer 2012). The data are available online.[4] For *aunque,* I only used examples with indicative mood, as this connective interacts systematically with verbal mood in its interpretation (the *subjuntivo* mood leads to a hypothetical interpretation of the concessive clause, and thus to an interpretation as a concessive conditional; cf. Rodríguez Rosique 2005; Sánchez-Naranjo 2014).

The three connectives under investigation have been chosen as the three most typical, and most frequent, representatives of concessive connectives in English, German and Spanish. A simple search delivers the following frequencies of concessive connectives in the Europarl-direct corpus:[5]

- There are 1,720 instances of *although* in the English part of the corpus. The most common alternative is *though,* with 1,430 occurrences. However, many of the relevant cases are not instances of *though* as a connective (for instance, there are 106 cases preceding a period or comma; many of these occurrences are likely instances of final particles, rather than concessive connectives). There are 515 occurrences of *even if* and 409 occurrences of *even though*. The corpus contains 2,773 cases of *while*. Assuming that approximately 30% of occurrences of *while* are concessive (cf. Aarts 1988: 55 – based on a different corpus, however), we can rather safely assume that concessive *while* is less frequent than *although*.
- In Spanish, *aunque* is by far the most frequent concessive connective, with 1,283 occurrences. The main alternative, *si bien,* only occurs 154 times, and there are 132 occurrences of *a pesar de que*.
- In the German part of the corpus, *obwohl* occurs 669 times. *Auch wenn* is almost as frequent as *obwohl,* with 632 occurrences, but many of the relevant cases are not concessives but simply combinations of the additive particle *auch* with the conditional connective *wenn* (and as a concessive marker *auch wenn* normally introduces concessive conditionals, just like *selbst wenn,* which was found 120 times). *Wenn auch* occurs 174 times, *wenngleich* 50 times, and *obgleich* 16 times.

Even though the study is intended to deal with concessivity as a semantic notion, the sampling method obviously corresponds to a semasiological approach. As the three connectives under investigation are rather specialized, and as the great

4. URL: http://www.uni-jena.de/~mu65qev/data/index.html

5. All items were searched with a preceding white space. At the beginning of each line, a white space was inserted, to make sure that sentence-initial instances were included.

majority of connectives are actually used in a concessive function as defined in Section 3.1, as will be seen in Section 5.1, I assume that using the word 'concessive' in the title of this study is legitimate.

The study pursues a "rich annotation" approach to sentence semantics. The functional properties along which the three connectives might vary (cf. Section 4) were annotated manually. For this purpose, the sample sentences were first parsed with the Stanford PCFG-parser (cf. Klein and Manning 2003) and imported into the annotation software GraphAnno (cf. Gast et al. 2015b; Gast et al. 2015a; Gast et al. 2016),[6] using the Python interface to GraphAnno, GraphPynt.[7] The parses were partially modified for further processing, primarily in order to render the data from the three languages comparable. The syntactic information was not used for the present analysis, however, and the main purpose of the syntactic preprocessing was to provide a structural presentation to which annotations could be added.

The nodes corresponding to the concessive clause and the main clause were identified manually and subsumed under a common node of category 'CONC', assigned to the functional level (in GraphAnno, levels can be differentiated by colours). The elements of the concessive sentence were categorized as 'ARG-1' (the concession) and 'ARG-2' (the main clause). The material dominated by ARG-1 and ARG-2 was subsequently assigned to a layer of its own. A 'basic' sentence structure, ready to be annotated further, is shown in Figure 1.

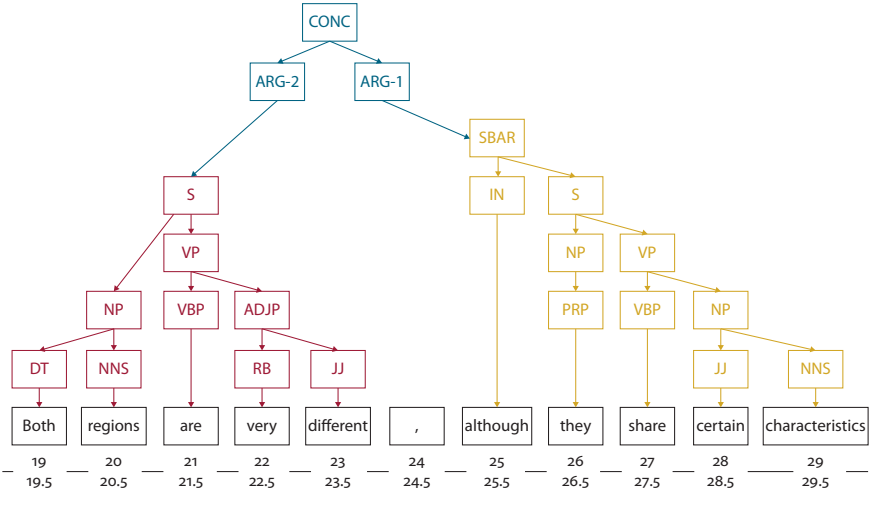

Figure 1. A pre-annotated sentence in GraphAnno

6. See also the GraphAnno documentation, https://github.com/LBierkandt/graph-anno/tree/master/doc.

7. https://github.com/VolkerGast/GraphPynt

Functional annotations are represented as properties of the corresponding nodes. For example, properties of the concessive clause (such as its information status, cf. Section 4.3) were assigned to the ARG-1-node (i.e., the functional node dominating the syntactic node corresponding to the concessive clause). For the quantitative analysis the annotations were exported using the native export function of GraphAnno, and analyzed with R (cf. R Core Team 2018).

The data was annotated by a single annotator, the author. I am fully aware that this compromises objectivity, but within the exploratory approach taken in the present study a comprehensive annotation procedure with various annotators – implying the establishment of annotation guidelines, and several annotation-validation cycles – would not have been feasible. The annotation decisions are subtle and require a solid background in matters of semantics and pragmatics, i.e., expert annotators. At an initial stage, group annotations tend to introduce inconsistency into the data, and it takes some time to render the annotations consistent.[8] While single-annotator annotations are certainly less objective, they therefore tend to be more consistent than (inchoate) group annotations. The data is available online (cf. Note 4) and readers should feel free to take a look at them (and, if they like, reannotate them). The extracted data contain not only the annotation decisions for the variables investigated in the present study, but also 'auxiliary annotations' such as the two arguments of the concessive link and the topics as well as sub-topics in each case. This is intended to make the annotation decisions more transparent.

3. Theoretical background: Concessivity

The present study focuses on 'factual' concessives, rather than concessive conditionals (cf. Konig 1986; Haspelmath and Konig 1998). Unlike the latter type of clause, factual concessives commit the speaker to the truth of the proposition expressed in the concessive clause. The difference between factual concessives and concessive conditionals can be seen in (2) (suggesting that John is drunk at the moment of speaking) and (3) (not containing an indication to that effect).

(2) Although John is drunk, he is not impolite.

(3) Even if John is drunk, he is not impolite.

The sample of 3 × 100 examples was therefore created in such a way that only 'factual' connectives were extracted, i.e., *although, obwohl* and *aunque.* As mentioned

8. As I have experienced myself in two group annotation projects documented in Atayan et al. (2018) and Gast et al. (forthcoming).

above, the Spanish sample only contains examples in the indicative mood, as the mood of the main verb indicates the difference between factual and hypothetical concessives in this language (see for instance Sánchez-Naranjo 2014).

In what follows, a definition of concessivity will be provided (Section 3.1), and a distinction between concessives and adversatives will be established (Section 3.2).

3.1 A probabilistic definition of concessivity

The (linguistic) notion of 'concession' or 'concessivity' is generally associated with some type of 'incompatibility' or 'dissonance' between the concessive clause and the main clause (e.g., König 1985; König 1988; Mann and Thompson 1988; Iten 1998, 2000; Knott and Sanders 1998; König and Siemund 2000, among many others).[9] A commonly held view is that concessivity comes with a presupposition to the effect that the two events said to cooccur in a concessive link do not 'normally' cooccur (e.g., König 1988: 147; König 1994: 681). Accordingly, (4) can be analysed as shown in (4a) and (4b).

(4) Although it's raining, John is going for a walk.
   a. pres: NORMALLY['it rains' → ¬['John goes for a walk']]
   b. ass.: '(It rains ∧) John goes for a walk'

In a more general format, the interpretation of concessive clauses can be represented as in (5) (throughout the paper, I will use *c* for the concession; *m* is a placeholder for the [semantic] material in the main clause; capital *C* will be used for the concessive sentence, i.e., the combination of *c* and *m*).

(5) *m* although *c*
   a. pres: NORMALLY[c → ¬m]
   b. ass.: (*c* ∧) *m*

While the notion of 'normality' seems intuitively rather clear, it is hard to define in formal terms. An alternative way of looking at concessivity is by comparing the conjunction of the main and the concessive clause ($m \wedge c$) with the conjunction of the main clause, and the negation of the concessive clause ($m \wedge \neg c$). For example, we can compare the conjunction in (6) with the one in (7).

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9. For alternative, discourse pragmatic treatments of concession, see Couper-Kuhlen and Thompson (2000) and Barth-Weingarten (2003) in the context of conversation analysis, and Ducrot (2004) and Atayan (2006) in the context of argumentation theory. 'Incausal' analyses, according to which concessivity is the dual of causality (König 1991, and more recently, Hilpert 2013) have largely been abandoned, e.g., by E. König himself (König and Siemund 2000; cf. also Pasch 1992; Iten 1997).

(6) It rains and John goes for a walk. ($c \wedge m$)

(7) It does not rain and John goes for a walk. ($\neg c \wedge m$)

While (6) is implied or even asserted by (4), the more 'normal', expected or perhaps more likely situation is the one in (7). We can express the presupposition stated in (4a) in a 'probabilistic' way as shown in (8) ('p' stands for 'probability'; cf. also Kim 2002 for a probability-based analysis of concessivitiy).

(8) p('John goes for a walk' ∧ 'it rains')
< p('John goes for a walk' ∧ ¬['it rains'])

More generally, this presupposition can be formulated as in (9), as a conditional probability. I will call this presupposition the 'Concessive Presupposition', abbreviated as 'ConcPres'. I assume that it has a 'pragmatic' status in the sense of Stalnaker (1974): It is taken to be part of the 'common ground' (cf. Stalnaker 2002) by any speaker using a concessive connective, and it says that the probability of *m* conditional on *c* is lower than the probability of *m* conditional on ¬*c*.

(9) Concessive Presupposition
Given a main clause *m* and a concessive clause *c*:
ConcPres(*c*, *m*) := p(*m*|*c*) < p(*m*|¬*c*)

Note that the Concessive Presupposition is a condition of well-formedness, not a 'meaning' or 'function'. The rhetorical effect of concessivity arises from the utterance of *m*, against the background of the Concessive Presupposition. Concessives therefore have a 'strengthening' function (with respect to *m*), at a textual level.[10]

3.2 Concessives vs. adversatives

The three connectives under analysis are sometimes used in an adversative, rather than concessive, function. I will therefore provide a brief definition of adversativity in this section.

While concessive sentences (*C*) establish a relationship between the concessive clause (*c*) and the main clause (*m*), adversative clauses make reference to a third element, the 'conclusion' (cf. for instance König 1985; Iten 2000; Carbonell-Olivares 2009). As I am using *c* for the concession, I will use σ as a placeholder for conclusions (cf. the Greek word *sympérasma* 'conclusion'). König (1985) and Carbonell-Olivares

10. Mann and Thompson (1988: 39) speak of "remov[ing] …an obstacle": "The speaker acknowledges the apparently contrary information, but then advances the nucleus anyway, showing that s/he does not regard the two as genuinely incompatible. This tends to remove the satellite as an obstacle toward favoring the nucleus." See Ducrot (2004) and Atayan (2006) for similar analyses.

(2009) discuss the example in (10). Adversative clauses introduced by a connective that 'canonically' introduces concessive clauses will be called 'concessive adversatives', as they differ systematically from 'canonical adversatives', i.e., paratactic structures conjoined by elements such as Engl. *but,* Germ. *aber,* and Span. *pero.*

(10) Although he is a bit short of breath, he has long legs.
(Carbonell-Olivares 2009: 944)

A sentence of the type of (10) is only felicitous if both clauses refer to the same 'question under discussion/QUD' (Roberts 2012) or *Quaestio* (Klein and Stutterheim 1987; cf. also Gast and Auwera 2011). A plausible Quaestio for (10) is given in (11). In a Hamblin-style semantics for questions (Hamblin 1973),[11] it can be represented as shown in (11b).

(11) a. Quaestio of (10): 'Is he a good runner?'
b. {'He is a good runner', 'He is not a good runner'}

The two components of (10) – 'he has long legs' (*m*) and 'he is a bit short of breath' (*c*) – lead to conflicting conclusions with respect to the Quaestio in (11). In other words, they have conflicting 'contextual implications' in terms of Relevance Theory (Wilson and Sperber 2004),[12] cf. (12) (the symbol $\rightarrow_{CI}$ represents contextual implications).

(12) a. 'he has long legs' $\rightarrow_{CI}$ 'he is a good runner'
b. 'he is a bit short of breath' $\rightarrow_{CI}$ 'he is not a good runner'

Adversatives are not concessives. The Concessive Presupposition does not hold in cases like (10). However, there is a systematic relationship between concessivity and adversativity: Like concessives, adversatives can be analyzed in a probabilistic way. What is compared in this case, however, is not $p(m|c)$ and $p(m|\neg c)$, but the conditional probability of the contextual implication of the main clause with respect to the Quaestio Q ($CI(m, Q)$), given c or $\neg c$. Consider (13). We can 'transform' an adversative sentence into a concessive sentence by replacing m with $CI(m)$, cf. (13c).

(13) Although [he is a bit short of breath]$_c$, [he has long legs]$_m$.
a. Quaestio
Q = {'he is a good runner', 'he is not a good runner'}

---

11. According to Hamblin (1973: 48) "questions set up a choice-situation between a set of propositions, namely those propositions that count as answers to it…"

12. A contextual implication is "a conclusion deducible from the input and the context together, but from neither input nor context alone" (Wilson and Sperber 2004: 251).

b. Contextual implication of *m*
CI(*m*, *Q*) = 'he is a good runner'
c. Replacement of *m* with *CI*(*m, Q*)
Although [he is a bit short of breath], [he is a good runner].

Adversatives can thus be assumed to come with a presupposition as shown in (14). I will call this presupposition the 'Adversative Presupposition', abbreviated as 'AdvPres'.

(14) Adversative Presupposition
Given a main clause *m*, a concessive clause *c* and a Quaestio *Q*:
AdvPres(*m*, *c, Q*) := p(*CI*(*m, Q*)|*c*) < p(*CI*(*m*, *Q*)|¬*c*)

Note, again, that (14) is a condition of well-formedness concerning the adversative interpretation of a connective. The rhetorical or textual effect is similar to that of concessivity, though *ceteris paribus* probably weaker, because the contextual effect of *m* is not (necessarily) made explicit (cf. (13) vs. (13c)).[13]

An example from my data where an adversative relation is expressed with the three connectives under investigation is given in (15).

(15) EP-97-05-13 (original English)
a. **Although** radiological diagnosis provides undoubted benefits for patients, it entails risks, and for this reason we have to try to reduce the use of medical radiation where at all possible by employing alternative methods.
b. **Obwohl** die Röntgendiagnose Patienten zweifellos Vorteile bietet, birgt sie Risiken in sich, und wir sollten deshalb versuchen, den Einsatz von Strahlen in der Medizin nach Möglichkeit zu verringern und durch alternative Methoden zu ersetzen.
c. **Aunque** el diagnóstico radiológico proporciona beneficios indudables para los pacientes, también entraña riesgos, y por esa razón tenemos que esforzarnos por reducir la utilización de las radiaciones con fines médicos en todo lo posible, mediante el empleo de métodos alternativos.

(16) can be assumed to be the Quaestio of (15).

(16) Quaestio of (15):
'To what extent should radiological diagnosis be used?'

In (15), the conclusion is given explicitly in the context – the use of radiological diagnosis should be reduced. This is a contextual implication of *m,* 'radiological diagnosis entails risks', relative to *Q*. The interpretation of (15) is illustrated in (17).

13. Paratactic adversatives, e.g., with Engl. *but,* Germ. *aber* and Span. *pero,* could be analyzed in a similar way. In these cases it is the *but*-sentence that has more rhetorical impact.

(17) a. m = 'radiological diagnosis implies risks'
b. c = 'radiological diagnosis provides benefits'
c. $CI(m,Q)$ = 'radiological diagnosis should be reduced'
d. $p(CI(m,Q)|c) < p(CI(m,Q)|\neg c)$

(15) meets the Adversative Presupposition, as shown in (17d). As the main clause carries more weight in such sentences, the conclusion reached by the speaker is actually that "we have to try to reduce the use of medical radiation where at all possible by employing alternative methods".

4. Functional types of concessives: Variables for the empirical analysis

The present study focuses on two types of functional variables: Variables concerning the concessive (or adversative) relation itself, and variables concerning the information structure of the concessive clause. The first two sub-sections deal with the former type of variable: Section 4.1 introduces a sub-type of concessivity which I call 'relativizing', and in Section 4.2, three levels of linguistic analysis are distinguished at which a concessive relation may hold. The information structural variables are described in Sections 4.3 (givenness) and 4.4 (topic-comment structure).

4.1 Canonical vs. relativizing concessives

In a specific type of concessive clause, sometimes called 'restrictive' (cf. Rudolph 1996; Pander Maat 1999), the concession 'weakens' the claim made in the main clause. Given that 'restrictive' has been used in a different sense by some authors – in analogy to restrictive relative clauses, cf. for instance Crevels (2000a: 30) – I will use a new term, i.e., 'relativizing', in order to avoid confusion. A relevant example from my sample is given in (18).

(18) EP-10-03-09-013 (original English)
a. … **although** we will never reach zero accidents, we can do a lot to reduce the number of casualties.
b. … wir können Einiges tun, um die Anzahl der Unfallopfer zu reduzieren, **obwohl** wir niemals Null Unfälle erreichen werden.
c. … **aunque** nunca podremos alcanzar los cero accidentes, podemos hacer mucho para reducir el número de víctimas.

In cases such as (18), the Concessive Presupposition does actually hold. The main clause of (18) says, simplifying somewhat, that it is possible for the number of casualties at some point in the future – say, $n_{cas,1}$ – to be lower than the present

number, $n_{cas,0}$ ($n_{cas,1} < n_{cas,0}$). The concession says that the number of accidents will always be non-zero, both at the time of speaking ($n_{acc,0} > 0$) and in the future ($n_{acc,1} > 0$). The negation of the concession says that the number will be zero in the future ($n_{acc,1} = 0$). Given that the number of accidents correlates with the number of casualties, the propositional content of the main clause becomes more likely if the negation of the concession is true – in other words, the Concessive Presupposition holds. In (19) I abstract away from the modality in the main clause, treating the sentence as a statement about the future.

(19) a. Proposition expressed in main clause
m = 'we can reduce the number of casualties'
$n_{cas,1} < n_{cas,0}$
b. Proposition expressed in concession
c = 'there will always be accidents'
$n_{acc,1} > 0$
c. Negation of concession
$\neg c$ = 'there will be no more accidents in the future'
$n_{acc,1} = 0$
d. Concessive Presupposition
ConcPres(c, m): $p(n_{cas,1} < n_{cas,0} | n_{acc,1} > 0) < p(n_{cas,1} < n_{cas,0} | n_{acc,1} = 0)$

Even though the Concessive Presupposition does hold in relativizing concessives such as (18), these cases have to be kept apart from concessives of the type of (4), which I call 'canonical'. In relativizing concessives, there is a relationship of implication holding between the negation of the concession, c, and the proposition expressed in the main clause, m.[14] This implication sometimes holds at a semantic level, minimally at a pragmatic level. We will turn to the pragmatic cases below. Consider first the example in (20).

(20) EP-09-04-21-017 (original English)
a. Madam President, like my colleagues I would like to say that, **although** it is not perfect, the third energy package is a very good basis for developing our common market, especially in gas, and for enhancing gas security.
b. Frau Präsidentin! Wie meine Kolleginnen und Kollegen halte ist das dritte Energiepaket, **obwohl** es nicht perfekt ist, für eine sehr gute Basis zur Entwicklung unseres gemeinsamen Marktes, insbesondere für Erdgas und zur Verstärkung der Gassicherheit.

14. Pander Maat (1999) provides a similar description of 'restrictive' concessives. He holds that the main clause has more 'argumentative strength' for some assumption than the concessive sentence.

c. Señora Presidenta, al igual que mis colegas me gustaría decir que, **aunque** no es perfecto, el tercer conjunto de medidas relativo a la energía es una muy buena base para el desarrollo de nuestro mercado común, especialmente del gas, y para reforzar la seguridad del gas.

In relativizing concessives, the main clause and the concession provide information about the same Quaestio, in the case of (20): "How good is the third energy package?". The negation of the concession is stronger, more informative than the main clause. In the case of (20), there is an entailment relationship, and the negation of the concession, ¬*c*, logically entails the main clause, *m*, cf. (21).

(21) a. *m* = 'the third energy package is very good'
b. *c* = 'the third energy package is not perfect'
c. ¬*c* = 'the third energy package is perfect'
d. ¬*c* → *m*

In many cases, such a relationship of entailment cannot be recovered at a semantic level, but holds at a pragmatic level. Let us return to (18). In this case, the Quaestio can be assumed to be something like (22).

(22) Quaestio of (18)
Q = 'To what extent can we reduce the number of casualties?'

Though the concession ('we will never reach zero accidents') does not answer the Quaestio in (22) directly, it triggers contextual implications which contain information about the Quaestio. The contextual implications for the concession and its negation are represented in (23a) and (23b), respectively.

(23) a. *c* = 'there will be accidents'
CI(c, Q) = 'there will be casualties'
b. ¬*c* = 'there will be no accidents'
CI(¬*c, Q*) = 'there will be no casualties'

In the context of their analysis of scalar additive operators (such as Engl. *even*), Gast and Auwera (2011) define the notion of 'pragmatic strength', which captures the informativity of a proposition relative to a Quaestio, at a pragmatic level.[15] I will use the symbol '$>_{PrStr}$' to represent relative pragmatic strength. We can now distinguish relativizing from canonical cases of concessivity by adding a condition concerning the relative pragmatic strength of the negation of the concession, ¬*c*, and the main

15. "A proposition π is PRAGMATICALLY STRONGER (relative to a given quaestio *Q*) than a proposition *ρ* iff the RELEVANT CONTEXTUAL IMPLICATIONS of *π* (with respect to *Q*) entail the RELEVANT CONTEXTUAL IMPLICATIONS of *ρ* (with respect to *Q*)" (Gast and Auwera 2011: 9).

clause, *m*, and we can define two special cases of the Concessive Presupposition, the 'Canonical Concessive Presupposition' (CanConcPres) and the 'Relativizing Concessive Presupposition' (RelConPres). In the first case, there is no asymmetrical relationship of pragmatic strength between ¬*c* and *m* (cf. (24)), while in the second case, ¬*c* is pragmatically stronger than *m* (cf. (25)).

(24) Canonical Concessive Presupposition
$\text{CanConcPres}(m, c) := \text{ConcPres}(m, c) \wedge \neg[\neg c >_{PrStr} m]$
$= \text{p}(m|c) < \text{p}(m|\neg c) \wedge \neg[\neg c >_{PrStr} m]$

(25) Relativizing Concessive Presupposition
$\text{RelConcPres}(m, c) := \text{ConcPres}(m, c) \wedge [\neg c >_{PrStr} m]$
$= \text{p}(m|c) < \text{p}(m|\neg c) \wedge [\neg c >_{PrStr} m]$

The 'basic type' of relation was annotated as a property of the concessive relation ('CONC' in Figure 1). In addition to 'canonical' and 'relativizing' concessives as introduced in this section, there was a third level for the variable 'basic type', i.e., 'adversative' (cf. Section 3.2).

4.2 Levels of linking

Concessive relations, like conditional and causal relations, may hold at different levels of interpretation. Based on Sweetser's (1990) three-way distinction made for conditional and causal clauses, Crevels (2000b) distinguishes four levels of linking, cf. the examples in (26)–(29) (from Crevels 2000b: 317):

(26) Content level
Although it's raining, we're going for a walk.

(27) Epistemic level
He's not at home, although his car is parked in front of his house.

(28) Illocutionary level
Even though I am calling a bit late, what are your plans for this evening?

(29) Textual level
I speak and write Serbian, Albanian, Turkish and Dutch, but I cannot express my true feelings in any other language than Romani. Although, now that I come to think of it, I have done it many times …

I follow Crevels (2000b) in assuming that the first three levels differ in the linguistic type of *m* (remember that *m* is a placeholder for the semantic material in the main clause, cf. Section 3.1). It is invariably treated as an expression of type *t,* which relates to (i) the instantiation of some state of affairs *e* (HAPPEN(*e*)), (ii) the truth of a propositions π, or (iii) the performance of a speech act Σ (by some speaker

Spk). We can thus distinguish these cases by varying the second argument of the Concessive Presupposition, cf. (30)–(32).

(30) ConcPres(c, HAPPEN(e))

(31) ConcPres(c, π)

(32) ConcPres(c, PERFORM(*Spk*, Σ))

Concessivity at the textual level is arguably a bit different (cf. also Günthner 2000 on 'corrective' uses of *obwohl*). Note first that the Concessive Presupposition does hold in (29) – see (33) (the likelihood $p(m|c)$ is zero).

(33) a. m: 'I can only express my true feelings in Romani'
b. c: 'I have often expressed my true feelings in other languages'
c. $\neg c$: 'I have never expressed my true feelings in other languages'
d. $p(m|c) < p(m|\neg c)$

The characteristic feature of textual concessives is that m is not rhetorically strengthened, as in the case of relativizing concessives, but weakened or even abandoned, and replaced by c. Remember that a canonical concession strengthens the claim made in m by maintaining it in spite of (explicitly mentioned) unfavourable circumstances (cf. Section 3.1 and Note 10).

In practice, the distinctions between the four levels of interpretation are obviously not easy to make. It is questionable whether the two 'lowest' levels can be distinguished at all, specifically if concessivity is not analysed as the dual of causality (cf. Note 9). The contrast between the content level and the epistemic level is very clear for causal connectives. Consider the standard example in (34).

(34) John is at home, because his car is in the driveway.

The causal relationship holds between the causal clause and the belief that John is at home, not the fact of John's being at home, cf. (35).

(35) [I believe that John is at home], because his car is in the driveway.

(36) is the concessive counterpart of (34).

(36) John is not at home, although his car is in the driveway.

In an 'incausal' analysis of concessivity, we could assume that the causal relationship holding at an epistemic level is negated, and relevant examples could be classified as epistemic, cf. (37).

(37) [I believe that John is not at home], although his car is in the driveway.

However, incausal analyses of concessivity have largely been abandoned (Pasch 1992; Iten 1997; König and Siemund 2000). In an 'incompatibility' analysis of the type adopted in the present study, there is no need to assume embedding under an implicit mental predicate, as in (37). The probabilistic analysis proposed in Section 3 works for such cases at both levels, as the likelihood of my believing that John is not at home is lower when his car is in the driveway than otherwise; but the proposition itself, 'John is not at home', is also more unlikely given 'his car is in the driveway' than it is given 'his car is not in the driveway'. There is no discrepancy between a content-level and an epistemic reading, of the type found in causal clauses: If the likelihood of *m*, given *c*, is lower than the likelihood of *m*, given ¬*c*, the likelihood of my believing *m* is also lower in the former case. While the distinction is certainly relevant at a theoretical level, it is hard to operationalize in an empirical study, as there are no reliable empirical tests, as far as I can see.

I subsumed the content level and the epistemic level under the category 'propositional'. Concessives at the illocutionary levels are relatively easy to identify when the illocution in question is not representative in terms of Searle (1975) (cf. the question in (28)). Unsurprisingly, such examples are relatively rare in the Europarl corpus, a corpus of political (and often scripted) speech. There are some instances of this type in my sample, however – cf. the English example in (38a) (note the *aber* in the German translation in (38b)), and the German example in (39b) (note that in the Spanish version in (39c), the scope of the question operator is indicated by a pair of question marks).

(38) EP-97-11-19 (original English)

a. **Although** we have article 5 in the Lomé Convention, what will you do specifically to enact it in response to the countries that I have referred to in the question?

b. Wir haben **zwar** den Artikel 5 des Lomé-Abkommens, **aber** was werden Sie speziell unternehmen, um diesen Artikel in den Ländern, auf die ich mich in meiner Frage bezogen habe, anzuwenden?

c. **Aunque** contamos con el artículo 5 del Convenio de Lomé, ¿qué va a hacer usted concretamente para aplicarlo en respuesta a los países a que me he referido en la pregunta?

(39) EP-09-05-05 (original German)

a. **Although** there is room for improvement, how would the future look without our European social model?

b. Wie sähe die Gegenwart ohne unser europäisches Sozialmodell aus – **obwohl** es verbesserungsfähig ist?

c. **Aunque** podría mejorarse, ¿cómo se plantearía el futuro sin un modelo social europeo?

Instances of speech-act level concessives modifying a representative speech act involve an incompatibility between the proposition expressed in the concessive clause, and the fact that the utterance expressed in the main clause is made. In German examples of this type, the two clauses are sometimes syntactically separated, as in (40b), where the main clause contains a FOREFIELD constituent of its own. The concessive relation can here be reconstructed at the propositional level by embedding the main clause under a predicate of communication, e.g., *I hereby state* …. The same situation can be observed in the Spanish Example (41c).

(40) EP-03-03-27 (original German)

a. **Although** in principle I would be the last person to advocate a further transfer of powers to the EU, in this exceptional case it is justified …

b. **Obwohl** ich grundsätzlich die Letzte bin, die einer weiteren Aufgabenübertragung an die EU das Wort spricht, in diesem Ausnahmefall ist sie gerechtfertigt, …

c. **Si bien** en principio yo sería la última persona en defender una mayor transferencia de poderes a la UE, en este caso excepcional está justificado …

(41) EP-03-06-18 (original Spanish)

a. The situation in European seas is not good **even though** it has emerged from monitoring and assessment programmes that information on the marine environment is insufficient.

b. Der Zustand der europäischen Meere ist nicht gut, **auch wenn** die Bewertungs- und Kontrollprogramme zur Meeresumwelt nur unzureichende Informationen geben.

c. La situación de los mares europeos no es buena, **aunque** los programas de evaluación y control revelan insuficiente información sobre ese medio ambiente marino.

Examples located at the textual level as defined above – uses of concessive clauses which are not intended to strengthen another argument or claim, but establish a claim of their own, correcting some preceding claim – turned out to be less easily identifiable than I expected them to be. One useful diagnostic is that the concession functions as the topic or point of reference for the following sentence. This is not normally the case with concessives, which canonically function as 'satellites', in terms of Rhetorical Structure Theory (Mann and Thompson 1988), rather than 'nuclei'. Consider the examples in (42), which I classified as 'textual'. The concession (*I have a word of advice for the commissioner*) functions as the point of departure for the following sentence. Note that the Spanish translation does not contain a concessive connective at all. The German translation contains the conjunctional

adverb *allerdings*. Given their status as 'nuclei', textual concessives cannot normally precede the main clause, as this would lead to incoherent text structure.

(42) EP-97-06-10 (original English)
   a. By and large, I welcome Mrs Lulling's amendments, **although** I have a word of advice for the Commissioner.
   b. Frau Lullings Änderungsanträge begrüße ich im Großen und Ganzen, **allerdings** möchte ich dem Herrn Kommissar noch einen guten Rat geben.
   c. En general me satisfacen las enmiendas presentadas por la Sra. Lulling, y antes de acabar quisiera prevenir al Comisario: …

The level of linking was annotated as a property of the concession (cf. Section 2). In case of uncertainty I gave priority to the lower level, relative to the hierarchy 'propositional < illocutionary < textual'.

4.3 The *givenness* status of the concession

Concessive clauses may either provide information that is under discussion – information that is *given,* in terms of Chafe (1976), Schwarzschild (1999), and Rochemont (2016) – or information that is newly introduced into the discourse. The former case is illustrated in (43), which is stated at the beginning of the talk. The audience will probably have been aware that the speaker was replacing Günther Oettinger at the time the speech started. The latter case is illustrated in (44), where the speaker expresses his own views on the matter under discussion.

(43) Concessive clause contains given information
EP-10-03-11 (original English)
   a. Madam President, **although** I am replacing my colleague Günther Oettinger today, it is a real pleasure to discuss with you the future of low-carbon technologies.
   b. Frau Präsidentin, **obwohl** ich heute meinen Kollegen Günther Oettinger vertrete, freue ich mich wirklich sehr, mit Ihnen die Zukunft der kohlenstoffemissionsarmen Technologien zu erörtern.
   c. Señora Presidenta, **aunque** hoy ocupo el lugar de mi compañero Günther Oettinger, es para mí un verdadero placer debatir con ustedes el futuro de las tecnologías con baja emisión de carbono.

(44) Concession contains new information
EP-97-04-09 (original English)
   a. In that sense I welcome the statement of the Commission, **although** I am concerned about the comments of the Council.

b. In diesem Sinne begrüße ich die Erklärung der Kommission, **obwohl** ich über die Mitteilungen des Rates besorgt bin.
c. En ese sentido, acojo con satisfacción la declaración de la Comisión, **aunque** me preocupan los comentarios del Consejo.

The information status of concessive clauses has been claimed to vary with the position of the relevant clauses relative to the main clause (see for instance Rudolph 1996: 50ff.). Initial concessives tend to be given, whereas final concessives are often new (cf. (43) vs. (44)). This is only a tendency, however, and it is not hard to find counterexamples. (45) is an example of a preposed concessive clause which (probably) contains information that is not known to the audience, and the postposed concessive clause in (46) (probably) contains information that is given.

(45) EP-10-04-20-010 (original English)
a. So, **although** I do not have any illusions about the nature of politics in this country and, indeed, in the region, I think that we have to try and give this government a chance to form itself properly, to agree to do the political and constitutional reforms, which are going to be so essential, to hold the elections it says it will have …
b. Ich denke also, **obwohl** ich keinerlei Illusionen über die Art der Politik in diesem Land und natürlich in dieser Region habe, dass wir es versuchen müssen und dieser Regierung eine Chance zur eigenen vernünftigen Regierungsbildung, zum Einverständnis der Durchführung politischer und konstitutioneller Reformen, die so unverzichtbar sein werden, und zur Abhaltung der versprochenen Wahlen geben müssen, …
c. Por tanto, **aunque** no me hago ilusiones sobre la naturaleza de la política en este país y, desde luego, en la región, creo que tenemos que intentar ofrecerle una oportunidad a este gobierno para que se constituya correctamente, para que acepte hacer reformas políticas y constitucionales, que serán tan importantes, para que celebre las elecciones que dice van a tener …

(46) EP-09-05-05-003 (original English)
a. It is an important step towards enhanced security and privacy protection, **although** at this stage it remains limited to the electronic communications sector.
b. Das ist ein wichtiger Schritt hin zu einem verbesserten Sicherheits- und Datenschutz, **obwohl** er in dieser Phase nur auf den elektronischen Kommunikationssektor beschränkt bleibt.
c. Se trata de un importante paso para aumentar la seguridad y la protección contra la piratería, **si bien** en esta fase se limita al sector de las comunicaciones electrónicas.

The givenness status of the concession was annotated as a property of the relevant node in the annotation tree. Obviously, the preceding context had to be taken into account for each coding decision.

4.4 The topic-comment structure of concessive sentences

Most semantic analyses of concessives have focused on the type of presupposition (or conventional implicature) introduced by these elements (cf. Section 3.1), and the level of linking (cf. Section 4.2). One of the questions that have received much less attention is the (internal) information structure of concessive sentences, and the paradigmatic relationship holding between the concession and the main clause. In most of the 'standard examples' discussed in the literature on concessivity, the concession and the main clause do not share any material. In this, most simple, case, both the concession and the main clause are thetic. In the following, I will represent information structure with bracketing, as in (47) – 'Com' stands for 'comment' and 'Top' for 'topic.' In addition, I will use a two-dimensional representation, where contrasting elements are vertically arranged, with a subscript indicating whether the relevant material is topical or part of the comment (cf. (48)). In this format, the concession is always at the top.

(47) $[_{\text{Com-1}}$ It's raining] although $[_{\text{Com-2}}$ the sun is shining].

(48)
the sun is shining
it's raining

Com

The components of a concessive sentence can also share a topic, as in (49)/(50).

(49) John_{Top} $[_{\text{Com-1}}$ went for a walk]
although he_{Top} $[_{\text{Com-2}}$ was seriously ill].

(50)
John_{Top}	was seriously ill
	went for a walk

Com

Finally, concessive sentences may comprise contrastive topic structures (Büring 2003; Gast 2010; Büring 2016), cf. (51).

(51) Although $\text{John}_{\text{Top-1}}$ $[_{\text{Com-1}}$ went to the party],
$\text{Mary}_{\text{Top-2}}$ $[_{\text{Com-2}}$ stayed at home].

(52) $\left|\begin{array}{l}\text{John}\\ \text{Mary}\end{array}\right|_{Top}\ \left|\begin{array}{l}\text{went to the party}\\ \text{stayed at home}\end{array}\right|_{Com}$

In some cases it moreover makes sense to distinguish between an 'external' topic, functioning as a point of reference (an 'address', in terms of Jacobs 2001) for the whole concessive clause, and 'internal' (sub-)topics in the concession and the main clause. Consider the examples in (53).

(53) EP-10-03-25-003 (original English)

a. **Although** inflation was far above the ECB's self-imposed ceiling when it peaked at 4% in June and July 2008, inflation rates have since tumbled.

b. **Obwohl** die Inflation viel höher als die selbst gesetzte Obergrenze der EZB lag, als sie Spitzenwerte von 4% im Juni und Juli 2008 erreichte, sind die Inflationsraten seitdem gefallen.

c. **Aunque** la inflación estaba muy por encima del tope que se impuso a sí mismo el BCE cuando alcanzó un máximo del 4% en junio y julio de 2008, las tasas de inflación se han desplomado desde entonces.

The sentences are about inflation, the topic. But the individual clauses provide information about inflation at different times, "when it peaked at 4% in June and July 2008", and "since" that time. This structure can be represented as is shown in (54).

(54) $\text{Inflation}_{\text{Top}_{ext}}\ \left|\begin{array}{l}\text{in summer 2008}\\ \text{since summer 2008}\end{array}\right|_{Top_{int}}\ \left|\begin{array}{l}\text{was too high}\\ \text{has tumbled}\end{array}\right|_{Com}$

In order to compare the concessive connectives under analysis, we can start by identifying two major information structural configurations, those with an 'internal topic contrast', and those without such a contrast. Made-up examples of the latter type were given in (47)–(50) above. An English example from my sample with its German and Spanish translations is given in (55).

(55) EP-10-01-19 (original English)

a. **Although** [$_{\text{Com-1}}$ the hour is late], [$_{\text{Com-2}}$ we now need the words to be turned into action] …

$\left|\begin{array}{c}\text{the hour is late}\\ \text{we need the words to be turned into action}\end{array}\right|_{Com}$

b. **Obwohl** es spät ist, müssen unseren Worten nun Taten folgen.

c. **Aunque** sea a estas horas, necesitamos que las palabras se transformen en acción, y hoy las autoras han hecho un buen trabajo para nosotros.

(56) is an example of internal topic contrast.

(56) EP-97-05-13 (original English)

a. So I am astonished that some people were surprised that later on we said that for the automotive industry itself and not components as such, [Top-1 operational aid] [$_{\text{Com-1}}$ can no longer be given] **although** [$_{\text{Top-2}}$ investment aid] [$_{\text{Com-2}}$ can]

investment aid operational aid	*Top*	can be given can no longer be given	*Comm*

b. Es erstaunt mich daher, daß einige überrascht waren, als wir später sagten, für die Automobilindustrie selbst und nicht für Komponenten an sich könnten keine Betriebsbeihilfen mehr, wohl **aber** Investitionsbeihilfen gezahlt werden.

c. … y por eso me extraña que algunas personas se sorprendieran cuando dijimos que en el caso de la propia industria de vehículos de motor, pero no en el caso de los componentes para dicha industria, no se podría prestar ya ayuda operacional **aunque** sí que se podría prestar ayuda en forma de inversiones.

A further distinction can be made by looking at the specific types of contrast holding between the internal topics of a conditional sentence. I will distinguish two types of contrast, 'horizontal' and 'vertical'. Another way of thinking of this distinction is between non-scalar (horizontal) and scalar (vertical) contrast. Horizontal contrast holds between elements that are not hierarchically ordered, e.g., heteronyms – cf. (57).

(57) EP-97-10-22 (original English)

a. **Although** [$_{\text{Top-1}}$ Latin American countries] would be the [$_{\text{Com-1}}$ most indebted] in global amounts, it is the [$_{\text{Top-1}}$ sub-Saharan African countries] that are [$_{\text{Com-2}}$ in most difficulty].

Latin American countries sub-Saharan countries	*Top*	most indebted in most difficulty	*Comm*

b. **Obwohl** in Zahlen ausgedrückt die Verschuldung der lateinamerikanischen Länder weltweit am höchsten ist, haben die schwarzafrikanischen Länder die größten Schuldenprobleme.

c. **Aunque** los países latinoamericanos serían los más endeudados en cantidades globales, los países del África subsahariana son los que se encuentran con mayores dificultades.

In a special case of 'horizontal' contrast, one internal topic is a function of the other, cf. (58).

(58) EP-97-10-20 (original English)

a. **Although** [$_{\text{Com-1}}$ we support and are very appreciative of] [$_{\text{Top-1}}$ the work that Mr Linkohr has done on this], it is clear [$_{\text{Com-2}}$ a lot of disappointment exists about] [$_{\text{Top-2}}$ the eventual outcome of the process].

[work done by Mr Linkohr]$_i$		we support	
outcome of t$_i$	*Top*	is disappointing	*Comm*

b. Wir unterstützen und schätzen die Arbeit, die Herr Linkohr hier geleistet hat, aber **dennoch** sind viele von uns auch über das letztendlich erzielte Ergebnis enttäuscht.

c. **Aunque** apoyamos y agradecemos mucho la labor que ha llevado a cabo el Sr. Linkhort [sic] al respecto, es evidente que existe mucha decepción sobre el posible resultado del proceso.

Vertical contrast holds between two elements if one of the elements is a special case of the other. In one case, the concessive clause provides information about a more general entity, and the main clause about a special case of that general entity. A relevant example is given in (59) (note that the German version contains the concessive connective *auch wenn*).

(59) EP-97-05-13

a. … **although** [$_{\text{Sub-Top-1}}$ the general regime] [$_{\text{Com-1}}$ allows] [$_{\text{Top}}$ this kind of compensation for transport], [$_{\text{Com-2}}$ it is not allowed for] [$_{\text{Sub-Top-1}}$ sectors such as steel and the automotive industry].
[this kind of compensation for transport]$_{Top}$

the general regime		allows *Top*	
for steel and the automotive industry	*Sub–Top*	*Top* is not allowed	*Comm*

b. Das gleiche gilt für die Automobilindustrie, und aus diesem Grunde sind solche Ausgleichszahlungen für Transport in Sektoren, wie der Stahl- und der Automobilindustrie, nicht gestattet, **auch wenn** sie generell zulässig sind.

c. Lo mismo cabe decir de la industria de los vehículos de motor y, por lo tanto, **aunque** el régimen general tolere este tipo de indemnización por el transporte, no se permite cuando se trata de sectores como la industria siderúrgica o la industria de los vehículos de motor.

Alternatively, the concessive clause may contain information about the more specific entity. The semantic or pragmatic effect is sometimes almost indistinguishable and concerns the rhetorical text structure. The main difference between a 'downward contrast' as in (59), and an 'upward contrast' as in (60), consists in what functions as the main claim, and as the anchor for the following discourse.

(60) EP-97-09-16

a. I am glad that [$_{\text{Top-1}}$ Parliament as a whole] [$_{\text{Com-1}}$ voted against this proposal], **although** I note that [$_{\text{Top-2}}$ British Labour MEPs] [$_{\text{Com-2}}$ voted for it].

Parliament as a whole		voted against this proposal	
British Labour MEPs	*Top*	voted for it	*Comm*

b. Ich freue mich auch, daß das Parlament insgesamt gegen diesen Verschlag gestimmt hat, **auch wenn** ich feststelle, daß britische Labour-MEP dafür stimmten.

c. Me alegro de que el Parlamento en conjunto haya votado contra esa propuesta, **aunque** veo que los diputados laboristas británicos al PE han votado a favor de ella.

The topic-comment structure was annotated as a property of the CONC-node (cf. Figure 1).

4.5 Summary

The variables used for the present study, and their levels, can be summarized as follows (the material within brackets will be used in diagrammes).

- basic type of relation between *m* and *c*:
  [**can**]onical concessive, [**rel**]ativizing concessive, [**adv**]ersative
- levels of linking between *m* and *c:*
  [**prop**]ositional, [**ill**]ocutionary, [**text**]ual
- givenness of *c:*
  [**giv**]en, [**new**]
- topic-comment structure of *C*:
  no topic contrast [**none**], [**vert**]ical topic contrast, [**hor**]izontal topic contrast

5. Quantitative analyses

Having established the most important parameters of variation, we are now in a position to determine the distribution of these parameters in the data used for the present study. The results will be presented in the following order:

- the basic type of relation holding between *m* and *c* (Section 5.1),
- the level of interpretation (Section 5.2),
- the information status of the concessive clause (Section 5.3), and
- and the topic-comment structure of the concessive sentence (Section 5.4).

5.1 Basic types: Canonical concessives, relativizing concessives and concessive adversatives

In Section 3 a distinction was made between 'concessivity', which is defined in terms of the Concessive Presupposition (ConcPrep), and adversativity, which comes with a different presupposition (AdvPrep). Moreover, in Section 4 two types of concessives were distinguished, each of them with a different presupposition: canonical concessives (CanConcPres) and relativizing concessives (RelConcPres). There are thus three types of 'basic' uses for the connectives under analysis. The frequencies with which *although, aunque* and *obwohl* are found with these basic types are shown in Figure 2, in the form of a barplot (left) and a mosaic plot (right; cf. Friendly 1994).[16]

16. Each rectangle in a cell of a mosaic plot corresponds to a feature combination, e.g., '*obwohl*/can(onical)' in the top-left corner of the plot, and the area of each rectangle is proportional to the number of attested cases. The two plots show the same information, but the barcharts display absolute frequencies while mosaic plots, in addition to absolute frequencies (reflected in the size of a rectangles), show relative frequencies for each variable (the height and width of the whole plot obviously corresponding to 100%). Moreover, mosaic plots contain an indication of the relative over- or underrepresentation of a cell, determined by a likelihood ratio test: cells that are significantly overrepresented are blue, underrepresented cells are red. A cell is assumed to be significantly over- or underrepresented if the deviance residual is higher or lower than 2 (cf. also the scale at the right margin of the diagram). The diagram moreover shows the p-value for the entire distribution in the bottom right corner. All barcharts shown in this contribution were generated with the R-package 'lattice' (Sarkar 2008). The mosaic plots were generated with the 'vcd'-package for R (Meyer et al. 2016).

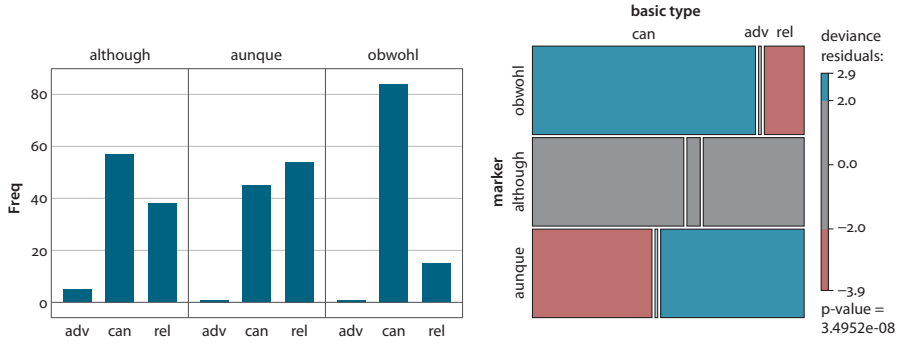

Figure 2. Barchart and mosaic plot for the variables 'marker' (connective) and 'basic type'

Figure 2 shows a clear difference between *obwohl* and *aunque. Although* occupies an intermediate position. For a start, we can make the following observations:

(61) **Observation I**
Obwohl is significantly overrepresented in canonical concessives.

(62) **Observation II**
Aunque is significantly overrepresented in relativizing concessives.

In fact, relativizing concessives, while being very rare in German (~ 15%), constitute the majority pattern for *aunque* (~ 54%).

5.2 Levels of linking

Figure 3 shows the frequencies of the connectives under analysis in concessive clauses at the propositional ('prop'), illocutionary ('ill') and textual ('text') levels. Obviously, the propositional level is by far the most frequent one. *Obwohl* is significantly underrepresented in a textual function.

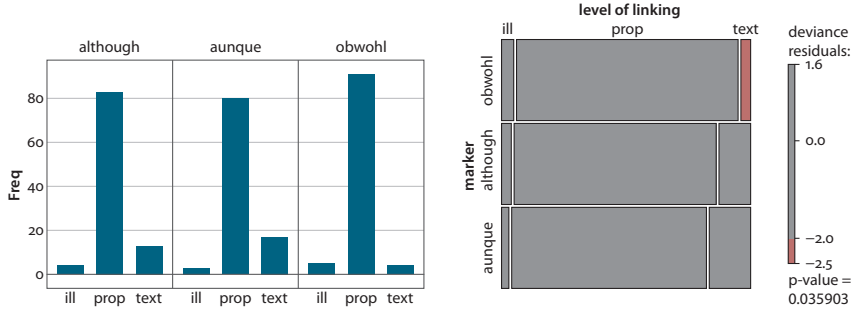

Figure 3. Barchart and mosaic plot for the variables 'marker' (connective) and 'level'

There is, obviously, a certain correlation between the level of linking and the basic type of semantic relation. Most importantly, textual uses show a strong tendency to be relativizing. This can be seen in Figure 4.

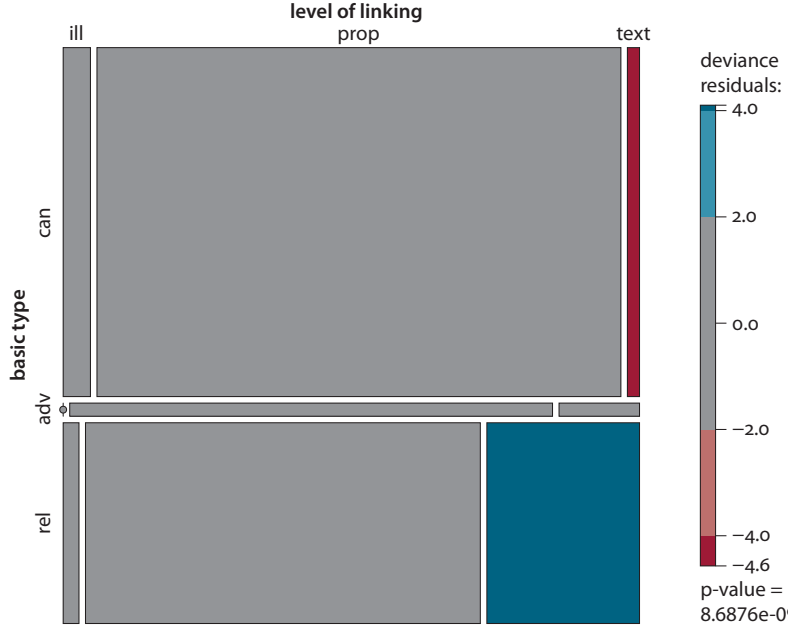

Figure 4. Mosaic plot for the variables 'basic type' and 'level of linking'

In order to determine the relationship between the variables 'basic type' and 'level of linking' as determinants of the use of connectives (the variable 'marker'), I fitted a multinominal logistic regression model.[17] A likelihood ratio test shows that only 'marker' is a significant predictor ($p < 0.001$), while 'level of linking' is not ($p = 0.85$).[18] Simplifying somewhat, we can thus say that *obwohl* is used with a textual function only rarely because it is also rare in a relativizing function.

5.3 The givenness status of the concession

If we compare the three operators under investigation – *although, aunque* and *obwohl* – with respect to the givenness status of the clauses that they introduce, a certain difference between *obwohl,* on the one hand, and *although* and *aunque,*

17. I used the funtion 'multinom()' from the R-package 'nnet' to fit this model.

18. I used the 'Anova()'-function of the package 'Deducer' for the test.

on the other, can be observed: *obwohl* is more frequent in concessive clauses that contain given information. The frequencies of the three connectives under investigation in new and given concessive clauses are shown in Figure 5. While the entire distribution deviates significantly from statistical independence ($p = 0.04$), none of the cells is in itself significantly over- or under-represented (i.e., the deviance residual of no cell is greater or smaller than 2 or –2).

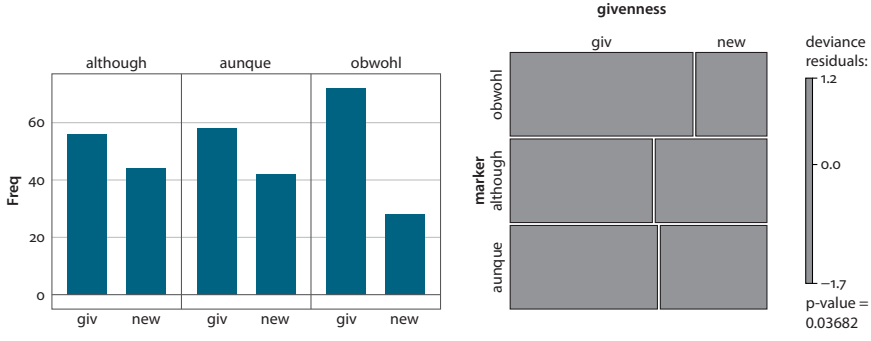

Figure 5. Barchart and mosaic plot for the variables 'marker' (connective) and 'givenness'

The givenness status of the concession correlates with the basic type of semantic relation: Relativizing concessives tend to introduce a new claim into the discourse, while canonical concessives are rarely new. This is shown in Figure 6.

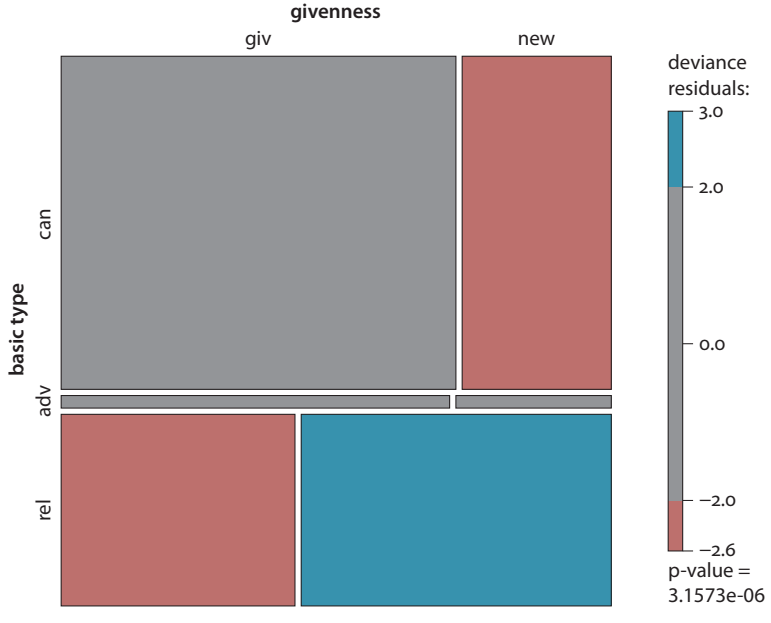

Figure 6. Mosaic plot for the variables 'basic type' and 'givenness'

Again, the question arises whether 'givenness' is a significant predictor for 'marker' alongside 'basic type'. A likelihood ratio test shows that this is not the case ($p = 0.34$). Accordingly, the relative association of *obwohl* with given concessive clauses basically seems to be a consequence of its propensity to occur in canonical concessives (remember that none of the cells was significantly over- or under-represented in itself in Figure 5).

5.4 The topic-comment structure of concessive sentences

In Section 4.4, a distinction was introduced between concessives with an '(internal) topic contrast', and concessives without such a contrast. Topic contrasts may either be 'horizontal' (non-scalar) or 'vertical' (scalar). The distribution of connectives relative to types of topic contrast is shown in Figure 7. While the entire distribution deviates significantly from statistical independence ($p = 0.025$), no cell is over- or under-represented in itself, i.e., no cell has a deviance residual smaller or larger than 2.

The same data is displayed in a different format in Figure 8 (hierarchically organized by types of topic contrast). Both figures show that *obwohl* exhibits a certain tendency to be used in contexts without an (internal) topic contrast, while *although* and *aunque* are comparatively common in contrastive contexts. Moreover, there is a certain difference between *although* and *aunque* insofar as *although* seems to be more strongly associated with horizontal contrast, whereas the figures for vertical contrast are identical for these two connectives.

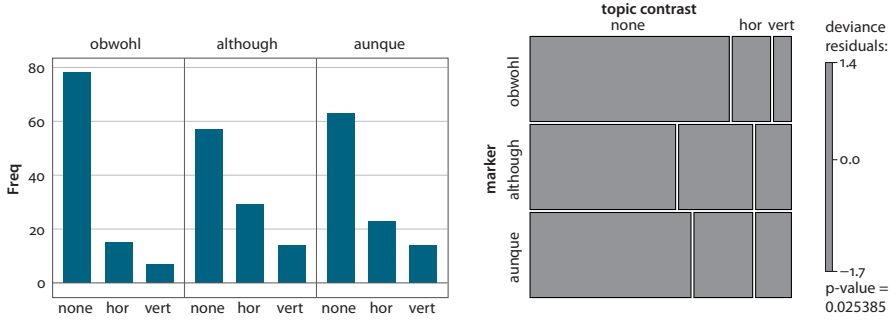

Figure 7. Barchart and mosaic plot for the variables 'marker' (connective) and 'topic contrast'

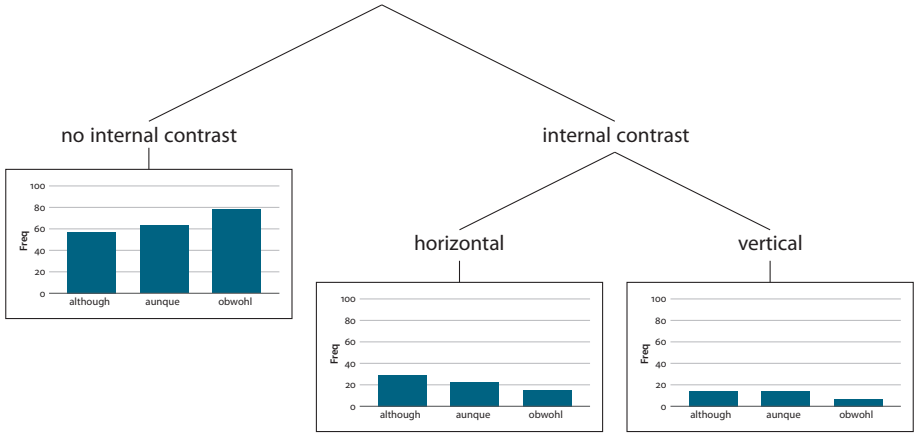

Figure 8. Frequencies of information structural configurations per connective

As far as correlations between topic contrast and other predictors are concerned, we can expect a correlation between 'topic contrast' and 'basic type of relation', as relativizing concessives by definition stand in a relationship of (semantic or pragmatic) strength to the main clause. This expectation is confirmed, as is shown in Figure 9.

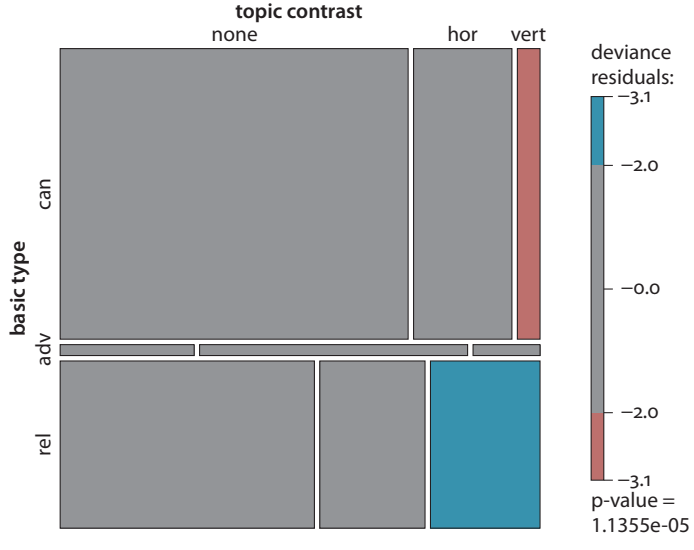

Figure 9. Mosaic plot for the variables 'basic type' and 'topic contrast'

A regression analysis shows that 'topic contrast' is not a significant predictor of 'marker' alongside 'basic type' ($p = 0.2$). However, if we lump the two types of contrast, vertical and horizontal, we can identify a tendency, with $p = 0.06$. Moreover, a

closer look at the (multinomial) model reveals a significant difference between *obwohl* and *although,* in their associations with types of topic contrast: In comparison to *obwohl, although* shows a significant association with topic contrast ($p = 0.02$). *Aunque* is located between *although* and *obwohl,* as can also be seen from Figure 7.

The following observation can be made:

(63) **Observation III**
Although is significantly associated with topic contrast, in comparison to *obwohl.*

5.5 Summary

In the sample used for the present investigation the distribution of *although, obwohl* and *aunque* is primarily determined by the basic type of relation holding between the concession (*c*) and the main clause (*m*). The German connective *obwohl* is basically used in canonical concessives, and is significantly overrepresented in this function, in comparison to *although* and *aunque.* Span. *aunque* is predominantly used in relativizing concessives, and is significantly overrepresented in this function, in comparison to *obwohl* and *although.* The functional variables 'level of linking' and 'givenness' do not seem to have an independent influence on the use of a connective. Topic contrast has been shown to be partially relevant to the use of the connectives under analysis, insofar as *although* is more strongly associated with topic contrast than *obwohl.*

6. Structural properties of concessive clauses

Having discussed the 'functional distribution' of the three concessive connectives under analysis, we will now turn to the structural properties of the clauses that they introduce, i.e., their (relative) length and their position relative to the main clause (cf. also Diessel 1996; Wiechmann and Kerz 2013 for similar studies). The frequencies of preposed, medial and postposed concessives are shown in Figure 10.

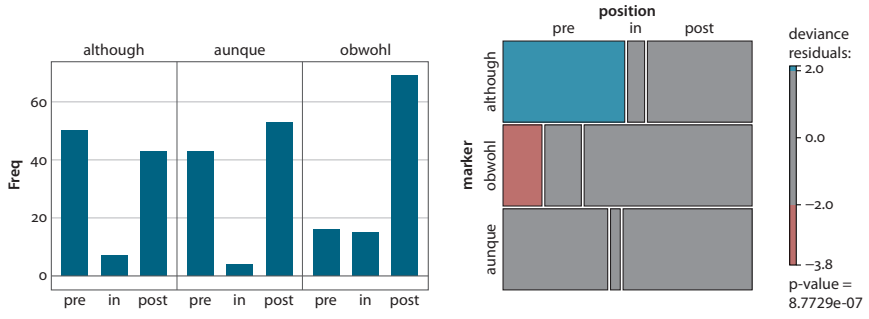

Figure 10. Barchart and mosaic plot for the position of concessive clauses introduced by a given connective

The diagrams in Figure 10 show a clear difference between *although* and *obwohl,* with *aunque* taking up an intermediate position: While *although*-sentences show a tendency to be preposed to the main clause, *obwohl*-clauses are significantly underrepresented in this position.

The position of a concessive clause is known to correlate with its length (cf. Wiechmann and Kerz 2013). It is of course possible that the bias shown in Figure 10 reflects differential sentence lengths associated with the operators (or concessive clauses in the relevant languages). Like Wiechmann and Kerz (2013), I used the 'relative' length L_r of the concessive clauses as a variable, rather than their absolute length. 'Relative length' stands for the proportion of the concessive clause within the whole sentence, i.e., $L_r = \mathrm{L}(c)/(\mathrm{L}(c) + \mathrm{L}(m))$.

In the data from my sample there is a clear correlation between 'position' and 'length' ($p < 0.001$, according to a linear regression model).[19] Obviously 'medial' concessives tend to be particularly short. Concessives following the main clause are the longest type, and differ signicantly from both other types, according to a linear regression model ('post' vs. 'pre': $p = 0.03$, 'in' vs. 'pre': $p < 0.001$).

The suspicion that the ordering preferences pointed out above are a consequence of the relevant clauses differing in length is not confirmed by the data ($p = 0.69$, according to a linear regression model). However, there is an interaction between the connectives and clause length as predictors of the position of a clause ($p = 0.03$, according to a likelihood ratio test). Figure 11 shows the mean values for the three connectives in the three positions. The interaction is primarily due to the association of *although* with particularly short clauses in an internal position, which might reflect the general 'aversion' of English to centre embedding.

19. The linear models were fitted with the native 'lm()'-function of R.

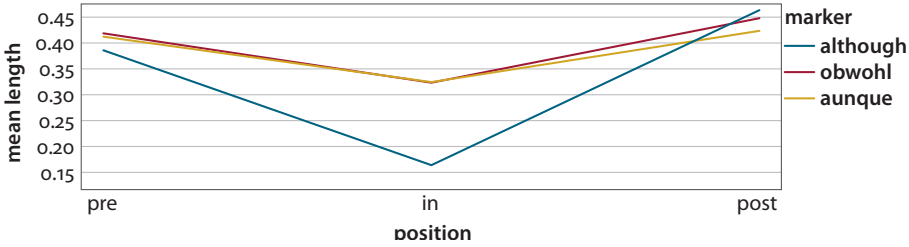

Figure 11. Interaction plot for 'sentence length', 'marker' (connective) and 'position' of concessive clause (mean values)

The following observations can be made on the basis of the results reported above:

(64) **Observation IV**
Obwohl is significantly underrepresented in preposed position, in comparison to *although* and *aunque*.

(65) **Observation V**
Although is significantly overrepresented in preposed position, in comparison to *obwohl* and *aunque*.

7. Combining functional and structural variables

So far, we have identified two major differences in the distribution of the three connectives under investigation, one of them functional – the 'basic type of relation', and one of them structural – the position relative to the main clause. Moreover, there were significant differences between *obwohl*-clauses and *although*-clauses, with respect to the presence of a topic contrast.

We can now combine the functional and the structural variables to determine their relative impact. I fitted a multinomial logistic regression model with 'marker' as the response variable and all functional variables as well as 'relative length' and 'position' as predictors. This model only shows 'basic type' ($p < 0.001$) and 'position' ($p < 0.001$) to be significant predictors. The effects of these predictors on the response variable 'marker' (connective) are visualized in Figure 12.

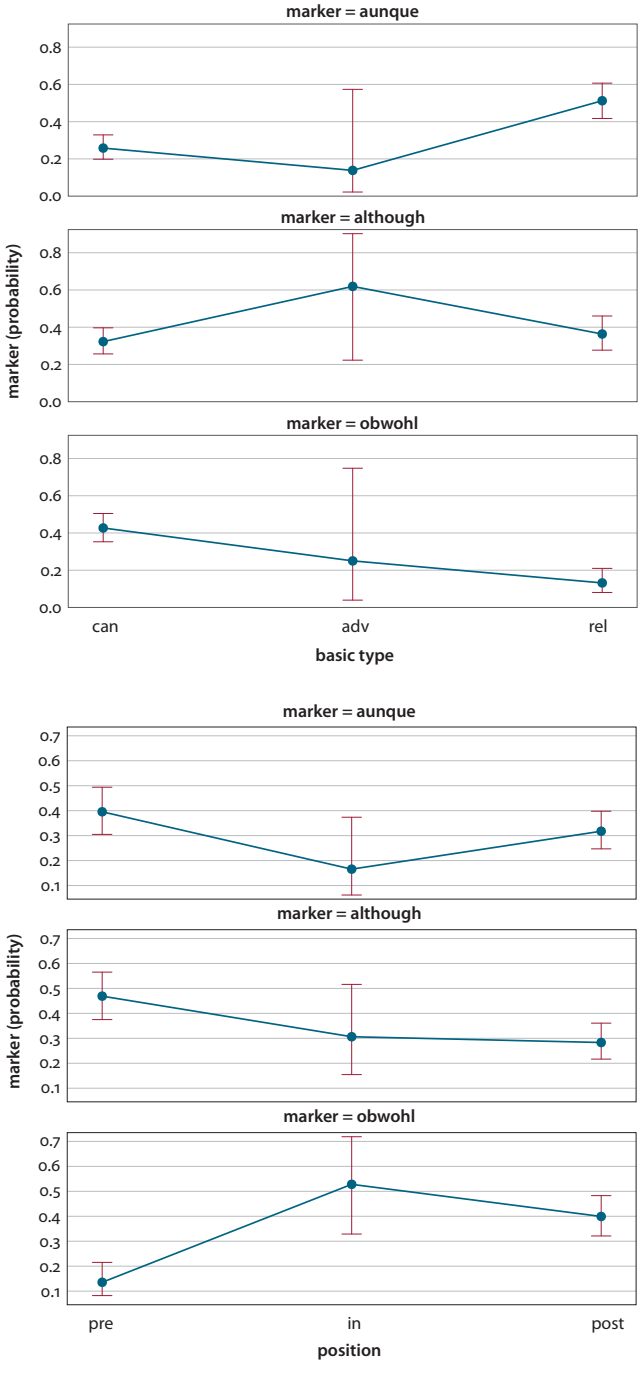

Figure 12. Effects of multinomial regression model

The distribution of the three connectives under analysis relative to the predictors 'basic type' and 'position of the concession' can be represented in the form of a Multiple Correspondence Analysis (MCA).[20] Given that the levels 'adversative' (for 'basic type') and 'in' (for 'position') were comparatively rare, I lumped these levels and created two binary variables. I subsumed 'relativizing' and 'adversative' under 'non-canonical', and 'in' (medial) and 'postposed' under 'non-preposed'. The MCA resulting from these two binary variables is visualized in Figure 13.

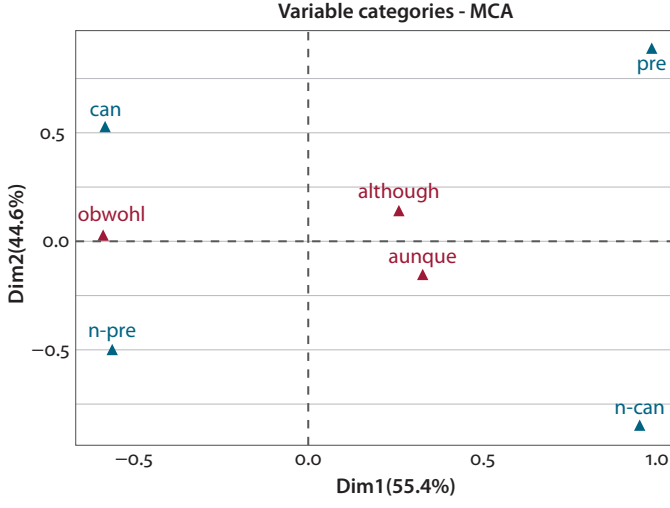

Figure 13. Multiple correspondence analysis with 'basic type' and 'position' as active variables, and 'marker' (connective) as a supplementary variable

Figure 13 shows that *obwohl* is in the proximity of both canonical and non-preposed concessive clauses, whereas *although* and *aunque* are relatively close to preposed and non-canonical clauses. *Although* is more strongly associated with a preposed position, *aunque* is closer to a non-canonical function. The regression model does not show these differences to be significant at a 5%-level, however ($p = 0.09$ for 'basic type', and $p = 0.31$ for 'position').

20. The analysis was carried out with the R-package 'FactoMineR' (Lê et al. 2008), for the visualization I used 'factoextra' (Kassambara and Mundt 2017).

8. Discussion and conclusions

The present study has shown that the three connectives under analysis fall into two groups: on the one hand, *obwohl* is associated with canonical concessivity and with a position following the main clause; on the other hand, *although* and *aunque* tend to be used more in non-canonical contexts, and they show a tendency to precede the main clause, in comparison to *obwohl* (to varying degrees).

The association of *obwohl* with 'canonical' concessivity may be partly due to the existence of a more or less specialized connective for relativizing concessives in German – which is the type of context where *obwohl* is significantly underrepresented. German standardly uses *wobei* for this type of concessivity, specifically in the comparatively formal register of political speech (see for instance Günthner 2000). As a matter of fact, *wobei* is found in the German translations of relativizing examples in the English and Spanish data, cf. (66)–(68).

(66) We want to see labelling that would cover also genetic engineering techniques and the use of stimulants in beef production, **although** here we prefer Mr Tamino's Amendment No 29 to those put down by the rapporteur.

(67) Wir befürworten eine Kennzeichnung, die auch die gentechnischen Verfahren und den Einsatz von stimulierenden Tierarzneimitteln in der Rindfleischerzeugung erfaßt, **wobei** wir in diesem Zusammenhang dem Änderungsantrag von Herrn Tamino den Vorzug gegenüber den Vorschlägen des Berichterstatters geben.

(68) Querríamos un etiquetado que incluyera asimismo las técnicas de ingeniería genética y el uso de estimulantes en la producción de carne de vacuno, **aunque** a este respecto preferimos la enmienda nº 29 del Sr. Tamino a las presentadas por el ponente.

It is certainly conceivable that the tendency for *obwohl* to occur in canonical concessives reflects a more general tendency of this connective towards 'conservativeness' – which, in turn, could be related to the fact that German uses a specific word order in subordinate clauses (cf. for instance Zifonun 2013; König and Gast 2018). Some of the non-canonical uses, e.g., textual uses, are associated with a shift from a hypotactic function to a paratactic function. As hypotactic and paratactic constructions are less strictly distinguished in English and Spanish than they are in German, specific context extensions might be blocked in the latter language. However, the data used for the current study do not really support this assumption, as we would otherwise expect to find significant (independent) correlations between the use of *obwohl* and other distributional variables, such as the level of linking. Moreover, some of the (supposedly) more 'innovative' use types – e.g., textual ones – tend to occur in final position. This brings us to the second major finding of this study.

The results concerning the order of concessive clauses relative to the main clause are somewhat unexpected. Diessel (1996) already found a certain imbalance in the positioning of concessive clauses in English and German. While preposed and final concessive clauses in German are more or less evenly distributed in his data (14 vs. 12), in English preposed concessives are much more common (29 vs. 14). Diessel (1996: 72) surmises that "in a larger corpus this difference would disappear", but my results actually corroborate the asymmetry in his data. As I have tried to show, the tendency for *obwohl*-clauses to be postposed is not epiphenomenal, at least not when considering the variables taken into consideration in this study; it seems to be a property of (clauses introduced by) *obwohl* that they are not as commonly preposed as their English or Spanish counterparts.

It is possible, of course, that the ordering asymmetries are due to other variables which have not been taken into consideration in the present study. Wiechmann and Kerz (2013) found that the positioning of clauses introduced with *although* and *whereas* is primarily determined by the presence of an anaphoric device with a "bridging" function (cf. also Verstraete 2004). This function is operationalized in terms of the occurrence of "anaphoric" elements in the concessive. However, 'anaphoric' is not defined further, and Wichmann and Kerz's data is not publicly available. Though I see no obvious reasons why *obwohl*-clauses should differ from clauses introduced by *although* or *aunque* with respect to the presence of anaphoric elements, it would certainly be worthwhile testing this hypothesis in a future study.

References

Aarts, Bas. 1988. "Clauses of Concession in Written Present-Day British English". *Journal of English Linguistics* 21(1): 39–58. https://doi.org/10.1177/007542428802100104

Atayan, Vahram. 2006. *Makrostrukturen der Argumentation im Deutschen, Französischen und Italienischen. Mit einem Vorwort von Oswald Ducrot*. Frankfurt: Lang.

Atayan, Vahram, Bettina Fetzer, Volker Gast, Danial Möller, and Tanja Ronalter. 2018. "Ausdrucksformen der unmittelbaren Nachzeitigkeit in Originalen und Übersetzungen: Eine Pilotstudie zu den deutschen Adverbien *gleich* und *sofort* und ihren Äquivalenten im Französischen, Italienischen, Spanischen und Englischen". In *Translation – Linguistik – Semiotik*, ed. by Barbara Ahrens, Silvia Hansen-Schirra, Monika Krein-Kühle, Michael Schreiber, and Ursula Wienen, 11–82. Berlin: Frank & Timme.

Barth-Weingarten, Dagmar. 2003. *Concession in Spoken English. On the Realisation of a Discourse Pragmatic Relation*. Tübingen: Narr.

Büring, Daniel. 2003. "On D-trees, Beans and B-accents". *Linguistics and Philosophy* 26(5): 511–545. https://doi.org/10.1023/A:1025887707652

Büring, Daniel. 2016. "(Contrastive) topic". In *The Oxford Handbook of Information Structure*, ed. by Caroline Féry and Shin Ishihara, 64–85. Oxford: Oxford University Press.

Carbonell-Olivares, María. 2009. "A Corpus-based Analysis of the Meaning and Function of *although*". *International Journal of English Studies* 9(3): 191–208.

Cartoni, Bruno, and Thomas Meyer. 2012. "Extracting Directional and Comparable Corpora from a Multilingual Corpus for Translation Studies". Paper presented at the *Proceedings of the 8th International Conference on Language Resources and Evaluation* (LREC), Istanbul, 2132–2137.

Chafe, Wallace. 1976. "Givenness, Contrastiveness, Definiteness, Subjects, Topics and point of View". In *Subject and Topic*, ed. by Charles Li, 25–56. New York: Academic Press.

Couper-Kuhlen, Elisabeth, and Sandra Thompson. 2000. "Concessive Patterns in Conversation". In *Cause, Condition, Concession and Contrast: Cognitive and Discourse Perspectives*, ed. by Elisabeth Couper-Kuhlen, and Bernd Kortmann, 381–410. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110219043.4.381

Crevels, Mily. 2000a. "Concession. A Typological Study". PhD diss., University of Amsterdam.

Crevels, Mily. 2000b. "Concessives on Different Semantic Levels: A Typological Perspective". In *Cause – Condition – Concession – Contrast. Cognitive and Discourse Perspectives*, ed. by Elizabeth Couper-Kuhlen, and Bernd Kortmann, 313–340. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110219043.4.313

Diessel, Holger. 1996. "Processing Factors of Pre- and Postposed Adverbial Clauses". Paper presented at the *Proceedings of the Twenty-Second Annual Meeting of the Berkeley Linguistics Society*, Berkeley, 71–82. https://doi.org/10.3765/bls.v22i1.1344

Ducrot, Oswald. 2004. "Argumentation rhétorique et argumentation linguistique". In *L'Argumentation aujourd'hui. Positions théoretiques en confrontation*, ed. by Marianne Doury, and Sophie Moirand, 17–34. Paris: Presses Sorbonne Nouvelle.

Friendly, Michael. 1994. "Mosaic Displays for Multi-way contingency Tables". *Journal of the American Statistical Association* 89: 190–200. https://doi.org/10.1080/01621459.1994.10476460

Gast, Volker. 2010. "Contrastive Topics and Distributed Foci as Instances of Sub-informativity: A Comparison of English and German". In *Comparative and Contrastive Studies of Information Structure*, ed. by Carsten Breul, and Edward Göbbel, 15–50. Amsterdam: John Benjamins. https://doi.org/10.1075/la.165.02gas

Gast, Volker, and Johan van der Auwera. 2011. "Scalar Additive Operators in the Languages of Europe". *Language* 87(1): 2–54. https://doi.org/10.1353/lan.2011.0008

Gast, Volker, Lennart Bierkandt, and Christoph Rzymski. 2015a. "Annotating Modals with GraphAnno, a Configurable Lightweight Tool for Multi-level Annotation". Paper presented at the *Proceedings of the Workshop on Models for Modality Annotation, held in conjunction with IWCS 11,* Strasbourg, 19–28.

Gast, Volker, Lennart Bierkandt, and Christoph Rzymski. 2015b. "Creating and Retrieving Tense and Aspect Annotations with GraphAnno, a Lightweight Tool for Multi-level Annotation". In *Proceedings of the 11th Joint ACL-ISO Workshop on Interoperable Annotation*, ed. by Harry Bunt, 23–28. Tilburg Center for Cognition and Communication.

Gast, Volker, Lennart Bierkandt, Stephan Druskat, and Christoph Rzymski. 2016. "Enriching TimeBank: Towards a more precise Annotation of Temporal Relations in a Text". In *Proceedings of the Tenth International Conference on Language Resources and Evaluation* (LREC 2016), ed. by Nicoletta Calzolari et al., 3844–3850. Portorož, Slovenia: European Language Resources Association (ELRA). ISBN: 978-2-9517408-9-1.

Gast, Volker, Vahram Atayan, Julien Biege, Bettina Fetzer, Sophie Hettrich, and Anne Weber. Forthcoming. "Unmittelbare Nachzeitigkeit im Deutschen und Französischen: Eine Studie auf Grundlage des OpenSubtitles-Korpus". In *Comparatio delectat III. Akten der VIII. Internationalen Arbeitstagung zum romanisch-deutschen und innerromanischen Sprachvergleich*, ed. by Christine Konecny, Carmen Konzett, Eva Lavric, and Wolfgang Pöckl. Fankfurt: Lang.

Günthner, Susanne. 2000. "From Concessive Connector to Discourse Marker: The Use of *obwohl* in Everyday German". In *Cause – Condition – Concession – Contrast. Cognitive and Discourse Perspectives*, ed. by Elizabeth Couper-Kuhlen, and Bernd Kortmann, 439–486. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110219043.4.439

Hamblin, Charles L. 1973. "Questions in Montague English". *Foundations of Language* 10(1): 41–53.

Haspelmath, Martin, and Ekkehard König. 1998. "Concessive Conditionals in the Languages of Europe". In *Adverbial Constructions in the Languages of Europe*, ed. by Johan van der Auwera, 563–640. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110802610.563

Hilpert, Martin. 2013. *Constructional Change in English: Developments in Allomorphy, Word Formation, and Syntax*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9781139004206

Iten, Corinne. 1997. "*Because* and *although*: A Case of Duality?" *UCL Working Papers in Linguistics* 9: 1–24.

Iten, Corinne. 1998. "The Meaning of *although*: A Relevance Theoretic Account". *UCL Working Papers in Linguistics* 10: 81–108.

Iten, Corinne. 2000. "*Although* Revisited". *UCL Working Papers in Linguistics* 12: 65–95.

Jacobs, Joachim. 2001. "The Dimensions of Topic-comment". *Linguistics* 39(4): 641–682. https://doi.org/10.1515/ling.2001.027

Kassambara, Alboukadel, and Fabian Mundt. 2017. *Factoextra: Extract and Visualize the Results of Multivariate Data Analyses*. R package Version 1.0.5. URL: https://CRAN.R-project.org/package=factoextra

Kim, Yong-Beom. 2002. "Concession and Linguistic Inference". Paper presented at the *Language, Information, and Computation: Proceedings of The 16th Pacific Asia Conference*, ed. by Lee Ik-Hwan, Kim Yong-Beom, Choi Key-Sun, and Lee Minhaeng, 187–194. The Korean Society for Language and Information.

Klein, Dan, and Christopher Manning. 2003. "Accurate Unlexicalized Parsing". Paper presented at the *Proceedings of the 41st Meeting of the Association for Computational Linguistics*, 423–430.

Klein, Wolfgang, and Christiane von Stutterheim. 1987. "Quaestio und referentielle Bewegung in Erzählungen". *Linguistische Berichte* 109: 163–183.

Knott, Alistair, and Ted Sanders. 1998. "The Classification of Coherence Relations and their Linguistic Markers: An Exploration of two Languages". *Journal of Pragmatics* 30(2): 135–175. https://doi.org/10.1016/S0378-2166(98)00023-X

Koehn, Philipp. 2005. *Europarl: A Parallel Corpus for Statistical Machine Translation*. MT Summit X. Phuket, 79–86.

König, Ekkehard. 1985. "On the History of Concessive Connectives in English. Diachronic and Synchronic Evidence". *Lingua* 66(1): 1–19. https://doi.org/10.1016/S0024-3841(85)90240-2

König, Ekkehard. 1986. "Conditionals, Concessive Conditionals and Concessives: Areas of Contrast, Overlap and Neutralization". In *On Conditionals*, ed. by Elizabeth C. Traugott, Alice Ter Meulen, Judy Snitzer Reilly, and Charles A. Ferguson, 229–246. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511753466.013

König, Ekkehard. 1988. "Concessive Connectives and Concessive Sentences: Cross-linguistic Regularities and Pragmatic Principles". In *Explaining Language Universals*, ed. by John Hawkins, 145–166. New York: Blackwell.

König, Ekkehard. 1991. "Concessive Relations as the Dual of Causal Relations". In *Semantic Universals and Universal Semantics*, ed. by Dietmar Zaefferer, 190–209. Berlin: Mouton de Gruyter.

König, Ekkehard. 1994. "Concessive Clauses". In *The Encyclopaedia of Language and Linguistics*, ed. by Robert E. Asher, and James M. Simpson, 679–681. New York: Pergamon Press.

König, Ekkehard, and Volker Gast. 2018. *Understanding English-German Contrasts*. 4th edition. Berlin: Erich Schmidt Verlag.

König, Ekkehard, and Peter Siemund. 2000. "Causal and Concessive Clauses: Formal and Semantic Relations". In *Cause – Condition – Concession – Contrast. Cognitive and Discourse Perspectives*, ed. by Elizabeth Couper-Kuhlen, and Bernd Kortmann, 341–360. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110219043.4.341

Latos, Agnieszka. 2009. "Concession on Different Levels of Linguistic Connection: Typology of Negated Causal Links". *Newcastle Working Papers in Linguistics* 15: 82–103.

Lê, Sébastien, Julie Josse, and François Husson. 2008. "FactoMineR: A Package for Multivariate Analysis". *Journal of Statistical Software* 25(1): 1–18. https://doi.org/10.18637/jss.v025.i01

Mann, William C., and Sandra A. Thompson. 1988. "Rhetorical Structure Theory: Toward a Functional Theory of Text Organization". *Text* 8(3): 243–281. https://doi.org/10.1515/text.1.1988.8.3.243

Meyer, David, Achim Zeileis, and Kurt Hornik. 2016. vcd: Visualizing Categorical Data. R package Version 1.4–3.

Pander Maat, Henk. 1999. "Two Kinds of Concessives and their Inferential Complexities". In *Levels of Representation in Discourse. Working Notes of the International Workshop on Text Representation*, ed. by Alistair Knott, Jon Oberlander, Johanna D. Moore, and Ted Sanders, 45–54. Human Communication Research Centre, Edinburgh.

Pasch, Renate. 1992. "Sind kausale und konzessive Konstruktionen Duale voneinander?" *Arbeiten der Sonderforschungsbereiches 282, Theorie des Lexikons* 31. Düsseldorf: Heinrich-Heine-Universität.

R Core Team. 2018. *R: A Language and Environment for Statistical Computing. R Foundation for Statistical Computing*. Vienna, Austria. URL: https://www.R-project.org/

Roberts, Craige. 2012. "Information Structure in Discourse: Towards an Integrated Formal Theory of Pragmatics". *Semantics and Pragmatics* 5(6): 1–69. https://doi.org/10.3765/sp.5.6

Rochemont, Michael. 2016. "Givenness". In *The Oxford Handbook of Information Structure*, ed. by Caroline Féry, and Shinichiro Ishihara, 41–63. Oxford: Oxford University Press.

Rodríguez Rosique, Susana. 2005. "Hipoteticidad, factualidad e irrelevancia: la elección del subjuntivo en las condicionales concesivas del español". In *Selected Proceedings of the 7th Hispanic Linguistics Symposium*, ed. by David Eddington, 31–41. Somerville: Cascadilla Proceedings Project.

Rudolph, Elisabeth. 1996. *Contrast. Adversative and Concessive Relations and their Expressions in English, German, Spanish, Portuguese on Sentence and Text Level*. Berlin/New York: Mouton de Gruyter. https://doi.org/10.1515/9783110815856

Sánchez-Naranjo, Jeannette. 2014. "Interpretation and Grammar Interaction in the Spanish Subjunctive Adjuncts". *Borealis: An International Journal of Hispanic Linguistics* 3(1): 125–154. https://doi.org/10.7557/1.3.1.2941

Sarkar, Deepayan. 2008. *Lattice: Multivariate Data Visualization with R*. New York: Springer. URL: http://lmdvr.r-forge.r-project.org. https://doi.org/10.1007/978-0-387-75969-2

Schützler, Ole. 2017. "A Corpus-based Study of Concessive Conjunctions in Three L1-Varieties of English". In *Language Variation – European Perspectives VI: Selected papers from the 8th International Conference on Language Variation in Europe* (ICLaVE 8), Leipzig, May 2015, ed. by Isabelle Buchstaller, and Beat Siebenhaar, 173–184. Amsterdam: Benjamins. https://doi.org/10.1075/silv.19.11sch

Schützler, Ole. 2018. "Concessive Conjunctions in Written American English". In *Diachronic Corpora, Genre, and Language Change*, ed. by Richard J. Whitt, 195–218. Amsterdam: Benjamins.

Schwarzschild, Roger. 1999. "Givenness, AVOIDF and other Constraints on the Placement of Accent". *Natural Language Semantics* 7(2): 141–177. https://doi.org/10.1023/A:1008370902407

Searle, John. 1975. "A Classification of Illocutionary Acts". *Language in Society* 5(1): 1–23. https://doi.org/10.1017/S0047404500006837

Stalnaker, Robert. 1974. "Pragmatic Presuppositions". In *Semantics and Philosophy*, ed. by Milton K. Munitz, and Peter Unger, 197–214. New York: New York University Press.

Stalnaker, Robert. 2002. "Common Ground". *Linguistics and Philosophy* 25(5–6): 701–712. https://doi.org/10.1023/A:1020867916902

Sweetser, Eve. 1990. *From Etymology to Pragmatics: Metaphorical and Cultural Aspects of Semantic Structure*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511620904

Verstraete, Jean-Christophe. 2004. "Initial and Final Position of Adverbial Clauses in English: The Constructional Basis of the Discursive and Syntactic Differences." *Linguistics* 42(4): 819–853. https://doi.org/10.1515/ling.2004.027

Wiechmann, Daniel, and Elma Kerz. 2013. "The Positioning of Concessive Adverbial Clauses in English: Assessing the Importance of Discourse-pragmatic and Processing-based Constraints". *English Language and Linguistics* 17(1): 1–23. https://doi.org/10.1017/S1360674312000305

Wilson, Deidre, and Dan Sperber. 2004. "Relevance Theory". In *Handbook of Pragmatics*, ed. by Laurence Horn, and Gregory Ward, 607–632. Oxford: Blackwell.

Zifonun, Gisela. 2013. "Adverbial eingeleitete Verbletztsätze". In *Satztypen des Deutschen*, ed. by Jörg Meibauer, Markus Steinbach, and Hans Altmann, 301–316. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110224832.301

PART II

Experiment-based studies

CHAPTER 7

Processing patterns of focusing in Spanish

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Different kinds of focusing relations that encode different assumptions are expected to exhibit different kinds of processing patterns (Loureda et al. 2015; Lowder and Gordon 2015; Nadal et al. 2016). In this paper, we present findings of an eye tracking study that takes under consideration two different types of focusing relations in pragmatic scales in Spanish (Rooth 1985; König 1991; Rooth 1992; Kenesei 2006; Portolés 2007, 2009): (a1) unmarked identificational foci that have primarily identificational value, (a2) unmarked restrictive foci that present a conceptual restriction, and (b) contrastive foci, marked by the focus operator *incluso* ('even') that due to its procedural meaning restricts the inferential processes in communication (Karttunen and Peters 1979; Blakemore 1987, 1992; Portolés 2007). According to the findings, this paper claims that (1) utterances with unmarked and marked focus do not present different global processing efforts (utterances with marked focus have more encoded information but the focus operator generates a control and acceleration effect), (2) utterances with unmarked and marked foci present different intern processing patterns: unmarked (conceptual) and marked (procedural) patterns and (3) that different processing patterns lead to different inferential processes.

Keywords: focusing patterns, unmarked focus, marked focus, procedural meaning, focus operator, *incluso*, experimental pragmatics

1. Different kinds of focusing

During discourse, individuals not only consider who the addressee is, they also operate on *common ground* (Clark 2007; Carston 2008; Escandell Vidal and Leonetti 2009; Roberts 2012). Presuppositions about the amount and kind of information being conveyed by the interlocutor determine the *common ground management*, that is, the organization of the information structure in discourse (Krifka 2008: 246; Krifka and Musan 2012: 9). Through this process, the information is primarily divided up into "given" and "new" information, also known as *background* and *focus information* (Escandell Vidal and Leonetti 2009: 13).

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In the literature on information structure different semantic and grammatical properties are assigned to focus information (among others Karttunen and Peters 1979: 11; Lambrecht 1994; Kenesei 2006; Escandell Vidal and Leonetti 2009: 13; Portolés 2010). In a discursive context such as:

> *Fernando and Ricardo are two famous journalists from the main newspaper of Lima (Peru). In addition to writing for the newspaper, they are very passionate about literature. For example, they have written some essays together.*

a focus can exist "by default", often referred to as *informational focus* or *unmarked focus*.[1] The unmarked focus widens and extends the common ground (Jackendoff 1972; Rooth 1985: 10–15; É. Kiss 1998: 245–246; Kenesei 2006: 139–144; Escandell Vidal and Leonetti 2009: 14). In utterance (1):

(1) *Fernando y Ricardo escriben ensayos*$_{[known\ information]}$ *y poemas*$_{[unmarked\ focus/new\ information]}$.
'Fernando and Ricardo write essays and poems.'

the speaker organizes the discourse relying on the topic (van Kuppevelt 1996: 394; Gutiérrez Ordóñez 2000 [1997]: 40; Gundel and Fretheim 2004: 176; Portolés 2010: 284), *what kind of literature do Fernando and Ricardo write?* In relation to this topic, the unmarked focus (*poemas*) identified as new information establishes an additive relation with the known information given in the previous context (*ensayos*) (Kenesei 2006: 137).

The identification and addition of new information can be more complex from a conceptual perspective. In the Example (2):

(2) *Fernando y Ricardo escriben ensayos*$_{[known\ information]}$ *y poemas sencillos*$_{[unmarked\ focus/new\ information]}$.
'Fernando and Ricardo write essays and simple poems.'

an unmarked focus is presented in which, within an identifying function, a restrictive conceptual operation is included. This lexical operation "is a way of indicating [= identifying] a new class that contains the elements which gather the properties of the classes that constitute them; in other words, we can interpret this operation

1. In the absence of further prosodic, lexical or grammatical instructions, in Spanish the right side of the utterance is the most informative area by default (Trager and Smith 1951). Nevertheless, the unmarked focus has been identified using a number of different terms based on slightly different properties, such as *informational focus* (Zubizarreta 1999), *information focus* (É. Kiss 1998), *semantic focus* (Gundel 1999), *verum focus* (Höhle 1988; Escandell Vidal and Leonetti 2009), *broad focus* (Selkirk 1984), *presentational focus* (Rochemont 1986), *psychological focus* (Gundel 1999), or *completive focus* (Dik 1989; Andorno 2000).

as the intersection of two (or more) sets" (Escandell Vidal 2004: 212). Thus, the adjective, when modifying the noun, acts in two different ways: "On the one hand, it determines it and specifies it by limiting its extension; and on the other hand, it describes it, that is, it explains it by increasing its intention, when information is added to something already determined" (Flórez 1995: 164). From a cognitive point of view, it has been shown that a restriction of content constitutes a lexical increase of information.[2]

The unmarked focus, restrictive or not, is essentially identifying. Identificational value is understood as added value to an element that is recognised as the focus of the utterance and this value ensures that a relation to the constituents within the utterance is established (Jackendoff 1972; Jacobs 1983: 128; König 1991: 29; Flórez 1995; Kenesei 2006: 139). "The identification can subsist only between items of certain kind: those which have extensions in the world, i.e., things, actions, properties and propositions" (Kenesei 2006: 138) and the elements have to be subordinate to one specific set. The cognitive processing of this minimal form of focus may vary depending on the conceptual construction it requires. In relation to a simple form of unmarked focus with an identifying function, as observable in (1), a focus structure that adds a complex conceptual restriction, as in (2), should entail more cognitive effort, since during the construction of the focus a tacit operation of categorical exclusion is performed.

Finally, in (3), an informative structure contains a *marked focus*,[3] which has something in common with the Examples (1) and (2), but with a notable difference:

(3) *Fernando y Ricardo escriben ensayos*$_{[alternative]}$ *e* incluso$_{[focus\ operator]}$ *poemas*$_{[marked\ focus/new\ information]}$.
'Fernando and Ricardo write essays and *even* poems.'

In cases of unmarked focus, there is also an identificational value, but a marked focus as in (3) not only provides new information, it also "exhibits an explicit contrast"

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2. The restriction of categories can occur at the level of lexical relations (e.g., relations between hyper- and hyponyms). In this sense, there are studies in lexical semantics that have proved empirically that words at the superordinate level (e.g., *animal*) or basic level (e.g., *dog*) are easier to process than subordinate words (e.g., *labrador*) (Rosch 1973; Rosch and Lloyd 1978; Schumacher et al. 2009; Raposo, Mendes, and Marques 2012). An additional restriction could arise from adding syntactically different lexical units, for example a restrictive adjective with a noun (*conceptual narrowing*). For a theoretical point of view, see Beaver and Clark (2008) and Carston (2008) among others; and for an empirical perspective, see (Richardson 1978; Mata, Percy, and Sherman 2014).

3. The marked focus is also called i*dentificational focus* (É. Kiss 1998) or *contrastive focus* (Roberts 1998; Kenesei 2006).

(Selkirk 1985; Kenesei 2006: 240; Selkirk 2007) between the focalized element (*poemas*) and a complementary subset of alternatives (*ensayos*) (Rooth 1985, 1992, 1996; É. Kiss 1998: 245; Gundel and Fretheim 2004; Kenesei 2006: 241). The main functions of contrast are to generate a comparison of two elements with informative value, which can present itself as a contrast with a subset of a paradigm that is given in the discourse (as in (3)), or it can also be given as a potential subset in the given context (Kenesei 2006; Krifka and Musan 2012), as in (4):

(4) *Fernando y Ricardo escriben* incluso$_{[focus\ operator]}$ *poemas*$_{[marked\ focus]}$.
'Fernando and Ricardo write even poems.'

As Kenesei (1984, 1986, 2006: 142) indicates, "the function of marked focus is 'exclusion by identification' interpreted on some set of individuals in the universe of discourse". The contrastive information function (focus vs. alternative), which is given conventionally in (3), may also appear in (1) and (2), but in this case it is of a different semantic nature (Grice 1975; Kenesei 2006; Portolés 2007). Any focus may evoke an alternative, whether it is an unmarked (identificational or restrictive) or marked focus. The differences lie in the relation to the alternative. The unmarked focus in (1) and (2) introduces new information and this information is presented within the framework of the identificational function. The contrast between an unmarked focus and a possible alternative can only be processed as conversational implicature, which is why it can be cancelled out syntagmatically:

(5) *Fernando y Ricardo escriben novelas y poemas (sencillos),* sin que escribir poemas (sencillos) les resulte más complicado que escribir novelas.
'Fernando and Ricardo write novels and (simple) poems, *without writing (simple) poems not being more difficult for them than writing novels.*'

The marked focus, on the other hand, introduces in the discourse, in addition to an identificational value, a contrastive and scalar conventional implicature and therefore it cannot be cancelled out:

(6) #*Fernando y Ricardo escriben novelas e incluso poemas,* sin que escribir poemas les resulte más complicado que escribir *novelas.*
#'Fernando and Ricardo write novels and even poems, *without writing poems not being more difficult for them than writing novels.*'

In (3), a structure with marked focus, the conventional device that activates the contrast is not the focus itself or its lexical content, but the focus operator (FO). *Incluso* highlights an element belonging to a paradigm as the most relevant in a specific and accessible context (Rooth 1985; König 1991; Rooth 1996; Schwenter 2002; Portolés 2007, 2010). This element has *procedural meaning* (Loureda et al. 2015; Nadal et al. 2016). According to Blakemore (1997: 95), the *conceptual meaning*

corresponds to the lexical information of the propositional content of an utterance,[4] whereas the *procedural meaning* is the information on how to process conceptual meanings and how to constrain the inferential computations carried out when processing the discourse sequences in which the elements with a procedural meaning occur.[5] Due to their procedural meaning, FOs constrain the inferential processes in communication in order to guide the hearer or reader to the expectable effect, thus minimizing processing efforts (Blakemore 1987, 1992; Sperber and Wilson 1995; Blakemore 1997; Portolés 2001 [1998]; Carston 2002; Leonetti and Escandell Vidal 2004; Carston 2016). In an utterance like (3), i*ncluso* sets certain rules for elements with conceptual meaning and requires the modification of the mental representations formed by certain concepts (*ensayos* y *poemas*) (Escandell Vidal and Leonetti 2011: 84): "[incluso] highlights one element of the discourse as less expected than another (explicitly given or, more often, implicit) and, consequently, creates a scale on which the highlighted element is understood as more informative" (*DPDE* online, s.*v. incluso*, own translation).

From the perspective of cognitive processing, theoretically, it can be expected that a structure such as (3) implies more meaning (identification and contrast), but it can also be maintained that these extra costs are compensated through the existence of a procedural element that guides the effort of utterances during processing, "by communicating instructions to restrict the range of possible interpretations and guide the inferential task that the recipient must carry out determining the implicature and both types of explicature [low-level explicature and high-level explicature]" (Escandell Vidal and Leonetti 1997: 366, own translation). We can therefore expect marked structures to be linked to a more guided inferential process and their processing during reading not to require greater effort, despite the fact that these structures have a higher informative load.

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4. To be more specific and in line with recent theoretical proposals in lexical pragmatics (Carston 2002, 2004), the conceptual meaning is the information on the propositional content of *mental representations* which are codified by utterances. As linguistic meaning is to a great extent underspecified and cannot be correctly interpreted without taking the context into account, utterances are no longer considered as consisting of propositions or having truth conditions: only the pragmatically enriched mental representations can have them (see Murillo 2010: 243).

5. The two basic properties of procedural meaning are *asymmetry* and *rigidity*. The first property is asymmetry, because elements with procedural meaning require the existence of some conceptual representation upon which they act. The procedural instruction acts upon the conceptual content and not vice versa (Leonetti and Escandell Vidal 2004: 1729). The second property of procedural meaning is its rigidity, that is, its ability to impose its conditions on the context and to provoke the insertion of the appropriate assumptions in order to satisfy the interpretation process (Escandell Vidal and Leonetti 2011: 81).

In summary, there are descriptive and theoretical arguments that support the idea that there are at least two types of focus: marked and unmarked. The unmarked focus has an identifying value (new information). This new information may be presented in its minimum categorical form (see (1)), but it may also be information in which a categorical restriction is given (see (2)). On the other hand, the marked focus has more content, that is, a paradigmatic contrast in addition to the mere identifying value, but which turns out to be of another nature, activated by units of procedural value, which at the same time restrict inferential processes in communication (see (3)):

identification or identification by restriction	unmarked focus
identification + contrast (exclusion by identification)	marked focus

Figure 1. Unmarked and marked utterance distribution

To complement previous theoretical and descriptive works on focus structure, experimental methods can provide empirical evidence (Karttunen and Peters 1979; Jacobs 1983; Rooth 1985; König 1991; Rooth 1996; Kenesei 2006) and reveal possible correlations between syntactic, semantic and pragmatic features and cognitive patterns. Hence, focus structure can be analysed during their production, processing and comprehension. The aim of the present paper is to provide an experimental approach to focusing and to show that, since they encode different assumptions, different discursive relations can exhibit different kinds of processing patterns within the same paradigm of focusing.

2. Experimental design

2.1 Independent variables, areas of interest and hypotheses

An eye tracking experiment was designed to register the cognitive effort required to process different kinds of focusing relations (Paterson et al. 2007; Richardson, Dale and Spivey 2007; Loureda et al. 2015; Nadal et al. 2016; see also Nadal and Recio, this volume; and for another experimental approach on FO (visual world paradigm), see Gerwien and Rudka, this volume). As part of this experiment, the eye movements of the participants were tracked during online reading and registered

according to three conditions of the independent variable, that is, the type of focus marking: unmarked identificational focus (1), unmarked restrictive focus (2) and marked focus that implies an exclusion by identification (3).

Unmarked focus (identification)

(1) *Fernando y Ricardo escriben* [*ensayos*$_{[possible\ alternative]}$] *y* [*poemas*$_{[unmarked\ focus]}$]

Unmarked focus (identification by restriction)

(2) *Fernando y Ricardo escriben* [*ensayos*$_{[possible\ alternative]}$] *y* [[*poemas*$_{[noun]}$] [*sencillos*$_{[adjective]}$]$_{unmarked\ focus}$]

Marked focus (exclusion by identification)

(3) *Fernando y Ricardo escriben* [*ensayos*$_{[alternative]}$] *e* [*incluso*$_{[focus\ operator]}$] [*poemas*$_{[marked\ focus]}$]

For the analysis of the focusing operation, we limited our interest to the main focusing areas. In the utterance with unmarked focus, the areas of interest were limited to possible alternative and unmarked focus (see (1)); in the case of the utterance with conceptual restriction to possible alternative and unmarked focus (noun and adjective, considered together and separately) (see (2)); and, in the case of the utterance with marked focus, to alternative, FO and marked focus (see (3)). In all three cases the utterances are composed by a minimal set: a single explicit alternative (one lexical element), as presented in the examples. In addition to the analysis of the focusing areas, we computed times for an average word of the utterance (total mean: all words of the utterance) and for an average word with conceptual meaning (lexical mean: all words of the utterance except FO and subject). The lexical mean excludes the processing time of the FO during the construction of a mental representation. This parameter reflects the cognitive effort required to process the conceptual elements of the utterance and allows us to compare the net lexical value of the considered utterances. Proper names with a purely designatory value are excluded from the computations of this parameter.

In relation to these independent variables we want to prove the following hypotheses:

a. We assume that an utterance with marked focus should not present higher processing costs than an utterance with an unmarked focus, because the FO generates a control and acceleration effect that compensates the additional costs that the lexical contrast of the affected units (alternative and focus) may produce (§3.1). This argument is based on the procedural character of the FO, i.e., on its ability to guide the effort demanded by utterances during processing (see §1).
b. The two considered types of focusing (unmarked and marked) imply two patterns according to different kinds of focus marking (§3.2). We expect two

different processing patterns: one conceptual (identification (1) and identification by restriction (2)) and the other procedural (exclusion by identification or contrast generated by an FO (3)):

a. Conceptual pattern ((1) and (2)): If the assumption has to be constructed based solely on the conceptual elements, we expect to see a pattern that is oriented to the right-side of the utterances, since no explicit contrast has to be made between alternative and focus. The assumption should be recovered with major differences in processing times between alternative and focus. In addition, to the extent that a given unit activates a restrictive function in the area of the focus, we can expect the processing of the focus to become more complex and demand more effort in comparison to the preceding areas, especially those that can be considered as possible alternatives from an informative perspective.
b. Procedural pattern: We assume that in marked utterances the FO articulates the information and therefore not only requires more processing effort than a conceptual word, but also regulates the processing of the construction of the assumptions based on the conceptual elements of the utterance (Loureda et al. 2015). Therefore, we expect minor differences in processing times between alternative and focus in utterances of type (3) due to the regulation effect of the FO. Likewise, higher costs of the FO are expected during the construction of the assumption since this is a unit that regulates the interpretation of the utterance and in particular the interpretation of the units affected.
c. If the procedural instruction of the FO guides the inferential process conventionally, we should expect to see that different processing patterns lead to different inferential processes during comprehension as well (§3.3). In this regard, we predict that utterances such as (1) and (2) do not conventionally lead to a contrastive implicature (i.e., there is no minimum stimulus sufficient to automatically activate an inferential contrastive process), whereas it is to be expected that an utterance such as (3) conventionally leads to a contrastive implicature.

2.2 Dependent variables

Within this methodology, different results for the registered eye movements can be interpreted as indicators of different processing patterns (Rayner and Sereno 1994; Rayner 1998; Hyönä, Lorch, and Kaakinen 2002; Richardson, Dale, and Spivey 2007; Rayner 2009). Fixations, the maintaining of the visual gaze on a stimulus, are the main indicator during processing. Cognitive effort can be observed via fixations, since they are the moments in which information perception and extraction can be

processed. Longer or a higher number of fixations are generally indicators of greater processing effort (Clifton, Staub, and Rayner 2007; Rayner et al. 2012).

For our study, there were three main dependent variables of interest (see also Nadal and Recio, this volume): *total reading time*, which corresponds to the sum of the duration of all fixations on an area of interest (AOI); *first-pass reading time*, that is to say, the duration of all fixations on an AOI before the reader leaves this AOI; and *second-pass reading time*, the re-reading time of an AOI once it has been abandoned (Hyönä, Lorch, and Rinck 2003: 316).

The total reading time provides an overview of the cumulative cognitive effort during reading and reflects the effort needed to complete the assumption given by an ostensive stimulus. First-pass and second-pass reading times reveal more detailed information about the processing of the communicated assumption. During first-pass reading time the construction of the assumption at an early state of processing takes place, that is to say, the reader constructs an assumption based on the lexical recognition of words, the search for matches with entries in his or her mental lexicon, the syntactic and semantic analysis of the utterance and the enrichment of the logical form (Escandell Vidal 2004: 81). In this way, the reader forms an assumption on the basis of which an inferential process can be carried out. Meanwhile, during the reconstruction or reanalysis of the assumption, a confirmation, modification or cancelation of the previous assumption can be realized with the aim of optimising the effort of the inferential process (Rayner and Sereno 1994; Rayner 1998; Hyönä, Lorch, and Rinck 2003; Leonetti and Escandell Vidal 2004; Rayner 2009; Sandra 2009; Holmqvist et al. 2011; Nadal et al. 2016).

2.3 Participants, apparatus and procedure

Data were gathered from 20 participants for each experiment list. The present variable is part of a larger study involving a total of 300 participants (Cruz, in preparation). The participant-variable was controlled; all subjects were aged between 18 and 40 and had a high level of education; at the time of the experiment, they were all university graduates or students so as to guarantee a homogenous group. The individual reading speed of each participant was controlled by statistical methods (Keating 2014; Keating and Jegerski 2014).

The study was carried out using an eyetracker *RED 500* (*SMI Research*). The experimental stimuli were presented on a computer screen with three characters equalling 1° of visual angle. The experiment was recorded with a temporal resolution of 500 Hz. The participants sat approximately 70 cm away from the monitor and the viewing was binocular (an average was automatically calculated).

Each participant decided independently when to move on to the next stimulus in order to reduce interference of the person conducting the experiment.

Participants were only informed of the purpose of the study once the experiment had concluded (see Gries 2008; Keating and Jegerski 2014). Each test had a maximum duration of 20 minutes.

2.4 Stimuli

The experiment for the present paper was designed with 15 different types of utterances for the independent variable: focus marking (conditions: unmarked focus (identification) (1), unmarked focus (identification by restriction) (2) and marked focus (exclusion by identification) (3), see Appendix 3 for a detailed list of experimental items).[6] All utterances have similar world knowledge and are pragmatic open scales.[7] Each experimental item has the most neutral syntactic SVO-structure possible and was provided with an explicit given alternative that had already been presented to the participants previously. Before the actual reading task, the first slide provided the reader with some context acting as background information for the experiment.

The focused element always presents new information and focus simultaneously (Portolés 2010). Within the SVO-structure, all critical items have the focusing region in common. Since the latter region of the stimulus coincides with the focusing area, a second utterance was introduced after the critical item to avoid possible wrap-up effects[8] (Just, Carpenter, and Woolley 1982; Keating and Jegerski 2014).

The experiment was designed with the same number of replications as conditions (Gries 2008). Each replication was shown to 20 different participants; each participant sees, at maximum, one stimulus in one condition from one topic (out of 15 different topics). The experiment follows a counterbalanced design to avoid order-learning effects and to prevent the participants from developing specific reading strategies. The 15 stimuli and the 30 filler items (1:2 ratio) were shown in a pseudo-randomized order to avoid undesirable effects with regard to the participants' reading attention (Sandra 2009: 171). Other possible hidden variables and undesirable effects were controlled within the utterances to avoid false results, such

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6. The variable focus marking is part of a larger study with 15 different conditions with four variables: A – type of alternative (cross-variable); B – focus marking; C – position of the focus operator; D – degree of informativity). To guarantee the same number of replications as conditions, there are 15 replications of each condition.

7. The adaptability of pragmatic scales was proved in a pre-test to guarantee that all scales were pragmatic open scales (see Appendix 2 for a detailed description).

8. The wrap-up effect (longer fixations at the end of an utterance or a paragraph) leads to different intra- and inter-clause integration processes, such as connection of proposition or searching for referents (Just, Carpenter, and Woolley 1982: 345).

as word frequency (all words in the utterance belong to high or very high frequency ranges (Almela et al. 2005) or word length (all words had between two and three syllables). Furthermore, there was no possibility of ambiguity (polysemic and homonymous words were also avoided) within the utterances because of the specific context provided. To avoid undesirable eye-related technical effects, such as visual corrections in the first fixation of each utterance, all critical items were preceded by a fixation cross (Gries 2008; Keating and Jegerski 2014).

2.5 Statistical treatment

The statistical analysis of the study was carried out using linear mixed regression models. The models were computed with the statistical software R (R Core Team. R Foundation for Statistical Computing 2014) applying the lmerTest package (Fahrmeier et al. 2013; Bates et al. 2015).

The main indicators that were used for the analysis were the reading times of each dependent variable that were recorded by the eye tracker (first-pass reading time, second-pass reading and total reading time). For the specific purpose of this paper, the following AOIs were treated as fixed effects: alternative, FO, focus, adjective, total mean per word and lexical mean per word. The data reflect the value that was assigned by the mixed model for cumulative processing per word in each area under consideration. The model also allows us to incorporate random effects to control hidden variables that could arise, e.g., because of repeated measurement of the subject. Random intercepts of this study were participant-variable (individual reading speed), token-set-variable (to ensure that different topics of the set do not interfere) and word length (Keating and Jegerski 2014: 25).

The model also permits the individual treatment of missing data. Therefore, all extreme values and outliers were excluded if: (a) the mean per word was < 80 ms in the first-pass reading time and the second-pass was also < 80 ms; and (b) the mean per word was > 800 ms in the total reading time. All values were corrected using the Holm-Bonferroni Method to reduce the possibility of getting erroneous results (i.e., Type I error) (Holm 1979). The variable presented in this paper is part of a larger study, in which the total amount of observations was 17,400 (total participants: 300; 58 observations per participant). The outlier handling was based on the AOI condition *total mean of the utterance* (4,454 observations). Of these observations, 564 observations were considered extreme values (12.7%), most of which were due to technical problems related to the eye tracking software. Of the 564 extreme values, 91 (2%) were attributed to *first skip*, 559 (12.5%) to *fast readers* and 8 (0.2%) to *slow readers* (Pickering, Traxler, and Crocker 2000; Reichle, Rayner, and Pollatsek 2003).

Given the fact that mixed models were more flexible in terms of repeated measures (they do not need the same number of observations for each condition,

missing-at-random definition) and the fact that each computed model contains more than one pairwise comparison (e.g., alternative vs. focus, focus vs. operator, but also total mean per word of the utterances), this analysis opts for an interpretation of the data based on the effect magnitude, rather than on p-values (Vasishth et al. 2018). In order to interpret the obtained estimate values, the following effect-scale was developed based on theoretical and empirical evidence. Differences between conditions under 4% were considered trivial effects, those from 4% to 4.99% were small effects, those from 5% to 9.99% were taken as a medium effect, those from 10% to 19.99% indicate large effects and differences over 20% were considered very large effects.

3. Results and discussion

3.1 Global comparison

3.1.1

Considering the cumulative reading values of each utterance (total reading time), globally there are no relevant effects (228.54 ms vs. 236.52 ms vs. 232.23 ms, < 4%). Nor are there any important effects in the analysis of the lexical mean (234.55 ms vs. 243.46 ms vs. 238.83 ms, < 4%, see Appendix 1). The first relevant finding about this global parameter is that different informative relations (unmarked and marked) that theoretically involve different syntactic and semantic processes require a similar cognitive effort; adding an adjective means adding more lexical information to an utterance, while adding an FO means adding more procedural information, but this additional information does not mean more processing costs for any of the utterances. From a theoretical point of view, it is worth mentioning the also trivial results of the lexical mean, which measures the values of the conceptual units and of the focusing operation, whether or not this is mediated by the FO.

3.1.2

By separating the time corresponding to the construction of the first assumption (*first-pass reading time*) from the reconstruction or reanalysis (*second-pass reading time*) in the accumulated parameter of the total reading time, we can observe that this global pattern is repeated during the first-pass reading time, both in the total mean (177.58 ms vs. 182.70 ms vs. 177.98 ms; < 4%, see Table 1) and in the lexical mean (181.75 ms vs. 185.14 ms vs. 184.03, < 4%, see Table 2).

Table 1. First-pass reading time – total mean

First-pass reading time			Total mean	
			Difference	Percentage
unmarked identificational vs. unmarked restrictive utterance	177.58 ms	177.98 ms	0.40 ms	0.23% (trivial effect)
unmarked identificational vs. marked utterance	177.58 ms	182.70 ms	5.12 ms	2.88% (trivial effect)
unmarked restrictive vs. marked utterance	177.98 ms	182.70 ms	4.72 ms	2.65% (trivial effect)

Table 2. First-pass reading time – lexical mean

First-pass reading time			Lexical mean	
			Difference	Percentage
unmarked identificational vs. unmarked restrictive utterance	181.75 ms	184.03 ms	2.28 ms	1.25% (trivial effect)
unmarked identificational vs. marked utterance	181.75 ms	185.14 ms	3.39 ms	1.87% (trivial effect)
unmarked restrictive vs. marked utterance	184.03 ms	185.14 ms	1.11 ms	0.60% (trivial effect)

There are certain differences in the strategies of reanalysis (second-pass reading time), which have a strong theoretical implication. In terms of the mean per word of the utterance, medium increases can be detected (see Table 3), with the utterances with marked focus (53.65 ms) requiring 6.45% more processing effort than the utterance with unmarked identificational focus (50.40 ms). Medium effects are observed in the comparison between the utterance with identificational focus (50.40 ms) and the utterance with restrictive focus (53.96 ms, 7.06%). Between a marked structure and an unmarked structure with conceptual restriction the effects of the differences are trivial (< 4%). This indicates that an unmarked focus structure activates lower reanalysis costs in the total mean of the utterance than an utterance with a marked focus; if the given structure has an unmarked focus, it is also possible that a categorical restriction may be a sufficient stimulus to trigger a major reanalysis in comparison to an unmarked identificational utterance.

Table 3. Second-pass reading time – total mean

Second-pass reading time			Total mean	
			Difference	Percentage
unmarked identificational vs. unmarked restrictive utterance	50.40 ms	53.96 ms	3.56 ms	7.06% (medium effect)
unmarked identificational vs. marked utterance	50.40 ms	53.65 ms	3.25 ms	6.45% (medium effect)
unmarked restrictive vs. marked utterance	53.96 ms	53.65 ms	0.31 ms	0.58% (trivial effect)

Table 4. Second-pass reading time – lexical mean

Second-pass reading time			Lexical mean	
			Difference	Percentage
unmarked identificational vs. unmarked restrictive utterance	52.36 ms	54.61 ms	2.25 ms	4.30% (small effect)
unmarked identificational vs. marked utterance	52.36 ms	57.95 ms	5.59 ms	10.68% (large effect)
unmarked restrictive vs. marked utterance	54.61 ms	57.95 ms	3.34 ms	6.12% (medium effect)

If we consider the lexical mean, these differences support the previous argument. The processing effort required for the marked utterance was 10.68% (large effect) greater than that for the unmarked identificational utterance (57.95 ms vs. 52.36 ms) and 6.12% (medium effect) greater than that for the unmarked restrictive utterance (57.95 ms vs. 54.61 ms). Between the unmarked utterances, the difference is small (4.30%, see Table 4). These results show that in a structure with a marked focus the reanalysis of the lexical units is higher than in any unmarked structure under consideration, which could be regarded as an indicator of contrast. The lexical mean during the second-pass reading time more accurately reflects the processes of confirmation, enrichment or correction of lexical values driven by a procedural element. The FO *incluso* conventionally triggers the reconsideration of a contrast between the alternative and the focus and this cognitive stimulus produces a medium to large increase in the reanalysis costs in relation to both structures of unmarked focus considered in our experiment: the identificational focus and the restrictive focus with conceptual restriction. This is theoretically justified because the FO is the only unit that, because of its procedural meaning (of an asymmetric nature), can conventionally affect the lexical relation between focus and alternative. However, these additional costs of reanalysis are levelled out throughout the entire

processing of the utterance (total reading time) and are "additional regulatory costs" to establish a complex scalar interpretation controlled by the FO.

3.2 Comparison of focusing areas

3.2.1

To process utterances at the same time does not necessarily mean that it is processed according to the same pattern (§3.1). If we consider the total reading times of the focusing areas and the alternatives, the three types of utterances share another common property: the left area of the utterance, the (possible) alternative, always involves lower processing costs than the area to the right, the focus. This increase statistically reveals medium or very large effects, ranging from 7.81% to 39.53% (see Table 5).

Table 5. Comparison alternative vs. focus – total reading time

	Alternative	**Focus**	**Difference**	**Percentage**
unmarked identificational utterance	212.54 ms	229.13 ms	16.59 ms	7.81% (medium effect)
unmarked restrictive utterance	184.42 ms	257.32 ms	72.90 ms	39.53% (very large effect)
marked utterance	225.90 ms	245.78 ms	19.88 ms	8.80% (medium effect)

3.2.2

The utterances under consideration are oriented to the right (i.e., the point where the focus operation originates), but the focusing operation starts at different places according to the type of focusing: in unmarked utterances (identificational and restrictive) the focusing operation begins in the area of the noun that heads (or constitutes by itself) the unmarked focus, while in structures with marked focus through the use of *incluso* the focusing operation begins during the processing of the operator. This fact can be detected in the difference between the processing costs of the alternative and the focus in both unmarked structures (see Table 5) and in the difference between alternative and FO in the marked structure (see Table 6).

As illustrated in Table 6, the focus (245.78 ms) demands 6.68% less processing effort than the FO (263.37 ms, medium effect). The focus never exceeds the value of the operator which represents the possible maximum limit for the focus value. This indicates that the FO displays its regulatory capacity minimizing the processing effort of the focus itself which is always processed in relation to the instruction of

Table 6. Total reading time – comparison of focusing areas

Marked utterance		Difference	Percentage
alternative to focus operator			
225.90 ms	263.37 ms	37.47 ms	16.59% (large effect)
focus operator to focus			
263.37 ms	245.78 ms	17.59 ms	–6.68% (medium effect)
alternative to focus			
225.90 ms	245.78 ms	19.88 ms	8.80% (medium effect)

the operator (see also similar studies, Loureda, Cruz, and DPKog 2013; Loureda et al. 2015).

3.2.3

The comparison of the foci of the three types of utterances reveals another relevant finding (see Table 7): A restrictive focus presents a large increase with respect to an identificational focus (229.13 ms vs. 257.32 ms, 12.30%) and a small increase with respect to a marked focus (257.32 vs. 245.78 ms, 4.70%). Between an identificational focus (229.13 ms) and a marked focus (245.78 ms) there is a medium increase of 7.27%. In other words, the relative costs of the focus area in the total reading time increases if there is some kind of restrictive (conceptual) or procedural device that acts upon the focus.[9] Therefore, from a cognitive perspective, the unmarked identificational focus constitutes a minimal form for the focusing operation. In light of this, a procedural regulation, given by a regulatory power over the lexical categories, tends to generate fewer additional costs than a conceptual restriction, which provokes a categorical reorganization in the given area.

9. The adjective in the utterance with conceptual restriction presents higher processing costs in relation to the focus across parameters (always medium effect, ranging from 5.02% to 7.36%): This indicates that the adjective is the element that acts as restrictor of the noun that is restricted, confirming the hypothesis that two operations take place in the process of conceptual restriction: First, an identification as new class is performed by marking its limitations, and secondly, the informative intention has to be described (Escandell Vidal 2004: 212; Flórez 1995: 164).

Table 7. Focus comparison – total reading time

Focus comparison		Difference	Percentage
unmarked identificational vs. unmarked restrictive focus			
229.13 ms	257.32 ms	28.19 ms	12.30% (large effect)
unmarked identificational focus vs. marked focus			
229.13 ms	245.78 ms	16.65 ms	7.27% (medium effect)
unmarked restrictive focus vs. marked focus			
257.32 ms	245.78 ms	11.54 ms	4.70% (small effect)

3.2.4

The alternative in an unmarked restrictive utterance (184.42 ms) requires 13.23% less processing effort than the alternative of the unmarked identificational utterance (212.54 ms) and 18.36% less processing effort than the alternative of the marked utterance (225.90 ms, see Table 8), both large effects:

Table 8. Alternative comparison – total reading time

Alternative comparison		Difference	Percentage
unmarked identificational utterance vs. unmarked restrictive utterance			
212.54 ms	184.42 ms	28.12 ms	−13.23% (large effect)
unmarked identificational utterance vs. marked utterance			
212.54 ms	225.90 ms	13.36 ms	6.29% (medium effect)
unmarked restrictive utterance vs. marked utterance			
184.42 ms	225.90 ms	41.48 ms	−18.36% (large effect)

Moreover, if there is an unmarked focus, a conceptual restriction of the focus area will reduce the role of the alternative. And, if the focus is marked, the role of the alternative will be more relevant than the alternative of the unmarked focus because the contrast is necessarily activated. Given that the value of the alternative in the marked structure presents medium and large effects compared to the unmarked foci alternatives, it is possible to assume that a contrast is only activated in these structures, and that this area is effectively converted into an alternative, whereas in the cases of an unmarked utterance this "alternative" will only be activated for a possible contrast if some other contextual factor triggers it.

3.2.5

These arguments (§§3.2.1 to 3.2.4) are further supported if we consider the construction of a first assumption (first-pass reading time) and the reanalysis (second-pass reading time) separately. During the construction of the first assumption, the two unmarked foci have statistically similar processing times (192.79 ms vs. 193.83 ms, difference < 4%, trivial effect). The observed small effect between the unmarked identificational focus (192.79 ms) and the marked focus (200.96 ms) can be attributed to early effects of a necessary relation between the instruction of the FO and its immediate scope, see Tables 9 and 14, where the impact of the FO instruction in relation with the other focusing areas can be observed):

Table 9. Focus comparison – first-pass reading time

Focus comparison		Difference	Percentage
unmarked identificational vs. unmarked restrictive focus			
192.79 ms	193.83 ms	1.04 ms	0.54% (trivial effect)
unmarked identificational focus vs. marked focus			
192.79 ms	200.96 ms	8.17 ms	<4% (trivial effect)
unmarked restrictive focus vs. marked focus			
193.83 ms	200.96 ms	7.13 ms	−3.55% (trivial effect)

The foci never need less processing time than the other lexical elements of the utterance (see Table 5 for the total reading time and Table 10 for the first-pass reading time), which supports the argument that all foci have primarily identificational value and that the recognition and identification of a focus in utterances, regardless of the type of focus (unmarked or marked), is an operation that is made during an early stage of processing.

An alternative, either conventional or possible as a conversational implicature, can only be labelled as alternative *after* reading the focus or *in relation to* the activity of the FO. The very large or large differences between each of the alternatives and their respective focus are therefore theoretically justifiable: 18.02% in the structure with identificational focus, 26.12% in the structure with conceptual restriction and 18.70% in the marked structure (see Table 10).

The operation of conceptual restriction displays an early imbalance effect due to its conceptual complexity (see note 9). The relations between alternative and focus are much more balanced in the unmarked identificational and marked utterances: Comparatively in these cases, the difference between alternative and focus is approximately 45% less than in the unmarked restrictive utterances (18.02% vs. 18.70% vs. 26.12%). Nevertheless, the balancing pattern between alternative and

Table 10. Comparison of alternative vs. focus – first-pass reading time

	Alternative	Focus	Difference	Percentage
unmarked identificational utterance	163.35 ms	192.79 ms	29.44 ms	18.02% (large effect)
unmarked restrictive utterance	153.69 ms	193.83 ms	40.14 ms	26.12% (very large effect)
marked utterance	169.30 ms	200.96 ms	31.66 ms	18.70% (large effect)

focus in unmarked and marked structures underlies different processing strategies: Both utterances have similar global processing costs (§3.1.2), but in marked structures the FO being the most demanding element displays its regulatory function over alternative and focus determining the cognitive effort of these elements (contrast activation) (§§3.2.1 and 3.2.2): during first-pass reading time, the FO (217.36 ms) is the most effort demanding element of the utterance (it demands 28.39% higher processing effort than the alternative and 8.16% more than the focus, see Table 14). The balancing effect of the FO over the focusing areas ensures a guided processing and a contrastive inferential route (see 3.3). In unmarked utterances no contrastive implicature is activated (see comprehension task, §3.3) so that the elements are balanced in order to perform a simple additive operation.

3.2.6

From the point of view of reanalysis, the three structures have different patterns (see Table 11):

Table 11. Comparison alternative vs. focus – second-pass reading time

	Alternative	Focus	Difference	Percentage
unmarked identificational utterance	48.54 ms	35.59 ms	12.95 ms	36.39% (very large effect)
unmarked restrictive utterance	30.05 ms	62.76 ms	32.71 ms	108.85% (very large effect)
marked utterance	55.99 ms	44.16 ms	7.07 ms	−21.13% (very large effect)

The utterances with unmarked foci (identificational and restrictive focus) presented (see §3.1.1) similar total processing effort and both show a similar orientation to the right side of the utterance (see §3.2.1). However, as illustrated in Table 11, while the utterance with an identificational focus is oriented towards the re-reading of the alternative (48.54 ms) (the alternative demands 36.39% more effort than the focus: 35.59 ms, very large effect), the utterance with the restrictive focus is oriented to

the re-reading of the focus (62.76 ms) (the focus requires 108.85% more time than the alternative: 30.05 ms, very large effect). From a theoretical point of view, this can be attributed to structural differences between an utterance with a high semantic underdetermination (unmarked identificational utterance) and an utterance in which a conceptual restriction is carried out on the focus area. Hence, the focus with major processing costs is the restrictive focus (62.76 ms) that requires 42.12% more processing effort than the marked focus by an operator (44.16 ms) and even 76.34% more processing effort than the unmarked focus (35.59 ms, see Table 12), both very large effects. To sum up, the more restrictive the unmarked focus is, the more reanalysis can occur in the focus (local additional cost in the construction of a more specific conceptual category).

Table 12. Focus comparison – second-pass reading time

Focus comparison		**Difference**	**Percentage**
unmarked identificational vs. unmarked restrictive focus			
35.59 ms	62.76 ms	27.17 ms	76.34% (very large effect)
unmarked identificational focus vs. marked focus			
35.59 ms	44.16 ms	8.57 ms	24.08% (very large effect)
unmarked restrictive focus vs. marked focus			
62.76 ms	44.16 ms	18.60 ms	42.12% (very large effect)

The reanalysis of the identificational focus and marked focus appears to be similar (major relative costs of the alternative). However, the reasons for this pattern seem to be different. In the case of the unmarked identificational utterance, a compensation strategy ("check and balances"-strategy) can be observed (see Table 13):

Table 13. Overview: Comparison AOI – all parameters

Unmarked identificational utterance	**AOI**		**ALT/F**
	Alternative	**Focus**	**Difference / %**
first-pass reading time	163.35 ms	192.79 ms	29.44 ms 18.02% (large effect)
second-pass reading time	48.54 ms	35.59 ms	12.95 ms 36.39% (very large effect)
total reading time	212.54 ms	229.13 ms	16.59 ms 7.81% (medium effect)

During the construction of the first assumption, the possible alternative receives less attention than the focus; then, the reader checks whether the function initially assigned is in line with what has been processed during the first pass. Therefore, this smaller operation does not prevent the focus from remaining a more considerable area than the alternative in the total reading time. In short, it is a light checking strategy that does not alter the major relative weight of the identificational focus with respect to the alternative during total reading time. No alternative (contrast) value seems to be assigned to the left side.

In the case of the structure with marked focus (see Table 14), the additional cost of the alternative originates from a conventional function that requires integration within a procedural instruction of the operator:

Table 14. Overview: Comparison AOI – all parameters

Marked utterance	AOI			ALT/FO	FO/F	ALT/F
	Alternative	Operator	Focus	Difference/%	Difference/%	Difference/%
first-pass reading time	169.30 ms	217.36 ms	200.96 ms	−48.06 ms 28.39% (very large effect)	16.40 ms −7.55% (medium effect)	−31.66 ms 18.70% (large effect)
second-pass reading time	55.99 ms	46.01 ms	44.16 ms	9.98 ms −17.82% (large effect)	1.85 ms −4.02% (small effect)	11.83 ms −21.13% (very large effect)
total reading time	225.90 ms	263.37 ms	245.78 ms	−37.47 ms 16.59% (large effect)	17.59 ms −6.68% (medium effect)	17.59 ms 8.80% (medium effect)

The FO demands more processing effort in the first pass, while during the second pass, the areas affected by the instruction are reconsidered to check the scope of the contrastive relation from which the inferential process is activated. If the focus is marked, the alternative plays a more relevant role during re-reading, in order to set the contrast limits in comparison to the unmarked focus.

3.3 The comprehension of the contrastive implicatures of unmarked and marked focus structures

While the eye tracking experiment permits us to observe the decoding strategies of the utterance and the reconstruction of the communicated assumption, the complementary comprehension test (designed with the free and open source online statistical survey software *Lime Survey 2.0*) allows us to analyse participants' comprehension of the considered utterances. If the structures with unmarked and marked focus conventionally generate different assumptions, we might expect to

find that both types of utterances do not provide equally effective stimuli that lead to a contrastive implicature (Hypothesis 3, see §1). While the contrastive scalar implicature is conventional in the utterance with marked focus, in the utterances with unmarked focus (identificational or restrictive) a contrast could only be possible as conversational implicature.

After reading an utterance the participants (sample size: 20 for each experiment list, as in the eye tracking experiment) have to answer a question, e.g., "Según la frase, escribir poemas es más difícil que escribir ensayos" ('According to the sentence, writing poems is more difficult than writing essays'). This type of question asks whether each of the three types of utterances is a sufficient minimum ostensive stimulus to trigger a scalar contrastive implicature. The possible answers are "yes", which is equivalent to recognising a contrastive implicature in the stimulus; "no", which is equivalent to not recognising a contrastive implicature in the utterance; or "we do not know", which is equivalent to recognising an insufficient or weakly determined conventional stimulus in the utterance to achieve the contrast. To determine the association or independence of two qualitative variables we use the chi-squared test, which contrasts two hypotheses, a null hypothesis or hypothesis of independence of the variables (H0) and an alternative hypothesis or hypothesis of association of the variables (H1).

The results show that the utterance with marked focus is sufficient to lead to the contrastive implicature (90% yes), while those with unmarked foci do not constitute minimum utterances that conventionally activate a contrastive inferential path (7% and 20% yes, respectively, see Table 15).

Table 15. Comprehension test

	Yes	*No*	*No answer*
Unmarked identificational utterance	7%	**73%**	20%
Unmarked restrictive utterance	20%	**58%**	22%
Marked utterance	**90%**	7%	3%
chi-squared test *unmarked identificational utterance vs. marked utterance*			309.5 > 5.99; $p < .05$
chi-squared test *unmarked restrictive utterance vs. marked utterance*			261.4 > 5.99; $p < .05$

If the utterances with identificational focus and with restrictive focus are compared with each other, the comparison yields negative results, meaning that none of the utterances are sufficient as an ostensive stimulus to achieve the contrastive scalar implicature (see Table 16):

Table 16. Comprehension test

	Yes	*No*	*No answer*
unmarked identificational utterance	7%	**73%**	20%
unmarked restrictive utterance	20%	**58%**	22%
chi-squared test			$5.11 < 5.99$; $p > .05$

The comprehension strategies of these three utterances lead to the conclusion that a marked focus structure and an unmarked focus structure constitute different explicatures, which conventionally activate different inferential patterns. In an utterance with a contrastive focus structure evoked by *incluso*, the procedural meaning of the operator conventionally imposes its instruction on the units of conceptual meaning and leads the reader to a scalar implicature; in an utterance with an identificational focus, identificational or restrictive, a contrastive structure is not conventionally generated.

4. Conclusions

The purpose of this paper has been to show that, alongside descriptive and theoretical arguments, there are empirical and experimental arguments that support the idea that marked and unmarked foci have semantic and syntactic properties that establish different processing conditions.

With regard to the first hypothesis (see §2.1), we obtain a first principle of focus processing: *An utterance with marked focus does not present major global processing costs than an utterance with an unmarked focus, because the FO generates a regulation and acceleration effect that compensates the additional costs that the lexical contrast of the affected units (alternative and focus) produce* (§3.1). Utterances with marked and unmarked foci generally seem to be processed with similar processing times, despite the fact that they are structures with different semantic load. Neither in this nor in similar experiments (Loureda, Cruz, and DPKog 2013; Loureda et al. 2014; Loureda et al. 2015; Nadal et al. 2016) have we obtained any evidence that a marked utterance with a greater semantic load requires more total processing time than an unmarked utterance. In marked focus structures there seems to be a control effect anchored in the instruction of the FO (§3.1.1); although more information is inserted in the marked structure (contrast), the construction of an explicature is more conventionally controlled and the inferential routes are in fact more restricted and unambiguous, as shown by the fact that, due to their explicature, both structures do not provide equally optimal stimuli to lead to a contrastive implicature (confirmation of Hypothesis 3, see 2.1. c).

At the macro level, there is a fundamental difference between the structures with marked and unmarked focus, and that is the existence of a more extensive reanalysis of the information structure of utterances with marked focus (§3.1.2). The FO attributes an additional cost to the areas in which it operates (focus and alternative) during the reanalysis of the first assumption. In structures with marked focus it is expected that the reader will spend more time on the confirmation, enrichment or correction of the lexical values that where driven by a procedural element because *incluso* conventionally triggers a contrast between the alternative and the focus. This cognitive stimulus produces a medium and large increase of the costs of reanalysis in relation to both structures of unmarked foci considered in our experiment, the unmarked identificational and the unmarked restrictive utterance, respectively (see Table 5). This is theoretically justified because the FO is the only unit that, because of its procedural meaning, can conventionally affect the lexical relations of alternative and focus. However, these extra costs of the reanalysis are levelled out over the course of processing the entire utterance (§3.1.1). We refer to these as "additional regulatory costs", which make it possible to control the quality of an initial explicature without total extra costs and to activate a contrastive inferential route in an optimal manner.

In short, in relation to the confirmation of the third hypothesis, we can formulate a second principle of focus processing: *An utterance with unmarked focus is a processing structure that does not generate a contrast if the context does not activate it; an utterance with marked focus through the use of an FO is a structure directed by the interpretation of the operator and conventionally generates a contrast*.

To process utterances at the same time does not necessarily mean that they were processed according to the same pattern. Thus, we proposed the second hypothesis (§2.1. b). Two facts can only be differentiated on a common basis. And in this sense, the common feature of the two types of utterances (unmarked and marked) is that both are oriented to the right, that is, the focus has a major informative weight in comparison to the other given units that present known information (§3.2.1).

The fact that a structure with a marked focus does not generate quantitatively different costs in relation to a structure with an unmarked focus does not prevent a redistribution of the semantic relations within the marked utterance (§3.2). Therefore, we assumed in our second hypothesis that there are conceptual patterns (identification (1) and identification with restriction (2)) and procedural patterns (exclusion by identification/contrast generated by an FO (3)).

From the point of view of the focusing areas (known vs. new information or alternative vs. contrastive focus), there are two fundamental patterns. One corresponds to an unmarked focus and is characterized by two linked processing behaviours:

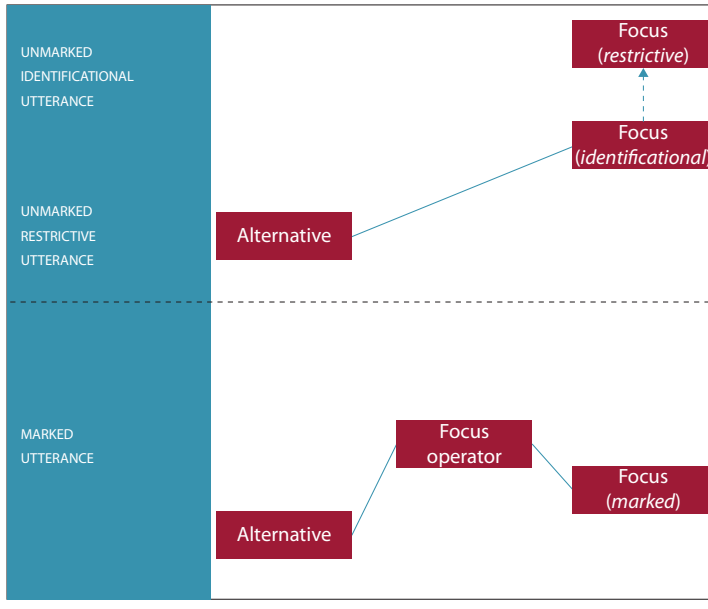

Figure 2. Unmarked and marked processing patterns

a. the area of the focus demands more processing effort than the area of the possible alternative (§§3.2.1 and 3.2.2);
b. the processing involves two successive steps (check-and-balance strategy), an initial step of an early construction based on the area of the focus (§3.2.5) and a reanalysis step based on the area of the alternative (§3.2.6).

These two properties are compatible with the processing of a semantically underdetermined utterance, in which there are no specific guidelines for constructing a contrast assumption.

In marked utterances, it is possible to recognise the alternative as a member of a contrast early on, whereas if the focus is not marked the contrast and the function of the alternative is never activated early (§3.2.5). In marked structures, the relation between focus and alternative is balanced, which may correspond to an early assignment of syntactic, semantic and also informative functions provided by the instruction of the FO (§§3.2.2 and 3.2.5).

To sum up, we propose a third principle from the confirmation of the second hypothesis: *If there is a procedural mark in an utterance that activates a marked focus, the focusing operation is activated on the operator; in utterances without a procedural mark, the focusing and management operation of the common ground is delayed to the focus area* (§3.2.3). Operator-induced activation is early and starts at the operator. If there is some kind of conceptual semantic force that acts in order

to restrict the focus categorically, it automatically causes an increase in the relative costs of the utterance in the area of the focus, and the whole utterance is oriented even more strongly to the right (§3.1.1). The difference between alternative and focus in a structure with conceptual restriction is at least three times higher than the other two structures (identificational focus and marked focus), which reveals a large local impact of the semantic restriction operation in the area of the focus. On the other hand, the FO, due to its instructional nature has a global effect as balancer, giving both units that establish the contrast a more determined relative value (§3.2.2). The regulatory effect of the FO is observable in the differences between an alternative-focus relation: in marked focus structures the balancing effect provokes a regulation of the areas of 10%. This fact, in addition to the observation that the FO presents higher processing costs than the rest of the lexical units of the utterance, would serve as an argument to justify two properties of the units with procedural value: asymmetry and rigidity (see §§1 and 2, and Leonetti and Escandell Vidal 2004, 2011; Nadal et al. 2016).

References

Almela, Ramón, Pascual Cantos, Álvaro Sanchez, Ramón Sarmiento, and Moisés Almela. 2005. *Frecuencias del español. Diccionario y estudios léxicos y morfológicos*. Madrid: Universitas.

Andorno, Cecilia. 2000. *Focalizzatori fra connessione e messa a fuoco: il punto di vista delle varietà di apprendimento*. Milano: Francoangeli.

Bates, Douglas, Martin Maechler, Ben Bolker, and Steve Walker. 2015. "Fitting Linear Mixed-Effects Models Using lme4." *Journal of Statistical Software* 67(1): 1–48. https://doi.org/10.18637/jss.v067.i01

Beaver, David, and Brady Clark. 2008. *Sense and Sensitivity. How Focus Determines Meaning*. Oxford: Blackwell. https://doi.org/10.1002/9781444304176

Blakemore, Diane. 1987. *Semantic constraints on relevance*. Oxford: Blackwell.

Blakemore, Diane. 1992. *Understanding Utterances*. Oxford: Blackwell.

Blakemore, Diane. 1997. "Non-truth conditional meaning." *Linguistische Berichte* 8: 92–102.

Briz, Antonio, Salvador Pons, and José Portolés (dirs.), "Diccionario de partículas discursivas del español (DPDE)", Accessed October 15th, 2018. [online: www.dpde.es].

Carston, Robyn. 2002. "Linguistic meaning, communicated meaning and cognitive pragmatics." *Mind & Language* 17(1–2): 127–148. https://doi.org/10.1111/1468-0017.00192

Carston, Robyn. 2008. *Thoughts and utterances: The pragmatics of explicit communication*. New Jersey: John Wiley & Sons.

Carston, Robyn. 2016. "The heterogeneity of procedural meaning." *Lingua* 175: 154–166. https://doi.org/10.1016/j.lingua.2015.12.010

Clark, Herbert H. 2007. *Using language*. Cambridge: Cambridge University Press.

Clifton, Charles, Adrian Staub, and Keith Rayner. 2007. "Eye movements in reading words and sentences." In *Eye movements: A window on mind and brain*, ed. by Roger P. G. van Gompel, Martin H. Fischer, Wayne S. Murray, and Robin L. Hill. Oxford: Elsevier. https://doi.org/10.1016/B978-008044980-7/50017-3

Cruz, Adriana. "Focus particles and information structure in Spanish: an experimental study on cognitive processes of pragmatic scales." Ongoing PhD diss., University of Heidelberg.

Dik, Simon C. 1989. *The Theory of Functional Grammar*. Berlin: Mouton de Gruyter.

É. Kiss, Katalin. 1998. "Identificational focus versus information focus." *Language*: 245–273. https://doi.org/10.1353/lan.1998.0211

Escandell Vidal, María Victoria. 2004. *Fundamentos de semántica composicional*. Barcelona: Ariel.

Escandell Vidal, María Victoria, and Manuel Leonetti. 1997. "Categorías funcionales y semántica procedimental." In *Actas del Congreso Internacional de Gramática, Universidad de la Laguna*, 363–378. Madrid: Ed. Clásicas.

Escandell Vidal, María Victoria, and Manuel Leonetti. 2009. "La expresión del *verum focus* en español." *Español Actual* 92: 11–46.

Escandell Vidal, María Victoria, and Manuel Leonetti. 2011. "On the rigidity of procedural meaning." In *Procedural Meaning*, ed. by María Victoria Escandell Vidal, and Manuel Leonetti, 81–102. Bingley: Emerald.

Fahrmeier, Ludwig, Thomas Kneib, Stefan Lang, and Brian Marx. 2013. *Regression. Models, Methods and Applications*. Berlin: Springer.

Flórez, Óscar. 1995. "La posición del adjetivo: una perspectiva pragmática." *Dicenda: Cuadernos de filología hispánica* 13: 163–174.

Grice, H. Paul. 1975. "Logic and conversation." In *Syntax and Semantics*, ed. by Peter Cole, and Jerry L. Morgan, 41–58. New York: Academic Press.

Gries, Stefan Th. 2008. *Statistik für Sprachwissenschaftler*. Göttingen: Vandenhoeck & Ruprecht.

Gundel, Jeanette. 1999. "On different kind of focus." In *Focus: Linguistic, Cognitive and Computational Perspectives*, ed. by Peter Bosch, and Rob van der Sandt, 293–305. Cambridge: Cambridge University Press.

Gundel, Jeanette, and Thorstein Fretheim. 2004. "Topic and focus." In *The Handbook of Pragmatics*, ed. by Laurence Horn, and Gregory Ward, 175–197. Malden/Oxford: Blackwell.

Gutiérrez Ordóñez, Salvador. 2000 [1997]. *Temas, remas, focos, tópicos y comentarios*. Madrid: Arco Libros.

Höhle, Tilmann. 1988. "Verum focus." *Sprache und Pragmatik* 5: 1–7.

Holm, Sture. 1979. "A simple sequentially rejective multiple test procedure." *Scandinavian Journal of Statistics* 6(2): 65–70.

Holmqvist, Kenneth, Marcus Nyström, Richard Andersson, Richard Dewhurst, Halszka Jarodzka, and Joost Van de Weijer. 2011. *Eye tracking: A comprehensive guide to methods and measures*. Oxford: Oxford University Press.

Hyönä, Jukka, Robert F. Lorch, and Johanna Kaakinen. 2002. "Individual Differences in Reading to Summarize Expository Text: Evidence From Eye Fixations Patterns." *Journal of Educational Psychology* 94(1): 44–55. https://doi.org/10.1037/0022-0663.94.1.44

Hyönä, Jukka, Robert F. Lorch, and Mike Rinck. 2003. "Eye movement measures to study global text processing." In *The Mind's Eye: Cognitive and Applied Aspects of Eye Movement Research*, ed. by Ralph Radach, Jukka Hyönä, Heiner Deubel, 313–334. Amsterdam: Elsevier. https://doi.org/10.1016/B978-044451020-4/50018-9

Jackendoff, Ray. 1972. *Semantic Interpretation in Generative Grammar*. Cambridge: The MIT Press.

Jacobs, Joachim. 1983. *Fokus und Skalen: Zur Syntax und Semantik der Gradpartikeln im Deutschen*. Vol. 138. Berlin: Walter de Gruyter. https://doi.org/10.1515/9783111351889

Just, Marcel, Patricia Carpenter, and Jacqueline Woolley. 1982. "Paradigms and processes in reading comprehension." *Journal of experimental psychology: General* 111(2): 228–238. https://doi.org/10.1037/0096-3445.111.2.228

Karttunen, Lauri, and Stanley Peters. 1979. "Conventional implicatures." In *Syntax and Semantics II, Presupposition*, ed. by Choon-Kyu Oh, and David A. Dinneen, 1–56. New York: Academic Press.

Keating, Gregory D. 2014. "Eye-Tracking with Text." In *Research Methods in Second Language Psycholinguistics*, ed. by Jill Jegerski, and Bill VanPatten, 69–92. New York: Routledge.

Keating, Gregory D., and Jill Jegerski. 2014. "Experimental Designs in Sentence Processing Research. A Methodological Review and User's Guide." *Studies in Second Language Acquisition*: 1–32.

Kenesei, István. 1984. "On what really figures in a nonconfigurational language." *Groninger Arbeiten zur germanistischen Linguistik* 24: 28–54.

Kenesei, István. 1986. "On the logic of word order in Hungarian." In *Topic, Focus, and Configurationality*, ed. by Werner Abraham, and Sjaak de Mey, 143–159. Amsterdam: John Benjamins. https://doi.org/10.1075/la.4.08ken

Kenesei, István. 2006. "Focus as Identification." In *The Architecture of Focus*, ed. by Valéria Molnár, and Susanne Winkler, 137–168. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110922011.137

König, Ekkehard. 1991. *The Meaning of Focus Particles: A Comparative Perspective*. London: Routledge. https://doi.org/10.4324/9780203212288

Krifka, Manfred. 2008. "Basic Notions of Information Structure." *Acta Linguistica Hungarica* 55: 243–276. https://doi.org/10.1556/ALing.55.2008.3-4.2

Krifka, Manfred, and Renate Musan. 2012. "Information Structure: Overview and Linguistic Issues." In *The Expression of Information Structure*, ed. by Manfred Krifka, and Renate Musan, 1–44. Berlin, Boston: Mouton de Gruyter. https://doi.org/10.1515/9783110261608.1

Lambrecht, Knud. 1994. *Information Structure and Sentence Form*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511620607

Leonetti, Manuel, and María Victoria Escandell Vidal. 2004. "Semántica conceptual / Semántica procedimental." In *Actas del V Congreso de Lingüística General*, vol. II, ed. by Milka Villayandre Llamazares, 1727–1738. Madrid: Arco Libros.

Loureda, Óscar, Adriana Cruz, and DPKog. 2013. "Aproximación experimental sobre los costes de procesamiento de las partículas focales del español *también* e *incluso*." *Cuadernos AISPI. Estudios de lenguas y literaturas ibéricas e iberoamericanas, AISPI (Associazione Ispanisti Italiani)*: 75–98.

Loureda, Óscar, Adriana Cruz, Inés Recio, and Cristina Villalba. 2014. "*Incluso* en posición pre- y postfocal: un análisis experimental de los costes de procesamiento de escalas pragmáticas." *Revista Española de Lingüística* 44(2): 95–130.

Loureda, Óscar, Adriana Cruz, Martha Rudka, Laura Nadal, Inés Recio, and Margarita Borreguero Zuloaga. 2015. "Focus Particles in Information Processing: An Experimental Study on Pragmatic Scales with Spanisch *incluso*." *Focus particles in the Romance and Germanic languages. Experimental and corpus-based approaches, Linguistik online* 71(2): 129–151.

Lowder, Matthew W., and Peter C. Gordon. 2015. "Focus takes time: structural effects on reading." *Psychonomic Bulletin & Review* 22: 1733–1738. https://doi.org/10.3758/s13423-015-0843-2

Mata, André, Elise J. Percy, and Steven J. Sherman. 2014. "Adjective-noun order as representational structure: Native-language grammar influences perception of similarity and recognition memory." *Psychonomic Bulletin & Review* 21: 193–197. https://doi.org/10.3758/s13423-013-0479-z

Murillo, Silvia. 2010. "Los marcadores del discurso y su semántica." In *Los estudios sobre marcadores del discurso en español, hoy*, ed. by Óscar Loureda, and Esperanza Acín, 241–280. Madrid: Arco Libros.

Nadal, Laura, Adriana Cruz, Inés Recio, and Óscar Loureda. 2016. "El significado procedimental y las partículas discursivas del español: una aproximación experimental." *Revista Signos* 49(1) (4–6): 52–77. https://doi.org/10.4067/S0718-09342016000400004

Paterson, Kevin B., Simon P. Liversedge, Ruth Filik, Barbara Juhasz, Sarah White, and Keith Rayner. 2007. "Focus identification during sentence comprehension: Evidence from eye movements." *The Quartely Journal of Experimental Psychology* 60(10): 1423–1445. https://doi.org/10.1080/17470210601100563

Pickering, Martin J., Matthew J. Traxler, and Matthew J. Crocker. 2000. "Ambiguity Resolution in Sentence Processing: Evidence against Frequency-Based Accounts." *Journal of Memory and Language* 43(3): 447–475. https://doi.org/10.1006/jmla.2000.2708

Portolés, José. 2001 [1998]. *Marcadores del discurso*. Barcelona: Ariel.

Portolés, José. 2007. "Escalas informativas aditivas: pruebas del español." *Spanish in Context* 4(2): 135–157. https://doi.org/10.1075/sic.4.2.02por

Portolés, José. 2010. "Los marcadores del discurso y la estructura informativa." In *Los estudios sobre marcadores del discurso en español, hoy*, ed. by Óscar Loureda, and Esperanza Acín, 281–326. Madrid: Arco Libros.

R Core Team. 2014. "R: A language and environment for statistical computing." R Foundation for Statistical Computing. Vienna, Austria.

Raposo, Ana, Mafalda Mendes, and J. Frederico Marques. 2012. "The Hierarchical Organization of Semantic Memory: Executive Function in the Processing of Superordinate Concepts." *Neuroimage* 59: 1870–1878. https://doi.org/10.1016/j.neuroimage.2011.08.072

Rayner, Keith. 1998. "Eye Movements in Reading and Information Processing: 20 Years of Research." *Psychological Bulletin* 124(3): 372–422. https://doi.org/10.1037/0033-2909.124.3.372

Rayner, Keith. 2009. "Eye Movements and Attention in Reading, Scene Perception, and Visual Search." *The Quarterly Journal of Experimental Psychology* 62(8): 1457–1506. https://doi.org/10.1080/17470210902816461

Rayner, Keith, Alexander Pollatsek, Jane Ashby, and Charles Clifton. 2012. *Psychology of Reading*. New York: Psychology Press.

Rayner, Keith, and Sara Sereno. 1994. "Eye movements in Reading: Psycholinguistic Studies." In *Handbook of Psycholinguistics*, ed. by Morton Ann Gernsbacher, 57–81. San Diego: Academic Press.

Reichle, Erik, Keith Rayner, and Alexander Pollatsek. 2003. "The E-Z Reader Model of Eye-movement Control in Reading: Comparisons to Other Models." *Behavioral and Brain Science* 26(4): 445–476. https://doi.org/10.1017/S0140525X03000104

Richardson, Daniel, Rick Dale, and Michael Spivey. 2007. "Eye Movements in Language and Cognition." *Methods in Cognitive Linguistics* 18: 323–344. https://doi.org/10.1075/hcp.18.21ric

Richardson, John T. E. 1978. "Word Order and Imagery in the Recall of Adjective-noun Phrases." *International Journal of Psychology* 13(3): 179–184. https://doi.org/10.1080/00207597808246623

Roberts, Craige. 1998. "Focus, the Flow of Information and Universal Grammar." In *Syntax and Semantics: the Limits of Syntax*, ed. by Peter Culicover, and Louise McNally, 109–160. London: Academic Press.

Roberts, Craige. 2012. "Information Structure in Discourse: Towards an Integrated Formal Theory of Pragmatics." *Semantics and Pragmatics* 5(6): 1–69.

Rochemont, Michael S. 1986. *Focus in Generative Grammar*. Vol. 4. Amsterdam: John Benjamins. https://doi.org/10.1075/sigla.4

Rooth, Mats. 1985. Association with Focus. PhD diss., University of Massachusetts.

Rooth, Mats. 1992. "A Theory of Focus Interpretation." *Natural Language Semantics* 1(1): 75–116. https://doi.org/10.1007/BF02342617

Rooth, Mats. 1996. "Focus." In *The Handbook of Contemporary Semantic Theory*, ed. by Shalom Lappin, 271–297. Oxford: Blackwell.

Rosch, Eleanor. 1973. "Natural Categories." *Cognitive Psychology* 4: 328–350. https://doi.org/10.1016/0010-0285(73)90017-0

Rosch, Eleanor, and Barbara Lloyd. 1978. *Cognition and Categorization*. Hillsdale: Lawrence Erlbaum Associates.

Sandra, Dominiek. 2009. "Experimentation." In *Cognition and Pragmatics*, ed. by Dominiek Sandra, Jan-Ola Östman, and Jef Verschueren, 288–368. Amsterdam: John Benjamins. https://doi.org/10.1075/hoph.3.15san

Schumacher, Rahel, Miranka Wirth, Walter J. Perrig, Werner Strik, and Thomas König. 2009. "ERP Correlates of Superordinate Category Activation." *International Journal of Psychophysiology* 72: 134–144. https://doi.org/10.1016/j.ijpsycho.2008.11.006

Schwenter, Scott A. 2002. "Additive Particles and Scalar Endpoint Marking." *Belgian Journal of Linguistics* 16: 119–134.

Selkirk, Elisabeth. 1984. *Phonology and Syntax*. Massachussetts: MIT Press.

Selkirk, Elisabeth. 1985. "Intonation, Stress and Meaning." In *Proceedings of the Annual Meeting of the Berkeley Linguistics Society* 11: 491–504.

Selkirk, Elisabeth. 2007. "Contrastive Focus, Givenness and the Unmarked Status of Discourse-New." *Interdisciplinary Studies on Information Strucutre* 6: 125–145.

Sperber, Dan, and Deirdre Wilson. 1995. *Relevance: Communication and Cognition*. Oxford, Cambridge: Blackwell.

van Kuppevelt, Jan. 1996. "Inferring from Topics." *Linguistics and Philosophy* 19(4): 393–443. https://doi.org/10.1007/BF00630897

Vasishth, Shravan, Daniela Mertzen, Lena A. Jäger, and Andrew Gelman. 2018. "The Statistical Significance Filter Leads to Overoptimistic Expectations of Replicability." *Journal of Memory and Language* 103: 151–175.

Zubizarreta, María L. 1999. "Las funciones informativas: tema y foco." In *Gramática Descriptiva de la Lengua Española*, ed. by Ignacio Bosque, and Violeta Demonte, 4215–4244. Madrid: Espasa Calpe.

Appendix 1. Mixed models

First-pass reading time

AOI_condition	Estimated value	StdErr	Mean letters	Fixed letter value	Predicted value	Std.Err
total mean – unmarked identificational	179.04	7.71	6.16	6.35	**177.58**	7.75
total mean – marked relation	5.12	9.59	6.27	6.35	**182.7**	7.6
total mean – unmarked restrictive relation	0.39	9.63	6.25	6.35	**177.98**	7.67
lexical mean – additive relation	4.17	9.67	6.36	6.35	**181.75**	7.76
lexical mean – scalar relation	7.56	9.59	6.31	6.35	**185.14**	7.65
lexical mean – restrictive relation	6.45	9.64	6.45	6.35	**184.03**	7.68
alternative – additive relation	−14.24	9.71	6.58	6.35	**163.35**	7.85
alternative – scalar relation	−8.28	9.63	6.53	6.35	**169.3**	7.75
alternative – restrictive relation	−23.9	9.67	6.52	6.35	**153.69**	7.79
unmarked focus	15.21	9.68	5.84	6.35	**192.79**	7.8
marked focus	23.37	9.6	5.81	6.35	**200.96**	7.69
restrictive focus	16.24	9.64	5.8	6.35	**193.83**	7.74
focus operator	39.77	9.67	7	6.35	**217.36**	7.65
adjective	30.52	9.69	6.92	6.35	**208.1**	7.77

Second-pass reading time

AOI_condition	Estimated value	StdErr	Mean letters	Fixed letter value	Predicted value	Std.Err
total mean – unmarked identificational	50.4	7.35	6.16	6.35	**50.4**	7.35
total mean – marked relation	3.24	9.61	6.27	6.35	**53.65**	7.23
total mean – unmarked restrictive relation	3.56	9.66	6.25	6.35	**53.96**	7.29
lexical mean – additive relation	1.95	9.7	6.36	6.35	**52.36**	7.35
lexical mean – scalar relation	7.55	9.61	6.31	6.35	**57.95**	7.23
lexical mean – restrictive relation	4.21	9.66	6.45	6.35	**54.61**	7.29
alternative – additive relation	−1.86	9.71	6.58	6.35	**48.54**	7.36
alternative – scalar relation	5.58	9.62	6.53	6.35	**55.99**	7.23
alternative – restrictive relation	−20.35	9.67	6.52	6.35	**30.05**	7.29
unmarked focus	−14.81	9.7	5.84	6.35	**35.59**	7.38
marked focus	6.24	9.62	5.81	6.35	**44.16**	7.26
restrictive focus	12.35	9.66	5.8	6.35	**62.76**	7.32
focus operator	4.39	9.67	7	6.35	**46.01**	7.27
adjective	15.53	9.7	6.92	6.35	**65.93**	7.32

Total reading time						
AOI_condition	**Estimated value**	**StdErr**	**Mean letters**	**Fixed letter value**	**Predicted value**	**Std.Err**
total mean – unmarked identificational	229.44	11.02	6.16	6.35	**228.54**	11.06
total mean – marked relation	7.98	13.61	6.27	6.35	**236.52**	10.87
total mean – unmarked restrictive relation	3.7	13.67	6.25	6.35	**232.23**	10.96
lexical mean – additive relation	6.01	13.73	6.36	6.35	**234.55**	11.06
lexical mean – scalar relation	14.92	13.61	6.31	6.35	**243.46**	10.9
lexical mean – restrictive relation	10.29	13.69	6.45	6.35	**238.83**	10.96
alternative – additive relation	−16	13.77	6.58	6.35	**212.54**	11.14
alternative – scalar relation	−2.64	13.65	6.53	6.35	**225.9**	10.99
alternative – restrictive relation	−44.12	13.71	6.52	6.35	**184.42**	11.06
unmarked focus	−0.59	13.74	5.84	6.35	**229.13**	11.12
marked focus	17.25	13.63	5.81	6.35	**245.78**	10.96
restrictive focus	28.78	13.69	5.8	6.35	**257.32**	11.04
focus operator	34.83	13.72	7	6.35	**263.37**	10.93
adjective	45.48	13.76	6.92	6.35	**274.02**	11.06

Appendix 2. Norming study

In order to prove the adaptability of the pragmatic scales to the world knowledge, a previous test was designed (sample size: 50 Spanish native speakers). The participants were asked to order some elements of a list according to their world knowledge, i.e.:

Please classify the given elements according to their difficulty in learning.
(Range: 1=less difficult – 5=most difficult)

English	French	Chinese	Spanish	Italian
1	3	5	2	4

The results were statistically analysed using the chi-squared test and 15 different experimental items were selected for the final study (see Appendix 3). Each experimental item corresponds to one topic (see §2d).

The selection of the experimental items was carried out according to three categories: According to the binary division by Portolés (2001 [1998]), we differentiate between scales that are evoked by the FO and have little to no world knowledge (see Appendix 3: items 1–5), which means that without the instruction of the particle no significant order was established by the participants, and scales with predominant world knowledge, which means that, even without the instruction of the particle, these scales were ordered internally by the participants (see Appendix 3: items 6–10). Moreover, the test reveals that some scales do not follow a specific internal order, but one element of the scale is recognised as more informative (see Appendix 3: items 11–15). There were no significant results for an internal preorder of the elements of the alternative, even

though one element was always labelled as focus. We decided to add to the binary division of Portolés (2001[1998]) a third group of scales that could be adapted to world knowledge. In the statistical analysis of the eye tracking results the scale-variable were treated as random effect, after observing that no statistical differences could detected between the three scale-groups.

Appendix 3. List of experimental items

1. Manolo y Antonio importan pimientos, [cebollas] e [incluso] tomates [italianos].
   ('Manolo and Antonio import peppers, [onions] and [even] [Italian] tomatoes.')
2. Letizia y Paola conocen Sevilla, [Granada] e [incluso] Málaga [capital].
   ('Letizia and Paola know Seville, [Granada] and [even] Malaga [city].')
3. Susana y María conocen Colombia, [Bolivia] e [incluso] Ecuador [entero].
   ('Susana and Maria know Colombia, [Bolivia] and [even] Ecuador [completely].')
4. Elena e Esteban meriendan manzanas, [naranjas] e [incluso] plátanos [canarios].
   ('Elena and Esteban snack on apples, [oranges] and [even] bananas [from the Canary Islands].')
5. Paula y Daniel beben agua, [zumo] e [incluso] leche [entera].
   ('Paula and Daniel drink water, [juice] and [even] [full-cream] milk.')
6. Mercedes y Lucía enseñan catalán, [gallego] e [incluso] euskera [básico].
   ('Mercedes and Lucía teach Catalan, [Galician] and [even] [basic] Basque').
7. Ana y Marta saben inglés, [francés] e [incluso] chino [mandarín].
   ('Ana and Marta know English, [French] and [even] [Mandarin] Chinese.)
8. Rocío y Natalia compran zapatos, [bolsos] e [incluso] joyas [caras].
   ('Rocío and Natalia buy shoes, [bags] and [even] [expensive] jewellery.)
9. Carlos y Juan roban bicis, [motos] e [incluso] coches [caros].
   ('Carlos and Juan steal bikes, [motorcycles] and [even] [expensive] cars.')
10. Luisa y Sara saben latín, [griego] e [incluso] persa [antiguo].
    ('Louise and Sara know Latin, [Greek] and [even] [ancient] Persian.')
11. Clara y Laura venden piñas, [mangos] e [incluso] cocos [grandes].
    ('Clara and Laura sell pineapples, [mangoes] and [even] [big] coconuts').
12. Ricardo y Fernando escriben ensayos, [novelas] e [incluso] poemas [sencillos].
    ('Ricardo and Fernando write essays, [novels] and [even] [simple] poems.')
13. José y David venden perros, [gatos] e [incluso] peces [grandes].
    ('José and David sell dogs, [cats] and [even] [big] fish.')
14. Francisco y Manuel cocinan pasta, [pizza] e [incluso] arroz [blanco].
    ('Francisco and Manuel cook pasta, [pizza] and [even] [white] rice.')
15. Alberto y Cristina plantan castaños, [robles] e [incluso] álamos [blancos].
    ('Alberto and Cristina plant chestnuts, [oaks] and [even] [white] poplars.')

CHAPTER 8

Expectation changes over time

How long it takes to process focus imposed by German *sogar*

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Focus-sensitive particles (FP) are assumed to guide comprehenders' attention by focalizing constituents and contrasting them to a set of alternatives (Blakemore 2002). However, here we show that the effect the German FP *sogar* asserts is not uniform across different sentences. We then present findings from a visual world study (Huettig et al. 2011) which show that, when the FP induces a high degree of expectation change during incremental online comprehension, visual attention to focalized targets is delayed. This suggests that (1) the system attempts to integrate the FP into the situation model immediately, but that (2) a full model update, including the calculation of new predictions about upcoming linguistic material is cognitively demanding in high expectation change contexts.

Keywords: focus particles, visual world paradigm, German, predictive processing, *sogar*, situation model

1. Introduction

Imagine you are over at your new neighbors' place and they own a nasty little dog that is running around misbehaving. You comment politely on what you see, and your neighbor says "Oh well, ever since he was a little puppy he loves to nibble on things. Look, he's already destroyed all the curtains, the couch and …". All the things that your new neighbor has just mentioned are in the very room you are in right now. If you had to guess, what thing will your new neighbor refer to after *and*? Would your expectations change if you heard him say *and even* instead of *and* alone?

In psycholinguistics, it is now uncontroversial that listeners (and readers) automatically predict upcoming discourse (Altmann and Kamide 1999; Huettig, Rommers, and Meyer 2011), and several theories that model this phenomenon

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exist (c.f. Kamide, Altmann, and Haywood 2003; Crocker, Knoeferle, and Mayberry 2010). In short, it is assumed that all available input (linguistic and non-linguistic) is integrated into a holistic situation model, and the comprehension system attempts to incorporate new information into that model as soon as it becomes available, i.e., incrementally, on a word-by-word basis. Thus, "guessing" what your neighbor will say is something that happens naturally and automatically, albeit unconsciously. Crucially, researchers studying specific linguistic phenomena can exploit the fact that people show prediction effects during online comprehension, because, depending on the input provided, comprehenders' predictions may change.

Imagine that while you are still perceiving your neighbor's words, in addition to the curtains and the couch, you see an old-fashioned armchair next to the couch, as well as a bunch of cables that seem to belong to an expensive-looking stereo. Which of these two alternatives would you expect your neighbor to mention: the old armchair or the cables of the stereo? If you base your expectations on the coordinating conjunction *and* alone, it might be a tie. Both alternatives match the current mental model of what you have heard and what you see equally well. However, if you base your expectations on *and even*, you may be more likely to predict that your neighbor will refer to the cables of the presumably expensive stereo, because compared to *and* alone, *and even* imposes a scale with respect to the alignment of the objects in your situation model (König 1991; Dimroth 2004). Under the assumption of incremental language processing, manipulating the presence/absence of a focus particle like *even* in the linguistic input may very well modulate what kind of expectations comprehenders generate, and when this happens in real-time.

The difference between the two scenarios just described, however, does not depend only on the presence or absence of the focus particle. What if you perceived *and even* but the alternatives you base your "best guess" on cannot be easily aligned on a scale with respect to your world knowledge, your interlocutor and the communicative situation? For example, your neighbor shows you a photograph of his grandfather selling vegetables at a market stand. In the picture, you can identify potatoes, onions, carrots and beets, and your neighbor says "My grandfather was a farmer. He grew potatoes, beets, and *even*…" In this case, there seems to be no obvious feature that you could use to build up a scale. Moreover, referring to either carrots or onions will make the resulting sentence – at least at first – sound strange (? *He grew potatoes, beets and even carrots*). It seems that you will have to draw the conversational implicature that your interlocutor has some sort of privileged knowledge that justifies the use of the focus particle *even*. In this scenario, predictions about the upcoming discourse may not be better than at chance level.

In any case, what this and the above example illustrate, is that a number of factors seem to be involved in how well people can construct predictions about focus alternatives marked by a focus particle like *even*. This fact makes it somewhat

difficult to address more basic questions like *when* a focus-sensitive particle exerts its effect in online comprehension. Here we present an approach that, as we believe, circumvents these and related problems.

2. Focus particles

Communication can be characterized as ostensive and inferential (Sperber and Wilson 1995; Blakemore 2002): a speaker produces an ostensive stimulus that makes a certain assumption manifest to the hearer, who, in turn, makes use of inferential computations to interpret the utterance and recover the assumption intended by the speaker. To produce a stimulus, a speaker takes his interlocutor's cognitive environment into consideration, i.e., the set of assumptions he expects his interlocutor to possess. In order to reduce the cognitive effort and optimally communicate an intended assumption, the speaker can choose to constrain inferential processes using linguistic elements such as discourse particles (Sperber and Wilson 1995; Blakemore 2002). Unlike words that encode concepts and, thus, possess a conceptual meaning – words like *curtain, couch* or *armchair* –, discourse particles have a fundamentally procedural meaning and give instructions on how to combine the meaning of the words with conceptual meaning. Specifically, they guide interpretive processes by constraining the inferences made by a hearer when processing an utterance (Blakemore 1987, 2002; Leonetti and Escandell Vidal 2004).

As a subclass of discourse particles, focus particles are also procedural-meaning devices. They are considered to act on the level of information structure (Loureda and Acín 2010: 24ff.; Portolés 2010; see also Cruz and Loureda, this volume) and are syntactically integrated in the utterance. Focus particles highlight an element within the utterance in which they occur and mark it explicitly as focused information. By doing so, the focus is automatically added to an implicitly or explicitly given set of alternatives (Rooth 1985). For that reason, focus particles like English *even* or German *sogar* are considered additive particles.[1] Additionally, focus particles have a scalar meaning, since they evoke a scale and present the focus as more informative than the set of alternatives (König 1991; Dimroth 2004). The type of scale evoked by focus particles depends on the conceptual meaning of the elements contained in the utterance and "can have at its basis a semantic or pragmatic scale (...), or be imposed by the scalar meaning of the focus particle without the need for a previous scale" (Portolés Lázaro 2007: 138, our translation). If the semantic meaning itself

1. There also exists the group of restrictive or exclusive focus particles like English *only* or German *nur* that exclude the set of alternatives and mark the focus as the only element fulfilling the assumption that is being communicated (König 1991).

suggests the scalarity (like the use of cardinal numbers, for instance), the scale is considered to be semantic. Pragmatic scales, on the other hand, are established on the grounds of world knowledge (idem). In the example mentioned above, it is only because of their world knowledge that hearers may conclude having the cables of an expensive stereo destroyed to be more serious than having the curtains or an old-fashioned armchair damaged.

In language comprehension, the effect of focus particles has mostly been studied using eye tracking in reading. Some authors propose that using focus particles may be 'beneficial' for the interpretation process in some contexts (Filik, Paterson, and Sauermann 2011). By marking certain elements of an utterance explicitly as the focus, focus particles direct hearers' and readers' attention to that element. For example, focused relevant information has been found to facilitate inferencing (Gergely 1992). Also, during sentence comprehension, focus particles may reduce syntactic ambiguities (Ni, Crain, and Shankweiler 1996) or facilitate the reanalysis of initially mis-analyzed syntactic structures (Paterson, Liversedge, and Underwood 1999).

However, the question of *when* focus-sensitive elements assert their effect during online-processing has yielded ambiguous answers, suggesting that depending on the construction and the focus particle under investigation, effects may show only in later processing stages, or from early on (Paterson et al. 2007; Filik, Paterson, and Liversedge 2009).

The current study also uses eye tracking, but instead of looking at eye movements during reading, viewing behavior during spoken language comprehension is analyzed by means of the visual world paradigm (Cooper 1974; Eberhard et al. 1995; Sedivy et al. 1999; Altmann and Kamide 1999; Huettig, Rommers, and Meyer 2011).

3. Overview of the experiments in the current study

The goal of Experiment 1 is to determine the degree to which the presence of German *sogar* changes people's expectations about a sentence-final (focused) target word in sentences like *Er trinkt Bier, Wein und …* vs. *… und sogar … Schnaps/Sekt* (*He likes beer, wine and…* vs. *… and even … schnapps/champagne)*. To this end, two-alternative forced choice data for sentence fragments are collected, manipulating the presence/absence of *sogar*. In Experiment 2, these data, which we argue, reflect expectation change induced by the FP, are used to trace when *sogar* unfolds its effect in real-time during spoken language comprehension. If the focus particle (FP) is processed immediately and, thus, leads to an immediate update of a comprehender's situation model, one would expect to see an effect shortly after the

perception of the FP. More specifically, the effect we expect to obtain will be visible as a difference between sentences with high vs. low expectation change values that contain the FP, as well as between sentences with high expectation change, including the FP vs. not including the FP (adjective control, see below).

3.1 Experiment 1: Determining the degree of expectation change

To measure to what extent the presence of *sogar* in a sentence changes expectations about a sentence-final target word, we asked participants to choose one of two alternatives as the most plausible continuation of a given lead-in sentence fragment. In Experiment 1a, the sentence fragments always ended with "*und …*" ('*and…*'), while in Experiment 1b, the sentence fragments ended with "*und sogar…*" ('*and even*'). This method allows us to determine how strongly people expect each of the alternatives in each experiment. Comparing the likelihood of selecting one alternative in Experiment 1a with the likelihood of selecting the same alternative in Experiment 1b, thus, allows us to estimate the degree to which the focus particle changes participants' expectations (Figure 1).

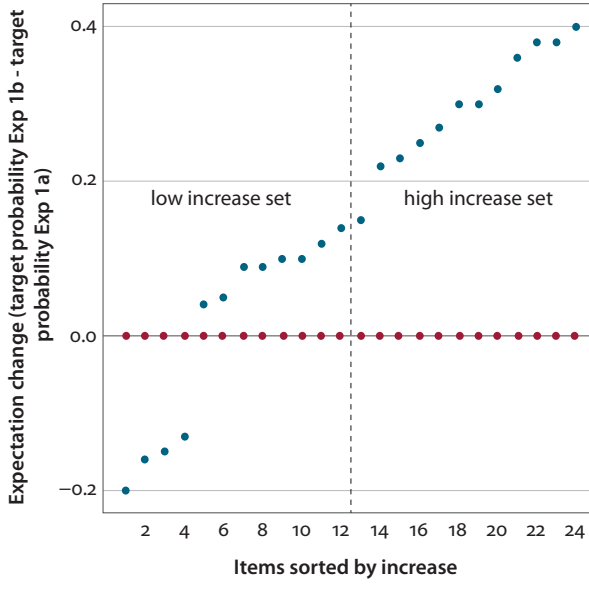

Figure 1. Expectation change induced by *sogar* over all items used in Experiment 1. Values were calculated by subtracting the probability of choosing the pre-defined target in sentence fragments without *sogar* from the probability of choosing the pre-defined target in sentence fragments containing *sogar*

3.1.1 *Method*

Participants, stimuli, design

Two different groups of native speakers of German participated in the experiments (Exp 1a, $N = 20$; Exp 1b, $N = 28$). Both experiments were conducted using an online questionnaire (Lime Survey). All stimuli consisted of a written context sentence (e.g., *Sonja is preparing for a marathon*) and a written unfinished test sentence (e.g. *She runs when it's sunny, cloudy and/and even …*). Below each sentence, participants saw two alternatives which were presented both as a written word (e.g., *windy*/*snowing*) and as a picture (e.g., depiction of wind/snowflake). The task was to intuitively select one of the alternatives. After a participant made his/her choice, the next trial started automatically. There were 24 items in both experiments. No fillers were used. All items were individually randomized for each subject in both experiments.

3.1.2 *Results*

Since we had all stimulus sentences audio-recorded with only one of the alternatives following *und sogar* for a previous study and to make the analysis of the data collected in Exp1a and Exp1b easier, we decided to choose the recorded focus alternative as the 'pre-defined target'. Thus, participants' responses could be coded as binary. Either the pre-defined target was chosen, or not. We calculated the overall proportions of selecting the pre-defined target as the most plausible sentence continuation for each item in both experiments. Figure 1 depicts the differences between the results from Exp1a (*sogar* absent) and 1b (*sogar* present).

Two observations can be made from visually inspecting the plot. One is that in general, the presence of *sogar* leads to an increase of the probability of expecting the pre-defined target. For the four exceptions, that is, where the presence of *sogar* leads to a decrease of expecting the target (where blue dots are below red dots in Figure 1, the target probability was already quite high in the *und* alone experiment (over 0.75 in three cases, over 0.5 in the one case).

The second observation is that the impact of *sogar* differs gradually across items. For some items expecting the pre-defined target increases only slightly, for other items, preferences in Exp 1b changed by up to 40 points compared to the preferences in Exp 1a.

3.1.3 *Discussion*

The results of Experiments 1a and 1b show that the presence of the focus-sensitive particle *sogar* changes the probability of choosing one alternative over another. However, results also suggest that the meaning function of *sogar* clearly interacts with other factors in discourse. If this were not the case, we would have expected to see no gradual differences between items. In future research, it may be necessary

to investigate these factors systematically in order to evaluate, and possibly refine, current linguistic thinking about the semantic contribution of FPs like *sogar*.

The aim of the current study, however, is to investigate *when* in the time course of unfolding auditory input *sogar* exerts its effect. To do this, we split the data obtained in Experiment 1 at the median of the difference values collected for all items (dashed line in Figure 1). The properties of the resulting subsets "high expectation increase" and "low expectation increase" are displayed in Table 1.

Table 1. Properties of the subsets generated on the basis of the results from Experiment 1

	"Sogar" absent (Exp1a)	**"Sogar" present (Exp1b)**
"High expectation increase"	median 0.25 / mean 0.28	median 0.56 / mean 0.58
"Low expectation increase"	median 0.43 / mean 0.47	median 0.48 / mean 0.47

With respect to expectations generated on the basis of sentences without *sogar*, in the "high" subset, participants predicted the pre-defined target on average with a probability of 0.28, whereas in the "low" subset, pre-defined targets were expected on average with a probability of 0.47. With respect to expectations generated on the basis of sentences including *und sogar*, in the "high increase" subset, participants predicted the pre-defined target on average with a probability of 0.58, whereas in the "low increase" subset, the mean probability was 0.47. Thus, in the "high increase set", the presence of *sogar*, on average, almost doubles the probability of predicting the target, whereas in the "low increase set" hardly any difference occurs. Given the properties of the two subsets, and assuming that the two-alternative forced choice data can predict viewing behavior in a visual world experiment, real-time processing effects are expected to be most pronounced in stimuli including *sogar* from the "high expectation increase" subset, because here processing the critical word modulates the comprehender's situation model most drastically. This modulation is expected to show in specific visual attention patterns.

3.2 Experiment 2: Online processing of expectation change induced by *sogar*

In this visual world study, we measure visual attention to objects presented on a computer screen while participants simultaneously hear an auditory stimulus. The auditory stimuli were very similar compared to those in Exp1b. There was always an introductory sentence (e.g., *Phillip is a veterinarian*) and a test sentence. The only difference was that for all test sentences, a second version was recorded in which the FP was replaced by a content word that was plausible in the respective context and matched the phonetic duration of the FP (adjectives, adverbs, and, in

four cases, a noun forming a compound with the target). For example, if the original version of a sentence ended with "… *and even elephants*", the adjective version ended with "… *and sick elephants*" (see Appendix 1 for a list of all items). This was done to create baseline stimuli which were identical to the critical stimuli except for the presence of the FP. Each critical and baseline pair partner was combined with the same visual stimulus. Visual stimuli always showed four different objects, two of which corresponded to the nouns in the first part of the test sentences (e.g., *He treats dogs, cats …*) and two further objects. One of these corresponded to the sentence-final noun, which either followed an adjective or *sogar* (e.g., *…and even/sick elephants*). This object will be referred to as the target in the following. The remaining object on the screen corresponded to the noun which was used as the second focus alternative in Experiment 1 (e.g., a picture of a hamster), and which we treat as the competitor in Experiment 2 (see Figure 2 for an example). Note that all adjectives fit equally well with both the actual target and the alternative (e.g., *sick elephants*/*sick hamsters*).

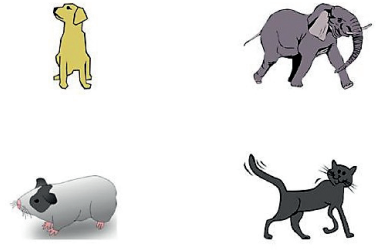

Figure 2. Example of a visual stimulus in Experiment 2

The data obtained in Experiment 1 are assumed to roughly reflect the changes of comprehenders' expectations about a sentence's final word. Therefore, we hypothesized that visual attention patterns over time should be different when comparing the baseline and the critical items in the "high" set, but not – or not to the same extent – in the "low" set. This hypothesis is based on the following line of reasoning: the two-alternative forced choice data obtained from stimuli without the FP (Exp 1a) should predict attention to targets temporally preceding the completion of processing the FP, whereas the data obtained from stimuli including the FP (Exp 1b) should predict attention to targets after the FP has been processed, i.e., later in the course of an experimental trial. Since the baseline stimuli (adjective versions) do not include the FP, and, thus, target probabilities should not change to the same extent as in FP stimuli, we expect to see the time course of the online computation of the expectation increase in the "high" set by comparing the FP with the adjective versions. In the "low" set, on the other hand, no difference is hypothesized

to arise when comparing the FP and the adjective versions of the stimuli, because the probability of expecting the target is approximately equal before and after processing the FP. Obviously, these hypotheses neglect the possibility that the adjectives may also change the probability of encountering the target. However, if adjectives are in general better cues compared to the focus particle *sogar*, one would expect an adjective advantage in the "low expectation increase set", as well as in the "high expectation increase set".

3.2.1 *Method*

Participants, stimuli, design

Twenty-four native German participants took part in Experiment 2. There were 24 pairs of stimuli (adjective/*sogar* version), which were designed as stated above. In addition, 24 filler items were included. These also showed 4 objects on the screen, but, instead of full sentences, auditory stimuli only consisted of three isolated nouns uttered in a normal speech rate. All auditory stimuli were recorded by a male native speaker of German (JG). Each adjective and *sogar* version had the exact same length, and all word onsets in each pair occurred at exactly the same point in time. All stimuli were randomly arranged on two lists, so that each participant encountered only one pair partner, 12 adjective versions, 12 *sogar* versions, but all fillers. Overall, 12 pairs belonged to the "high" and 12 pairs belonged to the "low" subset.

Participants were recorded individually. They were seated in front of an eye tracker (SMI RED500, set to 500 Hz) at a distance that allowed good calibration (approximately 65 cm distance to a 22-inch widescreen monitor). Participants were instructed to listen to the sentences and look at the screen without further ado. They were also told that they would be asked questions about the speaker's intention of highlighting the last element of his utterance and were expected to answer it by looking at the word "yes" or "no" displayed in the screen.[2]

Each trial started with a screen showing the question "Ready?". Participants responded by pressing the space bar on a computer keyboard. Then the visual stimulus was shown for 2000 milliseconds (ms). A blank screen followed, during which participants heard the introduction sentence. After that, a fixation cross appeared on the screen. Fixating the cross for 500 ms triggered the presentation of the visual stimulus again and simultaneously started the audio stimulus. The visual stimulus remained on the screen for approximately two seconds after the last word of the auditory stimulus. Next, the "ready?" screen automatically appeared on the screen again, and the cycle started over. Every four to six trials participants saw a blank screen and heard a recorded voice asking whether the speaker (in the audio recording) meant

2. The results of this additional task are not reported in this article.

to highlight the last element in the stimulus just heard. After participants heard this, the words "yes" and "no" appeared simultaneously on the screen. Participants responded to the question by looking at one of the possible answers.

3.2.2 *Results*

Data treatment and analysis

Each critical stimulus showed four different objects: one corresponding to the first noun in the experimental sentence (N1), one to the second noun (N2), one to the last noun in the sentence – the target (T) – and one to the competitor (C). To capture visual attention to those objects in relation to the unfolding sentence and to be able to generalize over different items, we created areas of interest (AOIs) around those objects. Fixations that were registered by the eye tracker were automatically classified as N1, N2, T or C fixations. All other fixations were classified as "other" and did not enter further analyses.

As we were interested in when the critical word (FP/adjective) exerts an effect on viewing behavior, we first excluded all data points obtained during the first 200 ms after the onset of the critical word. This is motivated by the finding that the execution of voluntary eye movements requires approximately 200 ms of preparation time (Matin, Shao, and Boff 1993; Altmann and Kamide 2004). All first fixations registered in either area of interest thereafter entered our analysis.

To prepare our data for visual inspection, we split up the continuous time course of each trial in successive 50 ms time bins. In every trial, we then checked for each time bin whether the eye tracker had registered a fixation. If a (first) fixation was registered in one of the time bins in a trial, then this and all succeeding time bins received a "1". If no fixation was registered (at that point), a time bin received a "0". By aggregating these data over items for each participant in each time bin for each area of interest (target, competitor, first noun, second noun), we created what we will refer to as "cumulative first fixation proportions". This measure allows us to assess for each time bin in how many trials participants have already directed their gaze towards one of the objects.

Figure 3 shows the mean cumulative first fixation proportions derived from data registered in the target AOI over time aggregated over items for each participant. In the high increase set, there seems to be a clear difference between the FP and adjective version of the stimuli. At approximately 400 ms after the onset of the critical word (FP/adjective, *cue* hereafter), the graphs representing the two cue conditions suggest that the increase in attention allocation to targets is attenuated in the FP version of the stimuli. This "focus particle disadvantage" lasts approximately as it is until midway through the mean phonetic duration of the target word, where attention to targets in the FP condition starts to increase more strongly. However, in general there seems to be more attention to targets in the adjective condition until

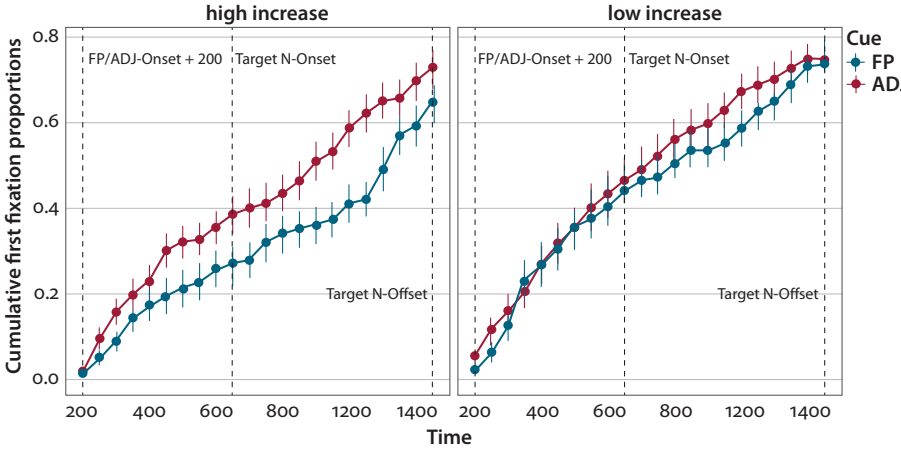

Figure 3. Aggregated cumulative first fixations in the time window from 200 ms after FP/adjective onset and mean target noun offset

the end of the phase analyzed (right boundary of the analysis window). In the low change condition, the pattern appears to be very different. No clear difference shows until midway through the phonetic duration of the target word. Thus, if the target expectation increase induced by the FP is high, attention allocation to the target is delayed, at least compared to the non-focus inducing adjective. This suggests that the expectation increase needs time to be calculated.

Table 2. Model output from the growth curve analysis (main effects and interactions); sum coding for both factors (expectation change: low = −1; cue: FP = −1, ADJ = 1)

	Estimate	SE	*t*	*P*
(Intercept)	−0.393	0.079	−4.985	0.000
Cue1 (=FP vs. adjective)	0.141	0.067	2.104	0.035*
Set_increase1 (=low vs. high)	−0.202	0.067	−3.011	0.003*
ot1:Cue1	0.149	0.144	1.032	0.302
ot2:Cue1	−0.058	0.100	−0.582	0.561
ot3:Cue1	−0.148	0.066	−2.242	0.025*
ot1:Set_increase1	−0.192	0.144	−1.331	0.183
ot2:Set_increase1	0.304	0.100	3.044	0.002*
ot3:Set_increase1	0.040	0.066	0.600	0.548
Cue1:Set_increase1	0.085	0.067	1.274	0.203
ot1:Cue1:Set_increase1	0.024	0.144	0.169	0.866
ot2:Cue1:Set_increase1	−0.064	0.100	−0.646	0.518
ot3:Cuel:Set_increase1	0.107	0.066	1.621	0.105

To statistically assess these differences, we prepared our data for growth curve analysis (Mirman 2014). First, elogits[3] and weights[4] were calculated for the by-subject aggregated data (Barr 2008; Mirman 2014). Next, we statistically determined that the overall time course of (elogit-transformed) cumulative first fixation proportions was best captured with a third-order (cubic) orthogonal polynomial. This was done by using a standard model comparison procedure (Mirman 2014). Our fixed effects in the final model were *cue* and *expectation change set* on all time terms. We specified the model to calculate main effects, as well as interactions. Both factors were sum coded (Cue: FP = −1, adjective = 1; expectation change: low = −1, high = 1). The model also included participant and participant-by-cue-by-expectation-change random effects (maximal random effects structure, see Barr et al. 2013).

Our model (Table 2) detected a main effect of *cue*, indicating that in the ADJ conditions, overall, more looks landed on the target (estimate = 0.141, *SE* = 0.067, *t* = 2.104) than in the FP conditions. For our second predictor, *expectation change*, our model also detected a main effect, indicating that overall in the high expectation change set, fewer looks were directed to the target (estimate = −0.202, *SE* = 0.067, *t* = −3.011). Furthermore, the interactions of the main predictors with the terms that capture the time course of the (elog-transformed) cumulative first fixation proportions suggest that the increase in attention to targets overall evolves differently depending on *cue*, but also depending on *expectation change* (cubic term for cue: estimate = −0.148, *SE* = 0.066, *t* = −2.242; quadratic term for expectation change (estimate = 0.304, *SE* = 0.100, *t* = 3.044).

To explore the effects of *cue* and *expectation change* further, we next looked at simple effects. Specifically, we were interested in comparing the (elog-transformed) cumulative first fixation proportions between *cues* within each *expectation change* set (FP vs. adjective), as well as in a comparison of *cues* between *expectation change* sets (FP vs. FP and adjective vs. adjective). To this end, we established a new variable by combining the levels of each factor, yielding four levels of 'conditions'. Two new models were then set up which, except for the new factor, were specified very similarly to the first model. The two new models only differed with respect to the baseline levels chosen. In the first model, the baseline was set to "FP/increase Set", in the second model, the baseline level was set to "adjective/same Set". Table 3 shows the two respective model outputs. Note that here we used treatment coding, i.e., the baseline level is compared to all other levels.

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3. Elogits: log ((possible number of fixations + 0.5) / (observed number of fixations – possible number of fixations + 0.5))

4. Weights: 1 / ((possible number of fixations + 0.5) + 1 / (observed number of fixations – possible number of fixations + 0.5))

Table 3. Output of the two simple effects models, each with a different baseline level

Simple effects model (baseline level FP/high expectation change)					Simple effects model (baseline level ADJ/high expectation change)				
	Est.	SE	*t*	*P*		Est.	SE	*t*	*P*
(Intercept)	−0.822	0.141	−5.849	0.000	(Intercept)	−0.369	0.140	−2.624	0.009
FP_low	0.575	0.190	3.030	0.002*	ADJ_low	0.233	0.190	1.227	0.220
ADJ_high	0.453	0.190	2.388	0.017*	FP_high	−0.453	0.190	−2.385	0.017*
ADJ_low	0.687	0.190	3.616	0.000*	FP_low	0.122	0.190	0.641	0.522
ot1: FP_low	0.433	0.409	1.060	0.289	ot1: ADJ_low	0.336	0.408	0.822	0.411
ot1: ADJ_high	0.347	0.409	0.849	0.396	ot1: FP_high	−0.347	0.409	−0.849	0.396
ot1: ADJ_low	0.683	0.409	1.670	0.095	ot1: FP_low	0.086	0.408	0.211	0.833
ot2: FP_low	−0.736	0.282	−2.606	0.009*	ot2: ADJ_low	−0.479	0.282	−1.699	0.089
ot2: ADJ_high	−0.245	0.282	−0.868	0.386	ot2: FP_high	0.245	0.282	0.868	0.385
ot2: ADJ_low	−0.723	0.282	−2.561	0.010*	ot2: FP_low	−0.491	0.282	−1.745	0.081
ot3: FP_low	0.135	0.188	0.719	0.472	ot3: ADJ_low	−0.294	0.186	−1.577	0.115
ot3: ADJ_high	−0.082	0.187	−0.439	0.661	ot3: FP_high	0.082	0.187	0.439	0.661
ot3: ADJ_low	−0.376	0.188	−2.005	0.045*	ot3: FP_low	0.217	0.186	1.164	0.244

Results show that in the FP/high expectation change condition, overall, there are significantly fewer target looks compared to all other conditions – most relevant here, compared to FP/low expectation change (estimate = 0.575, *SE* = 0.190, *t* = 3.030) and to ADJ/high expectation change (estimate = 0.453, *SE* = 0.190, *t* = 2.388). There is also a difference in curvature compared to the FP/low expectation change condition, as the effect on the quadratic term shows (estimate = −0.723, *SE* = 0.282, *t* = −2.561).

By contrast, no difference in curvature was detected compared to the ADJ/high expectation change condition. No differences were detected between the two adjective conditions, neither with respect to overall target fixations, nor with respect to curvature. Thus, growth-curve analysis confirms our intuitions from inspecting Figure 3: it is the FP/high expectation change condition that sticks out the most, whereas the other comparisons do not yield significant effects. When the target expectation increase induced by *sogar* is high, participants direct their attention to the target later than in the other conditions.

As a next step, the same set of analyses were performed on the cumulative first fixation proportions registered in the competitor AOI (Figure 4). Neither main effects or interactions were obtained nor did our analysis reveal any simple effects. Attention to competitors, thus, did not differ between conditions.[5]

Finally, we analyzed how attention to the second noun (the word before the FP/adjective) *decreases* upon encountering the cue. The rationale behind this was

5. Due to space limitations, the respective analyses will not be reported here.

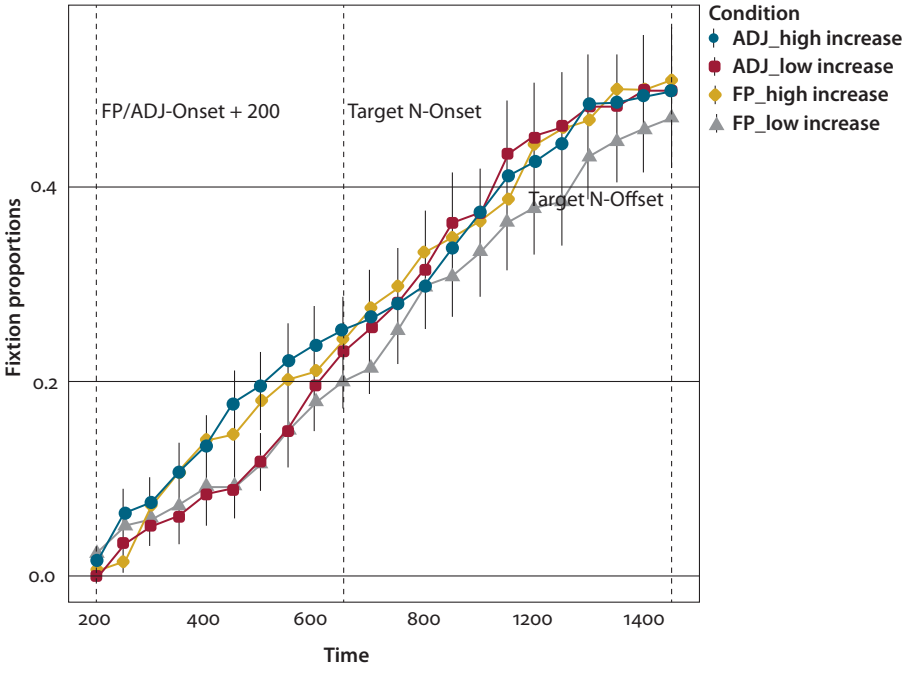

Figure 4. Aggregated cumulative first fixation proportions for competitors in the time window from 200 ms after FP/adjective onset and mean target noun offset

the following: given that no reliable differences were obtained for the analyses of looks to the competitor, the question was where participants' attention was in the FP/high expectation change set, if it was not on the target. If it could be shown that participants attended longer to the second noun in the FP/high expectation change set upon perceiving the cue, this could be interpreted as reflecting that, in this condition, more time is needed for updating the current situation model, i.e. that processing the current linguistic input is ongoing and the calculation of where to fixate next is delayed. For this purpose, fixation proportions were computed for the objects corresponding to the second noun over the time course in the same analysis window as above.

The visualization of the fixation proportions in Figure 5 suggests differences between conditions. It seems that in the FP/high increase set, participants indeed dwell longer on the objects that correspond to the nouns before the cue. Moreover, the difference appears to be most pronounced in the same time interval in which the greatest difference with respect to the cumulative first fixation proportions to the target was observed.

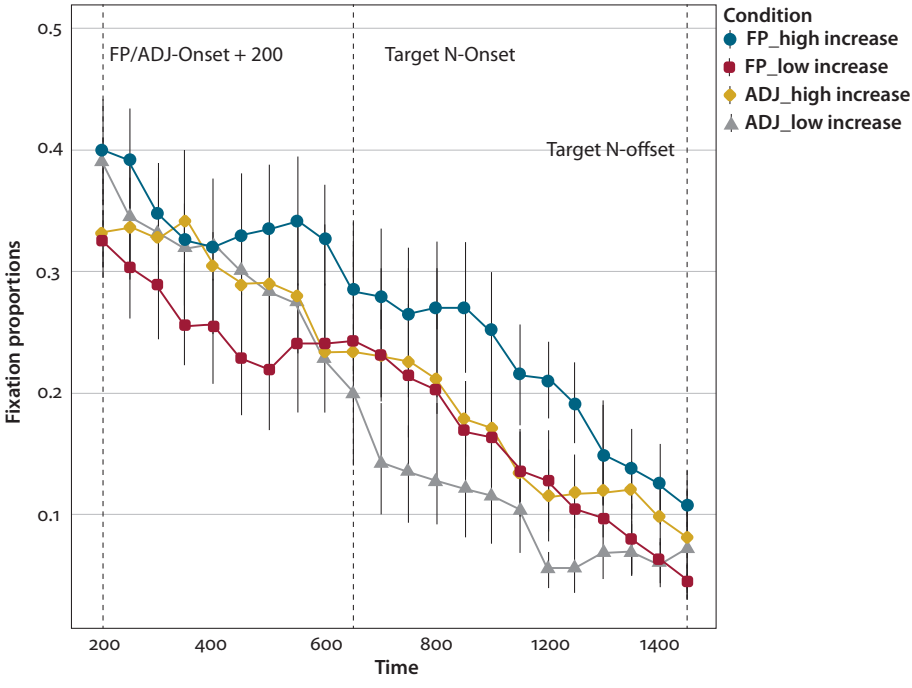

Figure 5. Decrease of attention measured in the AOI corresponding to the noun before cue onset in the four experimental conditions

To confirm this observation, a further growth curve analysis was performed. First, it was determined that the overall time course of the (elogit-transformed) fixation proportions was best captured with a first-order (linear) orthogonal polynomial. Since we were only interested in simple effects, we specified the model just as above. Our fixed effect was *condition* on the one and only time term. We used treatment coding and "FP/high expectation change" was set as the reference level. The model again also included participant and participant-by-condition random effects.

As can be seen in the model output (Table 4), there was indeed significantly more attention to objects corresponding to the noun before the cue in the "FP/high expectation change" condition compared to the "FP/low expectation change" condition (estimate = −0.364, *SE* = 0.145, *t* = −2.513), as well as compared to the "ADJ/low expectation change" condition (estimate = −0.363, *SE* = 0.145, *t* = −2.508). A marginal effect was detected comparing the baseline level with the "ADJ/high expectation change" condition (estimate = −0.253, *SE* = 0.144, *t* = −1.754). There was also a significant difference in slope when comparing the baseline level and the "ADJ/low expectation change" condition (estimate = −1.039, *SE* = 0.431, *t* = −2.410). Thus, the observations from visually inspecting the data in Figure 5 were generally

confirmed. Participants dwell longer on the object corresponding to the second noun when the FP is present and the expectation change is high.

Table 4. Model output for the growth curve analyses of elog-transformed fixation proportions on the object corresponding to the noun preceding the cue

	Estimate	Std.Error	t.value	P
(Intercept)	−0.935	0.166	−5.643	0.000
FP_low	−0.364	0.145	−2.513	0.012*
APJ_high	−0.253	0.144	−1.754	0.079
ADJ_low	−0.363	0.145	−2.508	0.012*
ot1: FP_low	−0.190	0.431	−0.439	0.661
ot1: ADJ_high	−0.178	0.430	−0.414	0.679
ot1: ADJ_low	−1.039	0.431	−2.410	0.016*

3.2.3 *Discussion*

In Experiment 2, we measured how visual attention to a target object is modulated by the perception of the German focus particle *sogar*. This was done by comparing the difference between focus particle-present and focus particle-absent (adjective) trials in one stimulus set for which the analysis of (offline) two-alternative forced choice data suggested that the focus particle leads to a high target expectation increase, and in a stimulus set for which the analysis of two-alternative forced choice data suggested that the focus particle leads to a low target expectation increase. The results of the eye tracking data clearly indicate that participants' viewing behavior in the 'FP present/high increase condition' significantly differs from all other conditions: not only is attention to targets overall lowest between cue onset and the mean phonetic target noun offset; in general, attention is also directed later to the target, compared both to the 'adjective/high-increase condition' and to the 'FP present/low-increase condition'. Thus, if the presence of the FP leads to a drastic change with respect to expectations about the most likely final word of a sentence, participants' eye movement responses are delayed. In contrast, if the presence of the focus particle does not significantly change expectations about the target, no differences arise between focus particle-present trials and adjective trials (baseline).

Furthermore, no statistically reliable differences between conditions were detected with respect to attention to competitor objects in the same analysis window. This suggests that the time window chosen for analysis indeed captures cognitive processing shortly after the particle has been perceived. Otherwise, we would have expected to see a difference between stimuli sets. Recall that the mean target probability was estimated 0.28 in the 'high expectation increase' set and 0.48 in the 'low expectation increase' set, which predicts a competitor advantage in the latter. Note, however, that the visual representation of the eye tracking data (Figure 5)

does show a slightly higher proportion of competitor looks in the first 400 ms of the analysis window for the 'high expectation increase' set. If these data points are taken to reflect a small number of cases in which the particle was not yet processed, we may take this to indicate that two-alternative forced choice data indeed predict expectations derived during online processing.

When analyzing lingering visual attention to objects corresponding to nouns preceding the critical words in a sentence, we found that participants dwelled longest on those objects in the 'FP present/high increase condition'. In fact, such difference was observable throughout the entire analysis window. Note that this effect cannot be attributed to specific items, since the difference was clearly also present in comparison to the baseline stimuli (adjective versions of the same stimuli) in the 'high increase condition', where the exact same objects/nouns appeared on the visual display and in the critical sentences.

Given these findings, it may be concluded that later attention allocation to targets in the 'FP present/high increase condition' directly reflects the time the comprehension system needs to calculate expectation changes induced by the German focus particle *sogar*. Therefore, processing *sogar* has immediate consequences for a comprehender's situation model.

4. General discussion

The aim of this study was to investigate when during online comprehension, the German focus-sensitive particle (FP) *sogar* exerts its effect. In Experiment 1, we used a two-alternative forced choice task to first assess the degree to which *sogar* changes expectations about the final (focused) word in sentences such as *Er trinkt Bier, Wein und sogar … Schnaps* ('He drinks beer, wine and *even* … schnapps') in comparison to sentences like *Er trinkt Bier, Wein und … Schnaps* ('He drinks beer, wine, and … schnapps'). Results show that gradual differences emerge between items. This suggests that the impact of the FP is not uniform across different linguistic material.

In a visual world study (Experiment 2), viewing behavior in four experimental conditions was measured. These conditions resulted from crossing the factors (a) presence of the FP (yes/no), and (b) magnitude of expectation change induced by the focus particle as determined on the basis of the offline two-alternative forced choice data (high/low). Results show that visual attention to target objects was overall lowest and increased most slowly in the 'FP present/high expectation change' condition within the time window chosen for analyses. The counterpart of this effect was that participants at the same time dwelled significantly longer on visual objects corresponding to a portion in the audio-stimulus that preceded the

FP. No differences between conditions were observed with respect to attention to competitor objects. Thus, participants in the 'FP present/high expectation increase condition' hesitated to move their eyes away from the object they gazed at while they were processing the FP. We interpret this effect to show that the calculations necessary to program eye movements induced by the linguistic input needed more time in the 'FP present/high expectation increase condition' than in all other conditions. Note that the direct comparison with the 'adjective/high expectation increase condition' (baseline) rules out any confounding effects due to the visual processing of the stimuli, e.g., visual saliency, unexpected depictions of objects, etc.

The observed effects may be explained as follows: at trial start, participants perceive the objects depicted on the screen and automatically activate conceptual knowledge about these objects, which is essentially derived from experience. At the same time, when the linguistic input is encountered, the perceived words activate their meanings (atomic and combinatorial) which in turn also brings associated conceptual knowledge into play, also derived from experience. All sources of information are used together to form a holistic representation, or 'model' of the situation – which, in the present study, corresponds to a speaker making assertions. The construction of this model proceeds incrementally, on a word-by-word basis. The more specific the model becomes, the better the comprehension system gets at predicting upcoming input, because what is specified in the model can be used to constrain upcoming information. When the focus particle is encountered, the information that it encodes must be combined with all other information specified in the model at this point in time. The combination of new and already entertained information may be understood as a model update procedure. The update procedure itself can be seen as a transformation process that turns the current model state *m* into a new model state *m+1*. Each model state also specifies predictions about upcoming input (see Altmann and Mirkovic 2009 for details of a similar perspective on the comprehension process). These predictions may change with every new piece of information. Under this assumption, there are theoretically two possible ways to account for the differences in attention allocation between conditions observed in Experiment 2. Either increased processing time arises as a result of difficulties in incorporating the focus particle as a new linguistic element to derive a new model state, i.e., from integrating the focus particle as an (unexpected) linguistic element, or increased processing time arises as the result of the updating of the previous model state to the new model state. Our analyses show no significant difference between FP trials and adjective trials in the 'low expectation increase set', i.e., integrating the focus particle to derive a new model state is *per se* not harder than integrating the adjective to derive a new model state. Therefore, we believe that the second explanation is more plausible. If the new state of the model 'drastically' diverges from its prior state, especially with respect to predictions as in

the high expectation increase set, accommodating for these discrepancies may take more processing time than if the new model state only diverges 'slightly' from its prior state, as in the low expectation change condition. Further research is required to investigate how the temporary inability to decide where to move the eyes next is linked to the accommodation of two differing model states.

With respect to our research question, in online comprehension, *sogar* asserts its effect immediately. As soon as the FP is encountered, it is used to update the comprehender's situation model. The "visibility" of the effect, i.e., the chance for it to be measured, depends, however, on its magnitude.

In conclusion, in the present study we interpreted the *non-occurrence* of predictive eye movements in one specific condition to be informative about what happens during online comprehension. Admittedly, this is not the standard approach in the visual world paradigm. Usually, the *occurrence* of anticipatory eye movements is taken to reflect a theoretically derived prediction. However, two points lead us to believe that our approach is still valid. First, the non-occurrence of predictive eye movements to the target objects in the critical condition goes hand in hand with the observation of increased lingering attention to the object that was relevant for processing before the target. This finding is theoretically plausible from the perspective outlined above. What we observed is not just the non-occurrence of predictive eye movements, but also the reason for the non-occurrence. Second, since the absence of predictive eye movements in our study is actually an effect of delayed attention to targets (which points to a disruption in the online language comprehension process), our findings may well be related to the results in a reading time study by Filik et al. (2009). The authors investigated what happens when the lexical properties of the English particles *even* and *only* are congruent or incongruent with information supplied by subsequent text. They found that in the incongruent condition the effects of both particles do not show at the same point in time. While in the *only* condition, prolonged reading times were observed at the earliest point in the test sentences at which the incongruity could become apparent, the effects in the *even* condition only showed in the post-critical region. If this is interpreted as a spill-over effect, delayed attention to targets in our study may very well be the equivalent of that.

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References

Altmann, Gerry T. M., and Yuki Kamide. 1999. "Incremental Interpretation at Verbs: Restricting the Domain of Subsequent Reference." *Cognition* 73(3): 247–264. https://doi.org/10.1016/S0010-0277(99)00059-1

Altmann, Gerry T. M., and Yuki Kamide. 2004. "Now you see it, now you don't: Mediating the Mapping between Language and the Visual World." In *The Interface of Language, Vision, and Action: Eye Movements and the Visual World*, ed. by John Henderson, and Fernanda Ferreira, 347–386. New York: Psychology Press.

Altmann, Gerry T. M., and Jelena Mirkovic. 2009. "Incrementality and Prediction in Human Sentence Processing." *Cognitive Science* 33(4): 583–609. https://doi.org/10.1111/j.1551-6709.2009.01022.x

Barr, Dale J. 2008. "Analyzing 'Visual World' Eyetracking Data Using Multilevel Logistic Regression." *Journal of Memory and Language* 59(4): 457–474. https://doi.org/10.1016/j.jml.2007.09.002

Barr, Dale J., Roger Levy, Christoph Scheepers, and Harry J. Tily. 2013. "Random Effects Structure for Confirmatory Hypothesis Testing: Keep it Maximal." *Journal of Memory and Language* 68(3): 255–278. https://doi.org/10.1016/j.jml.2012.11.001

Blakemore, Diane. 1987. *Semantic Constraints on Relevance*. Oxford: Blackwell.

Blakemore, Diane. 2002. *Relevance and Linguistic Meaning: The Semantics and Pragmatics of Discourse Markers*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511486456

Cooper, Roger M. 1974. "The Control of Eye Fixation by the Meaning of Spoken Language: A New Methodology for the Real-time Investigation of Speech Perception, Memory, and Language Processing." *Cognitive Psychology* 6(1): 84–107. https://doi.org/10.1016/0010-0285(74)90005-X

Crocker, Mathew W., Pia Knoeferle, and Marshall R. Mayberry. 2010. "Situated Sentence Processing: The Coordinated Interplay Account and a Neurobehavioral Model." *Brain and Language* 112(3): 189–201. https://doi.org/10.1016/j.bandl.2009.03.004

Dimroth, Christine. 2004. "Fokuspartikeln und Informationsgliederung im Deutschen." In *Studien zur deutschen Grammatik*, ed. by Werner Abraham, Winfried Boeder, Peter Eisenberg, Catherine Fabricius-Hansen, Hubert Haider, Ewald Lang, Jacques Lerot, Vladimir P. Nedjalkov, Susan Olsen, and Gert Webelhuth, vol. 69. Tübingen: Stauffenburg Verlag.

Eberhard, Kathleen, Michael J. Spivey-Knowlton, Julie Sedivy, and Michael K. Tanenhaus. 1995. "Eye Movements as a Window into Real-time Spoken Language Processing in Natural Contexts." *Journal of Psycholinguistic Research* 24: 409–436. https://doi.org/10.1007/BF02143160

Filik, Ruth, Kevin B. Paterson, and Simon P. Liversedge. 2009. "The Influence of *only* and *even* on On-line Semantic Interpretation." *Psychonomic Bulletin and Review* 16: 678–683. https://doi.org/10.3758/PBR.16.4.678

Filik, Ruth, Kevin B. Paterson, and Antje Sauermann. 2011. "The Influence of Focus on Eye Movements during Reading." In *The Oxford Handbook of Eye Movements*, ed. by Simon P. Liversedge, Iain D. Gilchrist, and Stefan Everling, 925–942. Oxford: Oxford University Press.

Gergely, György. 1992. "Focus-based Inferences in Sentence Comprehension." In *Lexical Matters*, ed. by Ivan Sag, and Anna Szabolcsi, 47–65. Stanford: Stanford Center for the Study of Language and Information.

Huettig, Falk, Jost Rommers, and Antje S. Meyer. 2011. "Using the Visual World Paradigm to Study Language Processing: A Review and Critical Evaluation." *Acta Psychologica* 137(2): 151–171. https://doi.org/10.1016/j.actpsy.2010.11.003

Kamide, Yuki, Gerry T. M. Altmann, and Sarah L. Haywood. 2003. "The Time-course of Prediction in Incremental Sentence Processing: Evidence from Anticipatory Eye Movements." *Journal of Memory and Language* 49(1): 133–156. https://doi.org/10.1016/S0749-596X(03)00023-8

König, Ekkehard. 1991. *The Meaning of Focus Particles. A Comparative Perspective*. London/New York: Routledge. https://doi.org/10.4324/9780203212288

Leonetti, Manuel, and María Victoria Escandell Vidal. 2004. "Semántica conceptual/semántica procedimental." In *V Congreso de Lingüística General*, ed. by Milka Villayandre Llamazares, 1727–1738. Madrid: Arco Libros.

LimeSurvey: *An Open Source survey tool*, LimeSurvey GmbH, Hamburg, Germany [online: http://www.limesurvey.org.]

Loureda, Óscar, and Esperanza Acín. 2010. "Cuestiones candentes en torno a los marcadores del discurso en español." In *Los estudios sobre marcadores del discurso en español, hoy*, ed. by Óscar Loureda Lamas, and Esperanza Acín Villa, 7–59. Madrid: Arco Libros.

Matin, Ethel, K. Shao, and Kenneth Boff. 1993. "Saccadic Overhead: Information Procesing Time with and without Saccades." *Perception and Psychophysics* 53: 372–380. https://doi.org/10.3758/BF03206780

Mirman, Daniel. 2014. *Growth Curve Analysis and Visualization using R*. Pennsylvania: CRC Press.

Ni, Weija, Stephen Crain, and Donald Shankweiler. 1996. "Sidestepping Garden Paths: The Contribution of Syntax, Semantics and Plausibility in Resolving Ambiguities." *Language and Cognitive Processes* 11: 283–334. https://doi.org/10.1080/016909696387196

Paterson, Kevin B., Simon P. Liversedge, Ruth Filik, Barbara J. Juhasz, Sarah J. White, and Keith Rayner. 2007. "Focus Identification during Sentence Comprehension: Evidence from Eye Movements." *Quarterly Journal of Experimental Psychology* 60: 1423–1445. https://doi.org/10.1080/17470210601100563

Paterson, Kevin B., Simon P. Liversedge, and Geoffrey Underwood. 1999. "The Influence of Focus Operators on Syntactic Processing of 'short' Relative Clause Sentences." *Quarterly Journal of Experimental Psychology* 52(A): 717–737. https://doi.org/10.1080/713755827

Portolés Lázaro, José. 2007. "Escalas informativas aditivas: Pruebas del español." *Spanish in Context* 4(2): 135–157. https://doi.org/10.1075/sic.4.2.02por

Portolés, José. 2010. "Los marcadores del discurso y la estructura informativa." In *Los estudios sobre marcadores del español, hoy*, ed. by Óscar Loureda, and Esperanza Acín, 281–325. Madrid: Arco Libros.

Rooth, Mats Edward. 1985. Association with Focus. Phd diss., Department of Linguistics, University of Massachusetts.

Sedivy, Julia C., Michael K. Tanenhaus, Craig G. Chambers, and Gregory N. Carlson. 1999. "Achieving Incremental Semantic Interpretation through Contextual Representation." *Cognition* 71: 109–147. https://doi.org/10.1016/S0010-0277(99)00025-6

Sperber, Dan, and Deirdre Wilson. 1995. *Relevance: Communication and Cognition*. Second edition. Oxford: Blackwell.

Appendix 1. Experimental items

1. Sie geht gerne ins Kino, ins Ballett und [sogar/manchmal] ins Varieté.
   She likes to go to the cinema, ballet, and [even/sometimes] to variety shows.
2. Sie geht zum Italiener, zum Japaner und [sogar zum/zum teuren] Schweden.
   She goes to Italian restaurants, Japanese restaurants, and [even/expensive] Swedish restaurants.
3. Er behandelt Hunde, Schildkröten und [sogar/kranke] Elefanten.
   He treats dogs, turtles, and [even/sick] elephants.
4. Sie spielt Gitarre, Geige und [sogar/Sopran-] Saxophon.
   She plays the guitar, the violin, and [even the/the soprano] saxophone.
5. Sie war schon in Frankreich, in der Türkei und [sogar in/im Norden] Finnland[s].
   She has been to France, Turkey, and [even/northern] Finland.
6. Er verkauft Zwiebeln, Kartoffeln und [sogar/grüne] Paprika.
   He sells onions, potatoes, and [even/green] paprika.
7. Sie trinkt gern Orangensaft, Apfelsaft und [sogar/kalten] Bananensaft.
   She drinks orange juice, apple juice, and [even/cold] banana juice.
8. Er mag Fastfood, Chips und [sogar/Schoko-] Eiskrem.
   He likes fast food, chips, and [even/chocolate] ice cream.
9. Er pflanzt Karotten, Kartoffeln und [sogar/Strauch-] Tomaten.
   He plants carrots, potatoes, and [even/vine] tomatoes.
10. Er mag Handball, Volleyball und [sogar/Hallen-] Tennis.
    He likes handball, volleyball, and [even/indoor] tennis.
11. Er trinkt gerne Bier, Wein und [sogar/teuren] Schnaps.
    He drinks beer, wine, and [even/expensive] liquor.
12. Sie hat Hunde, Katzen und [sogar/niedliche] Meerschweinchen.
    She has dogs, cats, and [even/cute] Guinea pigs.
13. Sie war schon in Athen, Madrid und [sogar in/im schönen] Paris.
    She has been to Athens, Madrid, and [even/beautiful] Paris.
14. Sie besitzt Fahrräder, Autos und [sogar/mehrere] Pferde.
    She has bikes, cars, and [even/various] horses.
15. In seinem Rucksack hat er immer ein Feuerzeug, eine Taschenlampe und [sogar ein/ein gutes] Taschenmesser.
    In his backpack he always has a lighter, a flashlight, and [even a/a good] pocket knife.
16. Es gibt immer Butter, Brötchen und [sogar/heißen] Tee.
    There is always butter, bread rolls, and [even/hot] tea.
17. Sie mag Äpfel, Feigen und [sogar/reife] Mangos.
    She likes apples, figs, and [even/ripe] mangos.
18. Er repariert Autos, Gokarts und [sogar/defekte] Flugzeuge.
    He fixes cars, go-carts, and [even/broken] airplanes.
19. Sie sammelt Briefmarken, Schuhe und [sogar/teure] Autos.
    She collects stamps, shoes, and [even/expensive] cars.
20. Sie kann Addition, Multiplikation und [sogar/die schwere] Division.
    She knows addition, multiplication and [even/the difficult] division.
21. Er mag Jazz, Punk und [sogar/alte] Bollywood-Musik.
    He likes jazz, punk, and [even/old] Bollywood music.

22. Er fährt Gabelstapler, Taxi und [sogar/große] Reisebusse.
    He drives forklift trucks, taxis, and [even/big] touring coaches.
23. Sie joggt bei Sonnenschein, Regen und [sogar bei/starkem] Schneefall.
    She jogs in sunshine, rain, and [even/heavy] snowfall.
24. Er hat einen schwarzen, einen grünen und [sogar einen/einen schicken] goldenen.
    He has a black one, a green one, and [even a/an elegant] golden one.

CHAPTER 9

Processing implicit and explicit causality in Spanish

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As a basic discourse relation, causality can be made explicit by means of an argumentative connective, but it can also be implicitly expressed. In the latter case, experimental evidence shows that causality is highly predictable in discourse and can be easily inferred. Therefore, the question arises as to the actual contribution of causal connectives to utterance processing. We addressed this issue in an eye tracking reading experiment, and compared how the presence or absence of the Spanish causal connective *por tanto* affects processing in its role as procedural guide. The results suggest that making the connective explicit in a consecutive relation already inferable from the meaning of the lexical expressions in the utterances slows down processing. In this sense, the nature of connectives as procedural guides (Relevance Theory, see Blakemore 1987) might be nuanced, since the extent to which a connective determines processing varies depending on the type of discourse relation at issue.

Keywords: causal relations, implicit causality, explicit causality, connectives, processing, procedural meaning

1. Introduction

Coherence is the textual property by which language users are able to derive mental representations of discourse. One of the basic discourse relations that speakers handle while they construct coherence is causality (Sanders, Spooren, and Noordman 1992: 11), which, furthermore, has been experimentally shown to be easier to process and better represented than other discourse relations (Mak and Sanders 2012: 1–2): according to the *continuity hypothesis*, causality is the most predictable discourse relation (Murray 1997; Brehm-Jurish 2005; Köhne and Demberg 2013; Zunino 2014). A further proof of the special cognitive status of causality is the fact that even in the absence of an explicit linguistic expression that signals the discourse relation – for instance, a causal connective – readers tend to infer a causal link

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between two juxtaposed segments. In fact, causal relations are implicitly conveyed with a higher frequence than other discourse relations (as shown in corpus data by Carbonell Olivares 2005 for Spanish; Asr and Demberg 2012 for English; however, see Hoek and Zufferey 2015 for partly diverging results in a cross-linguistic study of translations). When readers are confronted with an utterance like the following:

(1) *Marta and David do a lot of sport. They are in good health.*

they are able to process the second segment as a consequence of the cause stated in the first.

Both segments, however, could have been linked by means of an argumentative connective as well:[1]

(2) *Marta and David do a lot of sport. Therefore, they are in good health.*

Causal connectives introduce a discourse segment "which is anaphorically or cataphorically related to the previous segment, with which it establishes a cause-effect argumentative relation" (Domínguez García 2007: 141, our translation). Causal connectives are attributed a fundamentally procedural meaning because they act as inference-constraining guides in communication (Blakemore 1987, 2002; Martín Zorraquino and Portolés 1999). In this sense, they do not represent events or objects in the world, as opposed to conceptual-meaning expressions, and always need a mental representation upon which to display their instruction (Escandell Vidal and Leonetti 2011).

However, if causality can be inferred in the absence of an argumentative connective, the question arises as to the actual contribution of causal connectives to discourse processing. We base this paper on the tenets of the Relevance Theory and assume that argumentative connectives act as procedural guides that constrain the possible inferences in discourse. A number of experimental analyses (see e.g., Millis and Just 1994; Degand et al. 1999 for expository texts; Sanders and Noordman 2000; van Silfhout et al. 2015 for narrative texts; Nadal et al. 2016) have demonstrated that the explication of argumentative connectives can facilitate text comprehension processes. This is reflected in lower reading times, better performance in comprehension tests and a better content recall. In a similar vein to these studies, we analyze how the presence of the Spanish causal connective *por tanto* affects utterance processing versus its absence (Section 4). To that purpose, we start from the following two hypotheses, which point to opposite directions:

1. *Therefore* expresses in this case an objective, non-volitional causal relationship: the speaker is not involved in the construction of the causal relation between the events (Sanders 2005: 3). All our experimental stimuli display this type of causality.

1. If, as corpus studies and experimental evidence suggest, causality is a discourse relation inferable by default by means of the representations arising from the conceptual-meaning expressions of utterances, the processing load of implicitly linked utterances (1) should not differ from that of utterances whose segments are connected by a procedural device that makes the cause-consequence relation explicit (2), even if inserting the connective means adding information to the utterance (Loureda, Nadal, and Recio 2016).
2. However, if the explicit condition (2) compels the reader to process the causal relation by resorting to two guides, one of a lexical nature (the conceptual-meaning expressions) and one of a procedural nature (the argumentative connective *por tanto*), we expect readers to exhibit differing processing patterns for the explicit and the implicit conditions, and the effort needed to process the explicit condition to be greater.

2. Implicit versus explicit causality

Cause-consequence discourse relations, whether implicit or explicit, can be explained by the help of the claims of *Argumentation Theory* (Anscombre and Ducrot 1994 [1980]; Iten 1999).[2]

2.1 Discourse and argumentative contents

From a semantic viewpoint, all words encode information that constrains the continuation of discourse. Utterances cannot be formulated without intending to direct the interlocutor towards a certain conclusion (while another conclusions are automatically discarded) (Anscombre and Ducrot 1994: 48). In this sense, the conceptual-meaning words contained in a discourse segment such as *Marta and David do a lot of sport* have an *argumentative orientation* (Portolés 2004) and, thus, lead to a conclusion like *they are in good health*. Moving from an argument to a conclusion is possible because mental representations formed when the linguistic expressions of an utterance are processed, they are connected with *topoi*. *Topoi* are *common* (i.e., shared by a given community whose members share that principle

2. Several authors combine these two frameworks, Relevance Theory and Argumentation Theory, to explain the role of connectives like *por tanto* for discourse comprehension. Relevance Theory defines these units in general terms as procedural guides to constrain inferential processing, whereas Argumentation Theory offers a more detailed description for the semantic instructions coded by each type of connective (see Moeschler 1989; Portolés 2001[1998]; Murillo 2010; Loureda and Acín 2010; Nadal in press).

even before discourse is instantiated, see Moeschler and Reboul 1994: 317–322); *general* (i.e., applicable to a number of situations different from the specific discourse situation) and gradable (i.e., they relate two gradable or scalar predicates, e.g., temperature and comfort) mental constructs (Anscombre and Ducrot 1994: 218). Example (1) here underlies a *topos* such as "practising sports is good for one's health", <+sports, +health>.

Taking the above into consideration, an example like (1) repeated here as (3), where both discourse segments are argumentatively co-oriented, leads to a pragmatically acceptable assumption:

(3) *Marta and David do a lot of sport. They are in good health.*

The argumentative co-orientation of the segments also allows us to explain why the discursive status of each of them (i.e., a cause and a consequence) can be processed even in the absence of a linguistic marker – a connective (experimental evidence confirms this hypothesis: Murray 1997; Zunino et al. 2011; Zunino 2014; in the same vein, continuous causal relations have been found to be more predictible and faster to process, for example, compared with counter-argumentative relations: Brehm-Jurish 2005; Drenhaus et al. 2014; Köhne and Demberg 2013; Hoek and Zufferey 2015).

Argumentative co-orientation can, however, be conventionalized by inserting an argumentative connective, in our case *por tanto* ('therefore'), which supplies procedural information to guide a hearer or reader during discourse comprehension (4):

(4) *Marta y David practican mucho deporte*. Por tanto *están sanos*.
'Marta and David do a lot of sport. *Therefore*, they are in good health.'

The instructional meaning of *por tanto* is added to the lexical guide provided by conceptual-meaning words of the premise and the conclusion (Fraser and Malamud-Makowski 1996: 864):

> Given the role of inference in establishing the contextual effects of a proposition, it should not be surprising that expressions that instruct the hearer to establish an inferential connection between two segments of discourse may be used to indicate how the proposition they introduce is to be interpreted as relevant.
>
> (Blakemore 1987: 122)

The reason why (3) and (4) above are equally plausible is that two expectations are met, a semantic-pragmatic one and a cognitive one, which merge into one. When a mental representation is derived from the first discourse segment, the

causality-by-default hypothesis (Sanders 2005)[3] applies. In the absence of further instructions, the human mind tends to process the upcoming adjacent proposition as causally related to the first:

> It seems as if the causal chain exists independently from the verbal manifestation. […] It is a form of background causality which does not have to be mentioned in any case because it will be easily inferred on the basis of the common knowledge of the world. In order to emphasize that the causal chain is the result of a mental operation I preferred the term "causal constant". It means that a causal constant may exist even if it is not explicitly expressed. (Rudolph 1996: 27)

2.2 *Por tanto* as a causal connective

Por tanto is hosted in a discourse segment that expresses the consequence or the effect of what has been stated in the previous one, which, in turn, functions as the premise of the causal relation (Martín Zorraquino and Portolés 1999: 4093–4099).

(5) *Marta y David practican mucho deporte*. Por tanto *están sanos*.
'Marta and David do a lot of sport. *Por tanto* they are in good health.'

In addition, the consequence introduced by the connective reinforces potential inferences that may have been derived from the first segment (Domínguez García 2007: 141).

By means of its procedural meaning, *por tanto* "presents the discourse member that it introduces as a consequence *reasoned out* from the previous segment" (*DPDE* online, our translation and emphasis). Therefore, (4) could be paraphrased as follows: "Marta and David do a lot of sports. As a result, / For that reason, they are in good health."

Por tanto is a grammaticalized expression, and this has consequences for its syntactic and distributional properties (*DPDE*, s.v. *por (lo) tanto*; Domínguez García 2007: 155). *Por tanto* is syntactically isolated: it has an own melodic contour and is mostly followed by a comma. As a consequence, it is positionally versatile: it can occur in initial, medial or final position in its host segment; and does not admit modifiers (**exactamente* 'exactly', **precisamente* 'precisely' *por tanto*). Grammaticalized devices

3. According to the causality-by-default hypothesis, two causally related pieces of information are processed faster than when an additive relation holds between them: "Because readers aim at building the most informative representation, they start out assuming the relation between two consecutive sentences is a causal relation (given certain characteristics of two discourse segments). Subsequently, causally related information will be processed faster, because the reader will only arrive at an additive relation if no causal relation can be established" (Sanders 2005: 9).

have also been shown to influence processing differently from less-grammaticalized connecting devices (see Recio, Nadal, and Loureda 2018).

3. Processing study

3.1 Materials

An eye tracking reading experiment was carried out to register the processing effort of explicit versus implicit causal relations. Eye movements were tracked and registered online during reading to analyze participants' behaviour in two conditions: utterances in which the two causally related discourse segments were explicitly linked by a connective (a) and utterances where the causal relation was implicit (b).

a. Marta y David practican mucho deporte. *Por tanto*, están sanos.
b. Marta y David practican mucho deporte. Están sanos.[4]
'Marta and David do a lot of sport. *Por tanto*/Ø they are in good health.'

As stated above, if the causal relation can be inferred in the absence of a causal connective, we do not expect any differences in the processing load of utterances like (a) and (b). By contrast, since the explicit condition contains a lexical and a procedural guide, we could also expect different processing strategies to be implemented by participants and higher processing costs for utterances like (b).

The critical stimuli were divided into three areas of interest (AOIs): the first discourse segment (DS1), the second discourse segment (DS2) and the connective (CONN), where provided:

[Marta y David practican mucho deporte]$_{DS1}$. [*Por tanto*/Ø]$_{CONN}$, [están sanos]$_{DS2}$.

Average reading times per word expressed in milliseconds (ms) were computed for each AOI. Additionally, average reading times were computed for conceptual-meaning words (i.e., all utterance words except the connective) and for an average utterance word (all utterance words).

3.2 Dependent variables

Eye fixations and the processing costs they reflect are analyzed by means of three cumulative parameters, which are the dependent variables of this study: *total reading*

4. Critical items were designed in the frame of a course on General Linguistics by a group of 30 students of Translation Sciences. This way, the plausibility and objectivity of the causality presented in the utterances was checked by a larger pool of speakers.

time, first-pass reading time and *second-pass reading time*. Total reading time is a composite measure. It is computed by adding up the duration of all fixations on one AOI and is, thus, a good indicator of the global effort needed to complete information extraction in that given area. First-pass and second-pass reading time are more fine-grained measures that help provide a more accurate picture of the effort needed to recover a communicated assumption. First-pass reading time, that is, the summed fixation time spent on a region after exiting it, reflects the initial costs of extracting information from an AOI; second-pass reading time amounts to the summed duration of all fixations on an AOI during re-reading (Hyönä, Lorch, and Rinck 2003: 316). First-pass and second-pass reading times cannot be strictly equated with syntactic/semantic processing (decoding stage) and with pragmatic processes (information reconstruction stage), since information processing is not linear, but takes place in parallel stages (Escandell Vidal 2005: 88). First-pass reading is deemed to reflect the construction of a first assumption from the ostensive stimulus, while re-reading reflects the effort needed to re-interpret an utterance, that is, to confirm, enrich or correct the initial interpretation by contrasting it with the context and with other mentally stored assumptions.

3.3 Participants, apparatus and procedure

The experiment was conducted with 80 participants (ongoing or completed university degree; ages 20–30). Utterances were shown on a computer screen equipped with a RED 500 eye tracker (*SMI Research*) in which three text characters amount to 1° of visual angle. Participants sat at a distance of approximately 65 cm from the screen. Reading times were registered for both eyes and an average was automatically calculated. The sampling frequency was 500 Hz. Participants read silently and at their own pace, which diminishes researcher interference, and needed about 15 minutes to complete the whole test.

3.4 Experiment design

A total of four sets with two critical utterances each were designed for the experiment: four in which the segments were linked by *por tanto* (condition (a)); four without an argumentative connective (condition (b)), and mixed with fillers and distractors in a 4:1 ratio. Critical stimuli were counterbalanced (Sandra 2009: 171) by dividing them into four lists assigned to different participant groups, so that each list only contained one utterance from each set and each participant read all conditions, but never more than one condition from the same set. For instance, condition (a) *Marta y David practican mucho deporte. Por tanto, están sanos* belonged

to a different list than the same version of condition (b), *Marta y David practican mucho deporte. Están sanos*. Items appeared in a pseudorandomized order.

Several hidden variables were controlled for in the critical items: word length (all words had between two and three syllables) and word frequency (all words are indexed within the 5,000 most frequent words in Spanish and belong to high or very high frequency ranges, Almela et al. 2005). Polysemy and homonymy were avoided, and all utterances exhibited SVO order, the most neutral in Spanish. This allows the researchers to attribute potential second-pass fixations exclusively to difficulties in the reconstruction of the communicated assumption, i.e., deriving of implicatures and contrasting the initially obtained assumption with the context and the reader's previous knowledge.

The experiment began with a trial of three practice items. Each critical stimulus was preceded by a contextualization passage and fixation crosses were placed before all items to avoid undesired corrections in first fixations.

Critical items were composed of three discourse segments. The first two segments were either linked by *por tanto*, or implicitly connected, and constituted the critical item in the strict sense. The third segment was introduced to control wrap-up effects, i.e., the effect derived by longer fixations at the end of a line or a paragraph, not considered "a stage of processing defined by its function, but rather by virtue of being executed when the reader reaches the end of a sentence" (Just and Carpenter 1980: 345).

3.5 Statistical treatment

Data were statistically analyzed using linear mixed regression models (Fahrmeir et al. 2013) with reading time as the indicator of processing effort. A model was computed for every dependent variable: *total reading time, first-pass reading time* and *second-pass reading time*.

The AOIs of each condition were included as fixed effects: first discourse segment, second discourse segment, connective (*por tanto*), conceptual-meaning words, and average utterance word. Subjects and set were included as non-nested random intercepts (individual reading paces can differ considerably, see Rayner 1998: 392). The model accounts, thus, for possible variability due to hidden factors (see Appendix 1).

Outliers or extreme values were treated before computing the mixed models. Observations were removed: (a) if the first-pass reading time was zero for any AOI formed by at least two words with the exception of the connective ("first skip"); if both the first-pass and the second-pass reading time for the AOI *average utterance word* amounted to less than 80 ms ("fast readers", Pickering et al. 2000; Reichle et al. 2003); and (c) if the total reading time for an average utterance word was higher

than 800 ms per word ("slow readers"). As a result, 28 out of 300 observations were considered extreme values and removed according to this procedure (11.6%). It is to be assumed that most of the extreme values arose from randomly occurring problems with the eye tracker. From them, 21 (7.0%) were cases of *first skip*, 13 (4.3%) were *fast readers*, and one (0.3%) was a *slow reader*.

Interpretation of model estimates was performed focusing on the strength of the observed reading time differences. Since our analyses comprise several models with a big amount of potential pairwise comparisons and our interest lies equally in a great number of such comparisons and not exclusively on specific ones, hypothesis tests were not performed and p-values for the differences found are not reported. Instead, as previously mentioned, the focus is set on the interpretation of the effect magnitudes present in the data.

To that purpose, average procesing times (ms) per word were computed and considered for each AOI. Differences between conditions under 5% were considered marginal; a difference of 5 to 9.99% was considered small; from 10 to 19.99% it was taken as a medium effect, and, finally, large effects were interpreted when the difference amounted to over 19.99%.

4. Results

4.1 Total reading time

Table 1 shows the total reading time per word needed to process the different AOIs marked for utterance in condition (a) (explicit condition with *por tanto*) versus condition (b) (implicit condition).

Table 1. Total reading time in milliseconds (ms). Explicit condition (*por tanto*) vs implicit condition

	Explicit condition *(por tanto)*	**Implicit condition (Ø)**	**Difference**
DS1	236.10	233.79	0.99%
DS2	**223.87**	170.87	**31.02%**
conceptual meaning word	226.29	215.88	4.82%
average utterance word	**254.73**	215.88	**18%**
connective *por tanto*	325.82	–	–

Taking into consideration an average utterance word, the explicit condition is processed more slowly than the implicit condition (254.73 versus 215.88 ms, equal to 18%); such increase in reading time seems to originate at the DS2, which is read over 31% more slowly when preceded by a connective (in contrast, the two DS1

exhibit very similar reading times, < 1% difference). The presence of *por tanto* in a cause-consequence discourse relation, thus, seems to increase processing effort. Using a procedural guide (Blakemore 1987, 2002; Martín Zorraquino and Portolés 1999 for Spanish) to make explicit an argumentative relation already inferable from the content of the discourse segments themselves not only does not facilitate processing, but even slows it down. The instruction of the connective can be considered cognitively circumstantial to some extent, as it does not lead to higher contextual effects. This would support our second hypothesis, since the effort invested to read the connective, more than for the remaining AOIs, increases the global processing load of its utterance. At the same time, however, the instruction coded by *por tanto* evens out the time invested by participants to read each of the two causally related segments, which, compared to the implicit condition, now show more homogeneous processing times. The presence of *por tanto*, thus, seems to foster a more balanced distribution of the processing load across the cause and consequence segment (see also Nadal et al. 2016).

4.2 First-pass reading time

For first-pass reading times registered for the condition with *por tanto* and for the implicit condition (Table 2) three results are worth highlighting. Firstly, like total reading time, the presence of *por tanto* slows down processing at the DS2, 40.08% more costly than in the implicit condition (188.37 vs 134.47 ms). Secondly, in global terms, that is, considering an average utterance word, the condition with *por tanto* requires 210.02 ms per word during first-pass reading (i.e., during the construction of an initial assumption), 27.08% more than the average utterance word in the implicit condition (165.27 ms). Finally, if only conceptual-meaning words are considered (i.e., excluding the reading time of *por tanto*), the differences mentioned are reversed, and the implicit condition exhibits now 23.29% longer reading times.

Table 2. First-pass reading times in milliseconds (ms). Explicit condition (*por tanto*) vs implicit condition

	Explicit condition (*por tanto*)	**Implicit condition (Ø)**	**Difference**
DS1	191.23	185.91	2.86%
DS2	**188.37**	134.47	**40.08%**
conceptual-meaning word	134.05	**165.27**	**23.29%**
average utterance word	**210.02**	165.27	**27.08%**
connective *por tanto*	269.50	–	–

In light of these data, and in line with the results found for the total reading time, we can conclude that, during the construction of an initial assumption, *por tanto* constitutes the attention focus during processing within its utterance. As a result, an increase is registered for an average utterance word, while processing costs are more homogeneously distributed between the DS1 and the DS2 than in the implicit condition. *Por tanto* assumes a leading role in the construction of causality and re-distributes the times needed to process other AOIs, thus imposing a different pattern than that obtained for the implicit condition. Again, this would support our second hypothesis. Furthermore, *por tanto* leads to a slowdown when processing its DS2 (40%), compared with the implicit condition, where the DS1 requires a higher processing time than the DS2 both during first-pass and total reading time.

Finally, from the fact that conceptual meaning words are processed more slowly in the absence of the connective (165.27 ms, over 23%) we can conclude that the procedural meaning of *por tanto* plays down the contribution of the lexical expressions of the utterance to recovering the initial assumption, compared to utterances in which no connective is provided.

4.3 Second-pass reading time

During re-reading, where mainly the ostensively communicated assumption is reconstructed, in the comparison of both conditions (Table 3) two results stand out. On the one hand, in the explicit condition more time is needed to read an average conceptual-meaning word than the connective. This suggests that *por tanto* is not very costly during the re-processing stage, which constrasts with the results obtained for first-pass reading, where the connective was the attentional focus.

Table 3. Second-pass reading times in milliseconds (ms). Explicit condition (*por tanto*) vs implicit condition

	Explicit condition (*por tanto*)	**Implicit condition (Ø)**	**Difference**
DS1	44.78	**47.69**	**6.5%**
DS2	35.40	37.02	4.37%
conceptual-meaning word	**92.14**	50.41	**82.78%**
average utterance word	44.62	**50.41**	**12.98%**
connective *por tanto*	56.32	–	–

On the other hand, processing a conceptual meaning word in the explicit condition is 82.78% more costly than processing it in the implicit condition. As a result, we can argue that the leading role of the connective has faded away and recovering

the communicated assumption is done by resorting to the lexical guides of the utterance.

In a nutshell, the data suggest that using *por tanto* to signal a continuous cause-consequence discourse relation already expected from the inferred content of the lexical expressions of the utterance slows down processing. Despite exhibiting lower processing costs during second pass reading, in total reading time, that is to say, when both the initial construction and the reconstruction of the communicated assumption are considered, making the connection explicit by means of *por tanto* involves additional processing load.

5. Conclusions

Experimental approaches like the one adopted in this eye tracking study can help gain insight into the cognitive activity generated by procedural-meaning items, and provide further evidence on the distinctive semantic, syntactic and pragmatic features of connectives. In this work we have supplied experimental data from an eye tracking reading task to show how implicit or explicit (marked by *por tanto*) causal discourse relations are processed in Spanish. Results from the comparisons drawn between the two experimental conditions seem to support our second hypothesis: processing a cause-consequence relation signaled by *por tanto* is more effort-demanding than processing two causally-related adjacent segments. This finding allows us to make several claims.

Firstly, as a procedural-meaning linguistic device, the argumentative causal connective *por tanto* requires longer reading times than the conceptual-meaning words of its utterance in total and first pass reading time. Its role as an inferential guide (Blakemore 1987) and the asymmetrical relation that holds between it and linguistic items with a conceptual meaning – procedural devices always require the presence of some conceptual representation upon which to display their instructional meaning, but not the other way around, see Leonetti and Escandell Vidal (2004: 4) – confer it special relevance during the construction of an initial assumption, which is reflected in longer reading times. But it is precisely at the stages where the connective attracts the higher processing load, when its procedural instruction also balances the processing load of the cause and the consequence. By contrast, in the implicit relation, results show an imbalance in the processing load of the two segments in early and global measures.

Secondly, as has been shown in a number of works, for cognitive reasons, causality can be processed by default (Rudolph 1996; Murray 1997; Sanders 2005, among others). The high cognitive predictability of causal relations (Brehm-Jurish 2005; Asr and Demberg 2012; Köhne and Demberg 2013, among others) explains

the longer reading times of the utterances in the explicit conditions in the first-pass and in the total reading time. Again, the second hypothesis is confirmed, whereas the first one can be refuted: causality expressed by means of lexical devices seems to be sufficient for the reader to construct a communicated assumption and to derive implicatures from it. Thus, the procedural guide might be perceived as non-essential to deriving additional contextual effects. In this sense, the nature of connectives as interpretive guides (Blakemore 1987) might be nuanced: experimental evidence shows that the extent to which a connective determines processing varies depending on the type of discourse relation at issue.

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References

Almela, Ramón, Pascual Cantos, Álvaro Sánchez, Ramón Sarmiento, and Moisés Almela. 2005. *Frecuencias del español. Diccionario y estudios léxicos y morfológicos*. Madrid: Universitas.

Anscombre, Jean-Claude, and Oswald Ducrot. 1994. *La argumentación en la lengua. Translated by Julia Sevilla and Marta Tordesillas*. Madrid: Gredos.

Asr, Fatemeh A., and Vera Demberg. 2012. *Implicitness of Discourse Relations*. Paper presented at the *COLING*, Mumbai.

Blakemore, Diane. 1987. *Semantic Constraints on Relevance*. Oxford: Blackwell.

Blakemore, Diane. 2002. *Relevance and Linguistic Meaning: The Semantics and Pragmatics of Discourse Markers*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511486456

Brehm-Jurish, Eva. 2005. "Connective Ties in Discourse: Three ERP-Studies on Causal, Temporal and Concessives Connective Ties, and their Influence on Language Processing." PhD diss., University of Potsdam.

Briz, Antonio, Salvador Pons, and José Portolés (dirs.), "Diccionario de partículas discursivas del español (DPDE)", Accessed August 16th, 2017 [online: www.dpde.es].

Carbonell Olivares, María Soledad. 2005. "Estudio semántico-pragmático de las relaciones de contraste y sus marcas en lengua inglesa." PhD diss., Universitat de València.

Degand, Lisbeth, Lefèvre, Nathalie, and Bestgen, Yves. 1999. "The impact of connectives and anaphoric expressions on expository discourse comprehension." *Document Design* 1(1): 39–51. https://doi.org/10.1075/dd.1.1.06deg

Domínguez García, Noemí. 2007. *Conectores discursivos en textos argumentativos breves*. Madrid: Arco Libros.

Drenhaus, Heiner, Vera Demberg, Judith Köhne, and Francesca Delogu. 2014. *Incremental and predictive discourse processing based on causal and concessive discourse markers: ERP studies on German and English*. Paper presented at the *Proceedings of the 36th Annual Conference of the Cognitive Science Society* (CogSci), Quebec: 403–409.

Escandell Vidal, María Victoria. 2005. *La comunicación*. Madrid: Gredos.

Escandell Vidal, María Victoria, and Manuel Leonetti. 2011. "On the rigidity of procedural meaning." In *Procedural Meaning*, ed. by María Victoria Escandell Vidal, Manuel Leonetti, and Aoife Ahern, 81–102. Bingley: Emerald.

Fahrmeir, Ludwig, Thomas Kneib, Stefan Lang, and Brian Marx. 2013. *Regression. Models, Methods and Applications*. Berlin: Springer.

Fraser, Bruce, and Monica Malamud-Makowski. 1996. "English and Spanish Contrastive Discourse Markers." *Language Sciences* 18(3–4): 863–881. https://doi.org/10.1016/S0388-0001(96)00052-6

Hoek, Jet, and Sandrine Zufferey. 2015. "Factors Influencing the Implicitation of Discourse Relations across Languages." Proceedings of the *11th Joint ACL-ISO Workshop on Interoperable Semantic Annotation (ISA-11)*. London.

Hyönä, Jukka, Robert Lorch, and Mike Rinck. 2003. "Eye Movement Measures to Study Global Text Processing." In *The Mind's Eye: Cognitive and Applied Aspects of Eye Movement Research*, ed. by Jukka Hyönä, Ralph Radach, and Heiner Deubel, 313–334. Amsterdam: Elsevier. https://doi.org/10.1016/B978-044451020-4/50018-9

Iten, Corinne. 1999. "The Relevance of Argumentation Theory." *UCL Working Papers in Linguistics* 11: 41–81.

Just, Marcel A., and Patricia A. Carpenter. 1980. "A Theory of Reading: From Eye Fixations to Comprehension." *Psychological Review* 87: 329–354. https://doi.org/10.1037/0033-295X.87.4.329

Köhne, Judith, and Vera Demberg. 2013. "The Time-course of Processing Discourse Connectives." *Proceedings of the 35th Annual Conference of the Cognitive Science Society* (CogSci), Berlin: 2760–2766.

Leonetti, Manuel, and Escandell Vidal, María Victoria. 2004. "Semántica conceptual / Semántica procedimental". In *Actas del V Congreso de Lingüística General*, vol. II, ed. by Milka Villayandre Llamazares, 1727–1738. Madrid: Arco Libros.

Loureda, Óscar, and Esperanza Acín. 2010. "Cuestiones candentes en torno a los marcadores del discurso en español". In *Los estudios sobre marcadores del discurso en español, hoy*, ed. by Óscar Loureda, and Esperanza Acín, 7–60. Madrid: Arco Libros.

Loureda, Óscar, Laura Nadal, and Inés Recio Fernández. 2016. "Partículas discursivas y cognición. *Por tanto* y la conexión argumentativa." *Romanistisches Jahrbuch* 67(1): 240–254. https://doi.org/10.1515/roja-2016-0016

Mak, Willem M., and Ted Sanders. 2012. "The role of causality in discourse processing: Effects of expectation and coherence relations." *Language and Cognitive Processes* 28(9): 1414–1437. https://doi.org/10.1080/01690965.2012.708423

Martín Zorraquino, M.ª Antonia, and José Portolés. 1999. "Los marcadores del discurso." In *Gramática descriptiva de la lengua española*, directed by Ignacio Bosque, and Violeta Demonte, vol. 3, 4051–4213. Madrid: Espasa-Calpe.

Millis, Keith K., and Marcel Just. 1994. "The influence of connectives on sentence comprehension." *Journal of Memory and Language* 33(1): 128–147. https://doi.org/10.1006/jmla.1994.1007

Moeschler, Jacques. 1989. "Pragmatic Connectives, Argumentative Coherence and Relevance". *Argumentation* 3: 321–339. https://doi.org/10.1007/BF00128944

Moeschler, Jacques, and Anne Reboul. 1994. *Dictionnaire encyclopédique de pragmatique*. Paris: Seuil.

Murillo, Silvia. 2010. "Los marcadores del discurso y su semántica." In *Los estudios sobre marcadores del discurso en español, hoy*, ed. by Óscar Loureda, and Esperanza Acín, 241–280. Madrid: Arco Libros.

Murray, John D. 1997. "Connectives and Narrative Text: The Role of Continuity." *Memory & Cognition* 25(2): 227–236. https://doi.org/10.3758/BF03201114

Nadal, Laura. In Press. *Lingüística experimental y contraargumentación: un estudio del conector* sin embargo *en español*. Peter Lang.

Nadal, Laura, Adriana Cruz, Inés Recio, and Óscar Loureda. 2016. "El significado procedimental y las partículas discursivas del español: una aproximación experimental." *Revista Signos. Estudios de Lingüística* 49(S1): 52–77. https://doi.org/10.4067/S0718-09342016000400004

Pickering, Martin J., Mathew J. Traxler, and Mathew W. Crocker. 2000. "Ambiguity Resolution in Sentence Processing: Evidence against Likelihood." *Journal of Memory and Language* 43: 447–475. https://doi.org/10.1006/jmla.2000.2708

Portolés, José. 2001 [1998]. *Marcadores del discurso*. Barcelona: Ariel.

Portolés, José. 2004. *Pragmática para hispanistas*. Madrid: Síntesis.

Rayner, Keith. 1998. "Eye Movements in Reading and Information Processing: 20 Years of Research." *Psychological Bulletin* 124(3): 372–422. https://doi.org/10.1037/0033-2909.124.3.372

Recio, Inés, Laura Nadal, and Óscar Loureda. 2018. "On Argumentative Relations in Spanish: Experimental Evidence on the Grammaticalization of Cause-consequence Discourse Markers." In *Discourse Markers in Grammaticalization and Constructionalization: new Issues in the Study of Language Change*, ed. by Salvador Pons Bordería, and Óscar Loureda, 384–409. Leiden: Brill.

Reichle, Erik D., Keith Rayner, and Alexander Pollatsek. 2003. "The E-Z Reader Model of Eye-Movement Control in Reading: Comparisons to other Models." *Behavioral and Brain Sciences* 26: 445–526. https://doi.org/10.1017/S0140525X03000104

Rudolph, Elisabeth. 1996. *Contrast: Adversative and Concessive Relations and their Expressions in English, German, Spanish, Portuguese on Sentence and Text Level*. New York/Berlin: De Gruyter. https://doi.org/10.1515/9783110815856

Sanders, Ted J. M. 2005. "Coherence, causality and cognitive complexity in discourse." In *Proceedings/Acts SEM-05, First International Symposium on the exploration and modeling of meaning*, ed. by Michel Aurnague, Myriam Bras, Anne Le Draoulec and Laure Vieu, 105–114.

Sanders, Ted J. M., and Leo Noordman. 2000. "The Role of Coherence Relations and Their Linguistic Markers in Text Processing." *Discourse Processes* 29(1): 37–60. https://doi.org/10.1207/S15326950dp2901_3

Sanders, Ted J. M., Wilbert Spooren, and Leo Noordman. 1992. "Toward a Taxonomy of Coherence Relations." *Discourse Processes* 15: 1–35. https://doi.org/10.1080/01638539209544800

Sandra, Dominiek. 2009. "Experimentation." In *Cognition and Pragmatics*, ed. by Dominiek Sandra, Jan-Ola Östman, and Jef Verschueren, 157–299. Amsterdam: John Benjamins. https://doi.org/10.1075/hoph.3.11san

van Silfhout, Gerdineke, Jacqueline Evers-Vermeul, and Ted Sanders. 2015. "Connectives as Processing Signals: How Students Benefit in Processing Narrative and Expository Texts". *Discourse Processes* 52(1): 47–76. https://doi.org/10.1080/0163853X.2014.905237

Zunino, Gabriela. 2014. "Cognitive Perspectives On Discourse Processing: Causality and Counter-Causality." *Signos Lingüísticos* 10: 154–171.
Zunino, Gabriela, Valeria Abusamra, and Alexander Raiter. 2011. "Articulación entre conocimiento del mundo y conocimiento lingüístico en la comprensión de relaciones causales y contracausales: el papel de las partículas conectivas". *Forma y Función* 25: 15–34.

Appendix 1. Example of the first experimental list

Token set 1. Variable a

Context	*Marta y David son un joven matrimonio que disfruta mucho de su tiempo libre. Se conocieron en un grupo de senderismo.* 'Marta and David are a young couple who really enjoy their free time. They met in a hiking group.'
Critical stimulus	**Marta y David practican mucho deporte. Por tanto, están sanos.** (Salen a correr por el parque todas las tardes.) '**Marta and David do a lot of sport. Therefore, they are in good health.** (They go running in the park every afternoon)'
Filler	Los fines de semana hacen excursiones en bicicleta por la montaña. 'On the weekends they make mountain bike trips.'

Token set 2. Variable b

Context	*María y Carlos son dos niños de cinco años que se pasan el día comiendo.* 'María and Carlos are two children, they are five years old and spend all the day eating.'
Critical stimulus	**María y Carlos comen mucho dulce. Están gordos.** (El médico quiere ayudarles a cambiar su alimentación.) '**María and Carlos eat a lot of candy. They are fat.** (The doctor wants to help them change their diet.)'
Filler	Sus padres les regañan constantemente por comer tantas golosinas. 'Their parents constantly scold them for eating so many goodies.'

Token set 3. Distractor

Context	*Luis y Pablo son hermanos y vienen de una familia rica. El año pasado heredaron mucho dinero y algunas propiedades.* 'Luis and Pablo are siblings and come from a rich family. Last year they inherited a lot of money and some properties.'
Distractor	**Luis y Pablo tienen pocos problemas. Los dos viven felices.** (Han tenido mucha suerte en la vida.) '**Luis and Pablo have few problems. Both live happily**. (They have have been very lucky in life.)'
Filler	Solo trabajan por hobby en la bodega familiar, así que tienen mucho tiempo para viajar. 'Their hobby is to work at the family winery, so they have a lot of time to travel.'

Token set 4. Distractor

Context	*Juan y Ana son un matrimonio que vive en un pueblo y tiene varios huertos.* 'Juan and Ana are a couple that lives in a village and has several orchards.'
Distractor	**Ana y Juan toman mucha fruta. Por eso están sanos.** (Hace mucho tiempo que no van al médico.) '**Ana and Juan eat a lot of fruit. That's why they are healthy.** (They have not been to the doctor for a long time.)'
Filler	Llevan una vida tranquila y sin sobresaltos. 'They lead a quiet life without frights.'

Appendix 2. Mixed models

Table 4. Total reading times

Area of interest	Estimate	Std. error	Pr(>|t|)
Intercept	228.77	13.68	
Conceptual meaning word *por tanto*	−2.48	16.43	0.0879
Average utterance word *por tanto*	25.96	16.43	0.0115
Average utterance word Ø	−12.89	17.63	0.0465
DM1 *por tanto*	7.33	16.43	0.0655
DM1 Ø	5.02	17.63	0.0761
DM2 *por tanto*	−4.90	16.43	0.0657
DM2 Ø	−57.09	17.63	0.0001
Connective *por tanto*	97.55	16.43	<0.0001

Table 5. First-pass reading times

Area of interest	Estimate	Std. error	Pr(>|t|)
Intercept	179.56	11.15	
Conceptual meaning word *por tanto*	−45.51	13.55	<0.0001
Average utterance word *por tanto*	30.46	13.56	0.0027
Average utterance word Ø	−14.29	14.59	0.0305
DM1 *por tanto*	11.67	13.56	0.0392
DM1 Ø	6.35	14.59	0.0664
DM2 *por tanto*	8.81	13.56	0.0517
DM2 Ø	−45.09	14.59	0.0002
Connective *por tanto*	89.94	13.56	4.2877

Table 6. Second-pass reading times

Area of interest	Estimate	Std. error	Pr(>|t|)
Intercept	49.31	12.28	
Conceptual meaning word *por tanto*	42.83	15.83	0.0008
Average utterance word *por tanto*	−4.69	15.83	0.0001
Average utterance word Ø	1.10	17.03	0.0948
DM1 *por tanto*	−4.53	15.83	0.0775
DM1 Ø	−1.62	17.03	0.0924
DM2 *por tanto*	−13.91	15.83	0.0382
DM2 Ø	−12.29	17.03	0.0473
Connective *por tanto*	7.01	15.83	0.0659

PART III

Combined approaches

CHAPTER 10

Subjectivity and Causality in discourse and cognition

Evidence from corpus analyses, acquisition and processing

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Cognitively oriented linguists have various linguistic resources at their disposal, and therefore need to develop methodological strategies of when to use which method. This chapter illustrates the benefits of using converging evidence. We review research results from several methodologies, including the use of corpus-based, acquisition and processing data, in order to illustrate what kinds of insights this brings at the level of discourse. The results suggest that Causality and Subjectivity are two basic cognitive notions that organize our knowledge of coherence relations. They help us explain the system and use of causal relations and their linguistic expressions in everyday language use, and they account for discourse processing and representation, as well as the acquisition order of connectives.

Keywords: Causality, coherence relations, connectives, converging evidence, corpus-based research, discourse, language acquisition, discourse processing, language use, Subjectivity

1. Discourse, coherence and subjectivity

Over the last decade, new resources have become available in the field of linguistics, varying from large newspaper corpora to corpora of spontaneous spoken language and dense child language data. In addition, various corpus-based and experimental psycholinguistic methods have shown an increase in popularity, including corpus-based studies in different genres and media, and reading experiments with eye tracking. It is of crucial importance for cognitively oriented linguists to seek and use these resources, but also to develop a methodological strategy of when to

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use which method, and to determine how various methods complement each other (see Gibbs 2007; Gilquin and Gries 2009; Sandra and Rice 1995).

In this chapter, we underpin this claim by illustrating the benefits of using converging evidence. We review results from previous research that employed different types of methodologies, including the use of corpus-based, acquisition and processing data, in order to illustrate what kinds of insights this brings at the level of discourse (see Gries, Hampe, and Schönefeld 2005 for an example at the level of morpho-syntax). Discourse is a crucial level in all types of human linguistic communication. One frequently expressed type of coherence relation is that of Causality. For example, in all three utterances in (1) to (3) some type of Causality is involved. In (1) we are dealing with a CONSEQUENCE-CAUSE relation that exists between events in the world, (2) expresses a CLAIM-ARGUMENT relation in a speaker's reasoning process, and (3) presents a directive and the speaker's reason for producing it.

(1) *Many buildings have collapsed. There was an earthquake in Northern California.*

(2) *Daan must have left. His bike is gone.*

(3) *Do hurry up now, Willem! School starts in 10 minutes!*

Examples (1) and (3) are presented in a backward causal order, that is, with the *consequens Q* expressed in the first clause (S1), preceding the *antecedens P*, expressed in the second clause (S2). However, causal relations can also be linguistically realized the other way around, in a forward causal order: [*antecedens P*, *consequens Q*]. Compare Examples (4) to (6) to illustrate the forward causal "sisters" of (1) to (3).

(4) *There was an earthquake in Northern California. Many buildings have collapsed.*

(5) *His bike is gone. Daan must have left.*

(6) *School starts in 10 minutes! Do hurry up now, Willem!*

In English, all three subtypes of causal relations in (1)–(3) can be made explicit with the connective *because*, just like all three types in (4) to (6) can be expressed with *so*, thereby illustrating the commonalities between the three utterances in these sets of examples: they express a conceptual relation of Causality.

Sweetser (1990) has introduced the categories of content, epistemic and speech-act use to describe the three subtypes of causal relations, for conjunctions such as *because* and *since*, as exemplified in (7)–(9).

(7) *John came back* ***because*** *he loved her.*
(i.e., the loving caused the return)

(8) *The neighbors are not at home* ***because*** *the lights are out.*
(i.e., the observation that the lights are out causes the conclusion that the neighbors are away)

(9) ***Since*** *you're so smart, when was George Washington born?*
(i.e., the question is presumed to be motivated or enabled by the addressee's claim to superior intelligence)

Similar distinctions have been prominent in classifications of coherence relations – meaning relations that exist between discourse segments – such as CAUSE-CONSEQUENCE relations between events, as opposed to the relationship between premises or arguments in a CLAIM-ARGUMENT or CONCLUSION (ARGUMENT-CLAIM) relation (Sanders and Spooren 2009b; Sanders, Spooren, and Noordman 1992). Focusing on the identification of categories of coherence relations, these studies have shown how people are sensitive to a similar contrast: that between content relations (also called ideational, external, or semantic relations), epistemic relations, and speech-act relations.

Over the last twenty years, it has been repeatedly argued that distinctions such as content, epistemic and speech-act domains can be described in terms of Subjectivity or Speaker Involvement (Pander Maat and Degand 2001; Pander Maat and Sanders 2000, 2001). In such an approach, content relations such as CAUSE-CONSEQUENCE are considered objective, because the speaker is not involved, apart from his role as narrator. Epistemic and speech-act relations are considered subjective because the speaker is clearly involved, on top of his role as narrator.

The distinction between coherence among events in the world on the one hand, and coherence realized by the communicative acts or reasoning of the speaker on the other, can be found in many taxonomies and categorizations of coherence relations (Kehler 2002; Knott and Dale 1994; Mann and Thompson 1988; Martin 1992; Sanders 1997; Sanders et al. 1992). In addition, the importance of the concept of Subjectivity in determining linguistic phenomena has been widely attested (see, among many others, Athanasiadou, Canakis, and Cornillie 2006; Langacker 1990; Lyons 1995; Traugott 1995; Stein and Wright 1995; Verhagen 2005).

Traugott (1995: 31) defines "subjectification" as the process through which "meanings become increasingly based in the speaker's subjective belief state/attitude toward the proposition." Consequently, an utterance is subjective if it requires reference to the speaker (Lyons 1995) or some other source of information in its interpretation, and objective if it does not. In other words, the interpretation of subjective utterances requires an active *Subject of Consciousness* (SoC). This SoC is the thinking entity in the discourse who evaluates. For instance, *Utrecht is great* is subjective because it involves an evaluation by the speaker who is the SoC. Compare this with an utterance like *Utrecht is a city in the Netherlands*, which is presented as a fact in the world that does not depend on the evaluation by an SoC. In addition, we adopt Langacker's (1990) insight that implicit reference (*Utrecht is great*) versus explicit reference to the SoC (*I think Utrecht is great*, *Bob thinks Utrecht is great*) is a

crucial aspect of Subjectivity. Hence, we use an integrative approach to subjectivity (Sanders and Spooren 2009a, 2013, 2015).

Causality is a basic category in human cognition and natural language. Starting from the idea of a direct link between linguistic and cognitive categorization, we will argue that Causality can be subdivided into different subtypes, using Subjectivity to arrive at fine-grained distinctions. In such a view, the notion of Subjectivity is orthogonal to the notion of Causality: it is in terms of Subjectivity that languages "cut up" the pie of causality. The central hypothesis is that, together, the basic notions of Causality and Subjectivity account for causal coherence and connective use, and play a pivotal role in explaining the processing and representation of discourse. Presenting converging evidence, this chapter provides an overview of studies in which this hypothesis is tested empirically. If categorizations of coherence relations have real cognitive significance, they should prove relevant in areas such as written language use (see Section 2), language use in other media (Section 3), discourse processing (Section 4), and language development (Section 5).

Of course, a similar line of reasoning on converging evidence could be and actually has been developed for other basic cognitive notions as well. For instance, Evers-Vermeul, Hoek and Scholman (2017) have shown the relevance of Temporality as a basic cognitive notion for which converging evidence can be found. However, here we focus on Causality, which is often argued to be of vital importance for discourse representation, even though other types of relations, such as additive, contrastive and temporal ones, are often more frequent. The special status of causal relations in general is clear, in both processing and acquisition (see Sanders and Spooren 2009a for an overview). For that reason, we focus on causal subcategories, defined in terms of Subjectivity.

2. Subjectivity in written language use

Many languages of the world have connectives to express causal relations at the discourse level (see Diessel and Hetterle 2011, who analyzed causal clauses in 60 languages from typologically different language families). Language users often systematically prefer one lexical item over another (even highly similar) one to express a certain type of coherence relation. Speakers of English, for example, can choose between *because* and *so* if they want to linguistically mark respectively their backward and forward causal expressions. A systematic use of particular lexical items to express a certain type of causal relationship implies that language users distinguish between several types of causality. Hence, such choices provide a window on speakers' cognitive categorizations of Causality. Therefore, the linguistic study

of the meaning and use of causal connectives may provide insights into human categorization of Causality (Sanders and Sweetser 2009).

In the field of discourse connectives, we have witnessed a rise in corpus studies investigating ideas about the organization of the lexicon of connectives in several languages since the mid-1990's, seeking to find the system behind the meaning and use of causal and other types of connectives (see Andersson 2016, this volume; Degand, this volume; and the contributions to Couper-Kuhlen and Kortmann 2000; Knott, Sanders, and Oberlander 2001; Risselada and Spooren 1998; Sanders, Schilperoord, and Spooren 2001; Spooren and Risselada 1997). This has led to empirical tests on actual language use of the challenging theories and hypotheses regarding Subjectivity as a cognitive principle of categorization (see several contributions to Sanders and Sweetser 2009).

In this section, we are interested in the system behind the meaning and use of causal connectives. We start out with a review of studies on the Dutch language in written corpora (Section 2.1). Then, we ask how different these choices in Dutch are from the ones made by speakers of other languages, such as English, German, French and Chinese (Section 2.2).

2.1 How Subjectivity defines categories of Dutch causal connectives

Several corpus-based studies have revealed how the lexicon employed by Dutch language users illustrates the categorical distinctions discussed in Section 1. Most studies followed a similar methodology: text fragments were selected to form a newspaper corpus, consisting of different text types: argumentative/persuasive as well as descriptive/informative texts, and then, paraphrase and substitution tests were conducted (Knott and Sanders 1998; Sanders 1997). This usually involved three steps. First, the possible relational interpretations of fragments were determined *without* connectives, by examining possible and impossible paraphrases using explicit connectives (*John wanted to leave. He was tired.* might be paraphrased as *John wanted to leave because he was tired*). Then, it was investigated how often a given connective expressed a certain relation in corpus data. In the final step, it was checked whether the original connective could be replaced by another. This substitution method is a way of testing semantic intuitions (Knott and Dale 1994; Knott and Sanders 1998). The questions are: Does substitution lead to a sequence that is still acceptable? And, if so, does the relational interpretation change as a result of this substitution?

Using this method, the meaning and use of *dus* 'so', *daarom* 'that's why' and *daardoor* 'as a result' were investigated (see Degand 2001; Pander Maat and Degand 2001; Pander Maat and Sanders 2000, 2001; Stukker 2005). The Dutch equivalents

of Examples (4)–(6) illustrate the use of these connectives: *daardoor* would typically occur in an example such as (10), *dus* would be used to connect the segments of (11) and (12).

(10) *Er was een aardbeving in Noord-Californië.* ***Daardoor*** *zijn veel gebouwen ingestort.*
'There was an earthquake in Northern California. *As a result*, many buildings have collapsed.'

(11) *Zijn fiets is weg.* ***Dus*** *Daan moet wel vertrokken zijn.*
'His bike is gone. *Therefore*, Daan must have left.'

(12) *Over 10 minuten begint de les!* ***Dus*** *schiet nu eens op, Willem!*
'School starts in 10 minutes! *So* do hurry up, Willem!'

(13) *Het was heerlijk weer.* ***Daarom*** *ging Jan zwemmen.*
'The weather was wonderful. *That's why* Jan went swimming.'

Example (13) is a prototypical context in which *daarom* 'that's why' likes to live: these are of a specific type of content relations, expressing intentional actions by human agents, so-called volitional content relations. This type of content relation can be set apart from the non-volitional content type exemplified in (10), where the CAUSE-CONSEQUENCE relation arises in the real world without human intervention.

The findings on the types of relations the three connectives can and actually do express, can be summarized as follows (Pander Maat and Sanders 2000; Stukker, Sanders, and Verhagen 2009):

- *daardoor* can only express relations of the content non-volitional type;
- *dus* can express volitional content, and epistemic relations, but not non-volitional content relations. It most often expresses epistemic relations;
- *daarom* can express content and epistemic relations. It most often expresses volitional content relations.

Note that speech-act relations are absent from this overview, because they did not appear in the corpora of written text that were under investigation.

For Dutch, a similar division of labor has been found for connectives marking backward causal relations as for forward causals:

- *doordat* 'because of the fact that' is specialized in non-volitional content relations;
- *omdat* 'because' is mainly used in volitional content relations;
- *want* 'because/for' is predominantly used in epistemic and speech-act relations.

In Dutch, the connective *doordat* would be used in (1). The connective *want* would be used to express the causality in (2) and (3), which could simply not be expressed

using *doordat* or *omdat* (Degand 2001; de Vries 1971; Evers-Vermeul 2005; Pit 2006; Sanders and Spooren 2013, 2015; Verhagen 2005). *Omdat*, on the other hand, would typically be used to express examples such as (7). In Sections 3.1 and 3.2 we will elaborate on this division of labor between *omdat* and *want*.

All in all, the data on the use of Dutch connectives in written corpora indicate that Dutch language users are sensitive to the subjective-objective distinction, which underscores the cognitive relevance of Subjectivity.

2.2 How Subjectivity is relevant cross-linguistically

Attractive as the view on connectives as acts of linguistic categorization may be, there are several remaining questions to consider. One of them concerns English *because*: this is *the* example of a connective that does not live up to linguistic categorization in terms of Subjectivity: as is shown in Examples (4)–(6), it can express content, epistemic as well as speech-act relations (Ford 1993; Knott and Sanders 1998; Sweetser 1990). If Subjectivity is a central cognitive notion, we would expect it to be relevant not only in Dutch, but in the linguistic marking of other languages as well.

Some first indications on the cognitive relevance of Subjectivity in other languages come from anecdotal English examples: the English connective *since* seems to be specialized in epistemic relations such as (2). And speakers of English seem to reserve *therefore* for epistemic relations – it fits in (5), but not in (4) and (6).

More systematic indications come from various other languages that do not have such a "general" causal connective as *because*: other European languages seem to have a more restrictedly organized lexicon than English has – their lexica seem to display several "specialist" connectives, which *do* illustrate the idea of linguistic categorization, for both backward and forward causals. In fact, several cross-linguistic studies have suggested that distinctions such as content-epistemic-speech act are useful to describe the organization of the lexicon of causal connectives in Western languages such as German and French (Evers-Vermeul et al. 2011; Pit 2003, 2006; Stukker and Sanders 2012; see also Andersson; Degand, this volume) and a typologically different language, Mandarin Chinese (Li, Evers-Vermeul, and Sanders 2013; Li, Sanders, and Evers-Vermeul 2016).

For example, Li et al. (2016) have shown on the basis of a corpus study with news reports, novels and opinion pieces that Chinese *jiran* 'because' and intersentential *yinwei* 'because' display robust subjective profiles across genres, whereas *youyu* 'because' and sentence-initial *yinwei* mainly express objective relations.

Stukker and Sanders (2012) reanalyzed data from previous corpus studies on written French, German and Dutch causal connectives. Studies were included in the analysis under the conditions that distributions over categories are reported quantitatively (absolute numbers or percentages), and, obviously, that their categories

of analysis could be directly mapped onto the categories of objective and subjective causality. The results supported the cross-linguistic validity of the notion of Subjectivity: French, German and Dutch causal connectives are sensitive to this conceptual distinction in parallel ways: *parce que*, *weil* and *omdat* are generally characterized as objective, whereas *car*, *denn* and *want* are characterized as subjective (see for French: Anscombre and Ducrot 1983; Degand and Pander Maat 2003; Groupe λ-1 1975; Zufferey 2012; see for German: Günthner 1993; Keller 1995; Pasch 1983; but see also Wegener 2000). All of these connectives are clearly specializing in only one category.

French *car*, German *denn* and Dutch *want* have a robust preference for subjective causal relations, across studies and across contexts of use. But the picture arising from the objectively oriented causal connectives French *parce que*, German *weil* and Dutch *omdat* appeared somewhat more complicated. Their distribution patterns across text genres and sometimes within genres and across studies were less consistent. However, the "counterexamples" show certain deviating characteristics that are still related to Subjectivity. The most important of these is that the semantic-pragmatic profile of the connective's prototypical use also plays a central role in the non-prototypical contexts. As a result, the "counterexample" contexts show a systematic pattern of ambiguity for causality type (Sanders and Spooren 2013; Stukker and Sanders 2012).

In conclusion we can say that across languages, causal coherence relations and their linguistic markers show similarities (in the expression of Causality) as well systematic differences (in the expression of different domains of Causality) thereby underlining the idea that Subjectivity is conceptually relevant. Methodologically, it is important to take genre variation into account when studying connective profiles (Stukker and Sanders 2012; Li et al. 2013, 2016).

3. Subjectivity in other types of language use

In most corpus studies discussed so far, data from written corpora were used. There is a certain urgency to add other data to the empirical foundation of theories on the categorization of connectives (Sanders and Spooren 2015). Some studies of spontaneous conversations suggest a typical usage pattern of causal connectives in conversations. For instance, Günthner (1993) and Keller (1995) demonstrated that German *weil* 'because' can express epistemic relations in spontaneous conversations, whereas in written language it seems to be reserved for the content domain. Similarly, Zufferey (2012) concludes that French *puisque* 'because/since' has a strong preference for epistemic use in telephone conversations. Such results show that written language as the only basis for analysis may lead to a distorted

picture. A principled point is that written language deviates from the prototypical communicative situation that spontaneous conversations provide in several respects (Clark 1996). It is for these reasons, that over the last few years we have investigated the meaning and use of causal connectives across media and genres. In this section, we first compare the use of causal connectives in written and spoken corpora to that in chat corpora (Section 3.1), and then focus on connective use in spoken language (Section 3.2).

3.1 Connectives in corpora of language use

Sanders and Spooren (2015) provide a detailed and rigorous empirical study on the semantics and pragmatics of the Dutch backward causal connectives *want* and *omdat* in a large corpus of naturally occurring language from various media. This is a case in point of how the study of other media sheds light on the role of cognitive notions such as Subjectivity. They took an integrative empirical approach to the study of subjectivity, decomposing the complex construct of subjectivity into four characteristics (see Li et al. 2013, 2016 for a similar approach) and investigating to what extent these characteristics co-occur:

1. Propositional attitude of the segment. Segments were analyzed as expressing either a judgment (subjective) or another propositional attitude, such as fact, perception, experience (objective). A judgment presents or implies an SoC – the person responsible for the causal relation. It often contains a so-called scalar predicate (it can be modified with degree expressions, such as *very much X*; *more than X*), which is a judgment because it can be paraphrased with "I believe/feel that…"
2. Type of relation. The causal relation expressed in each fragment was analyzed in terms of domains (Sweetser 1990): content, epistemic and speech-act relations. Within the content relations, volitional and non-volitional relations were distinguished (Mann and Thompson 1986; Stukker, Sanders, and Verhagen 2008): Does the relation involve an intentional act or not?
3. The type of SoC. There can be either no SoC, or the SoC is a first, second or third person.
4. The linguistic realization of the SoC. There can be an explicit reference to the SoC, or the SoC can remain implicit.

Sanders and Spooren analyzed a corpus of written, spoken and chat discourse. Their main hypothesis was that *want* occurs in more subjective contexts than *omdat*, irrespective of the medium. The main results of their corpus research were as follows. Across media,

- *want* is used more often to support a judgment than *omdat*;
- *want* is used more often to express subjective relations (epistemic, speech act) than *omdat*;
- *want* is used more often with first and second person SoCs than *omdat*;
- *want* is used more often with an implicit SoC than *omdat*.

In other words, *want* and *omdat* displayed a clearly different usage pattern. *Want* has the following semantic-pragmatic profile (Sanders and Spooren 2015):

> *Want* instructs the reader to find the nearest SoC, and to create a causal connection "P → Q" between S2 (expressing P) and S1 (expressing Q); the SoC is responsible for this connection. The connection is a non-content relation: epistemic (CLAIM-ARGUMENT, EVIDENCE) or speech act.

This prototypical usage is illustrated in (14) and (15). Fragment (14) is taken from a Dutch newspaper story about the English football player Tony Adams, who is the SoC and speaker in this fragment. In S1 Adams (Speaker=SoC) draws a conclusion about someone else's behavior (*he* – notably football player David Beckham) and explains this conclusion on the basis of knowledge of an ongoing state of affairs, signaled by *want*, expressing an epistemic relation.

(14) *Want* expressing an epistemic relation
[S1 *Ik weet niet meer wat hij zei maar hij moet het gewaardeerd hebben*], ***want***
[S2 *hij heeft er sindsdien vaak over gesproken*]
'I don't know what he said but he must have appreciated it *want* he spoke of it often since then'

Fragment (15) is part of a chat conversation between two middle school students, in which one asks a question and subsequently provides the reason for asking this question. This is a prototypical example of a speech-act use of *want* in chat. The relation can be paraphrased as "I ask you what your address is and the reason for my asking (speech act) is that I do not have the address."

(15) *Want* expressing a speech-act relation
maarre tim… [S1 *wat's jou egte adres*]
'But eh tim … what is your real address'
want [S2 *die heb ik niej*]
'*want* I don't have it (lit. that have I not)'

The subjectivity profile of *omdat* is different:

> *Omdat* instructs the reader to create a causal connection "P → Q" between S2 (expressing P) and S1 (expressing Q). The connection is a content relation (volitional or non-volitional cause).

Example (16) is a prototypical example of *omdat* expressing a content relation. Fragment (16) is from the spoken corpus, more specifically an interview with a school teacher who explains how he arrived at this school. S1 expresses a volitional action, which is explained in S2; the two segments are connected with *omdat*, expressing a content-volitional relation ("the reason was…").

(16) *Omdat* expressing a volitional content relation
maar [S1 ik ben m wel hier meteen uh op school uh terecht gekomen na mijn examen van de PA]
'but I did m manage uh to go to this school immediately uh after my final examination at the teacher training college'
omdat [S2 mij dat gevraagd werd om hier les te komen geven en ik daar wel trek in had.]
'*omdat* I was asked to teach here and I felt like doing it'

3.2 Subjectivity in spoken language

Section 3.1 illustrated how the study of media other than written corpora may shed additional light on the cognitive relevance of notions such as Subjectivity. Below, we focus on the systematic study of spoken discourse. At present, we only have limited results on non-written connective use (Couper-Kuhlen 1996; Ford 1993; Gohl 2000; Huiskes 2010), but it is clear that connectives in spoken discourse not only express coherence relations, but also function as discourse markers, indicating the hierarchical or sequential structure of the conversation (Redeker 1990; Schiffrin 2001). English *so*, for instance, is known to signal the move from a digression back to the main line of the conversation. Even *because* can be used in such a way that it conveys no propositional information, but merely functions as a means of "doing continuation" (Schleppegrell 1991: 328).

More importantly, spoken discourse allows us to consider other linguistic levels on which categorization can be expressed. For instance, prosody and grammar may be expected to provide crucial information on the interpretation of coherence relations. Specifically, many linguists going back to Rutherford (1970; but see also Chafe 1994; Ford 1993) have noted that English *because*-clauses show different intonation patterns: a set of cases is characterized by comma intonation. In fact, Couper-Kuhlen (1996) has argued that subjective (epistemic and speech-act) uses of English *because* are indeed recognizable in spoken discourse and show specific intonation contours, with declination reset, whereas objective (content) cases do not. This prosodic realization of objective cases suggests the *because*-clause belongs to the prior clause, whereas the subjective cases may appear more like separate units. Couper-Kuhlen (1996) did a preliminary corpus study, and the prediction

that subjective *because*-clauses show a systematically different prosodic pattern from objective relations would definitely be worthwhile.

Interestingly, recent studies of spoken Dutch *want* and *omdat* (Huiskes 2010; Persoon et al. 2010; Spooren et al. 2010) not only suggest that *omdat* is more subjective in spoken than in written language, but also that spontaneously spoken *omdat* can appear in main instead of in subordinate clause order, as is illustrated in (17) (taken from Persoon et al. 2010: 259). This word order is extremely rare in written language and is in fact considered ungrammatical in Dutch.

(17) *Het bedrijfsleven vind ik niks voor Carl,* ***omdat*** *hij is veel te wisselvallig*
'Business is nothing for Carl, because he is much too precarious'

Main clause order is prototypical for independent discourse acts, which can have their own speech-act status and epistemic stance, two prototypical features of subjective relations. Persoon et al. (2010) and Huiskes (2010) suggest that *omdat* with main clause order may indeed be restricted to subjective causal relations, cases where one would expect *want*. Are we looking here at the same type of development that has been reported for German? According to some linguists, the subordinate connective *weil* seems to be taking the position of the coordinate connective *denn*, so it also gets main clause word order (Keller 1995). This development was also first found in the analysis of spontaneous discourse (Günthner 1993). These and similar findings show how important it is to study causal connectives in spoken discourse.

4. Subjectivity in the processing of coherence relations

If differences in Subjectivity indeed define various conceptual subcategories of causality, this should become clear in processing patterns. Subjective causal relations have been considered to be more complex than objective causal relations (Noordman and De Blijzer 2000; Sanders et al. 1992). Indeed, several processing studies (Traxler, Bybee, and Pickering 1997; Traxler, Sanford, Aked, and Moxey 1997; Canestrelli, Mak, and Sanders 2013) have shown that subjective causal relations such as (19) lead to longer processing times compared to objective causal relations such as (18). In experiments with English *because*, this effect appeared at the words *didn't score* in these examples, the position in the sentence where the reader can infer the type of causal relation from the propositional content (see for experiments with causal connectives in Spanish: Nadal and Recio, this volume).

(18) *The goalkeeper won the game because the other team didn't score any goals.*

(19) *The goalkeeper knew how to play the game because the other team didn't score any goals.*

When processing coherence relations, people are sensitive to differences between subjective and objective relations, thereby underpinning the relevance of Subjectivity as a cognitive notion. Canestrelli, Mak and Sanders (2013) have shown that readers are also sensitive to subtle linguistic cues when determining the status of a causal relation as being subjective or objective. In Dutch, the status of the sentence can vary as a function of the connective that is used, as the Dutch counterparts of the goalkeeper example in (20) and (21), and the causal continuations in (22) and (23) illustrate (Examples (18)–(23) taken from Canestrelli, Mak and Sanders 2016: 56).

(20) *De keeper won,* ***omdat*** *het andere team geen doelpunten scoorde.*

(21) *De keeper was heel goed,* ***want*** *het andere team scoorde geen doelpunten.*

(22) *De verwarming is kapot,* ***want*** *het is koud in huis.*
'The heating is broken because the house is cold.'

(23) *De verwarming is kapot, omdat het koud is in huis.*
'The heating is broken because the house is cold.'

Canestrelli and colleagues (2013) have shown that these Dutch connectives provide immediate instructions about the type of causal relation they mark. In (22), *want* triggers the representation of a CLAIM-ARGUMENT relation, in which the speaker concludes that the heating is broken on the basis of the fact that the house is cold. In (23), *omdat* triggers the representation of a CONSEQUENCE-CAUSE relation; it forces the (rather odd) interpretation that the heating is broken as a result of the cold. Canestrelli et al. (2013) derived the roles of connectives as processing instructions from a set of eye-tracking experiments involving objective and subjective relations such as (20) and (21). The subjective connective *want* was found to induce longer processing times compared to the more objective connective *omdat*. This effect arose at the connective itself and at the first words immediately following it – in (20) and (21) *het andere team* 'the other team'. At this point in the sentence, readers do not yet have enough information to construct the causal relation on the basis of the propositional content, which shows that the effect is caused by the semantic-pragmatic properties of the connectives. On the basis of further experiments, Canestrelli, Mak and Sanders (2016: 57) claim that "the relative complexity of these [i.e., subjective] relations has to be related to the representation of S1 as someone's reasoning, rather than an actual event in the world" and that the construction of this representation comes at a processing cost.

Comparable results were found in a reading experiment by Li et al. (2017) that focused on Chinese forward causal connectives. In clauses with a subjective causal relation such as (24), readers slowed down at the end of the second segment in the condition with a *so*-like connective that is not specified for subjectivity, *suoyi* 'so',

compared to a condition with the specific subjective connective *kejian* 'so/therefore'. In objective relations such as (25), Li and colleagues did not find a late difference between objective relations marked with *yin'er* 'so/as a result' – a connective that triggers a CAUSE-CONSEQUENCE relation – compared to relations marked with the underspecified connective *suoyi* 'so' (examples taken from Li et al. 2017: 51).

(24) *Meng Na na tiao kuzi xianzai xiande hen fei,* ***suoyi/kejian*** *ta bi yiqian shou le bu shao.*
'That (old) pair of trousers now look very baggy on Meng Na, *so*/*therefore* she has become much thinner now than before.'

(25) *Meng Na yi nian lai baoshou weibing de zhemo, suoyi/yin'er ta bi yiqian shou le bu shao.*
'For a year Meng Na has been suffering from stomach trouble, *so*/*as a result* she has become much thinner now than before.'

Li et al. (2017) attributed the processing cost to the cognitive complexity of Subjectivity. In the *suoyi* condition in (24), the subjectivity information is not explicitly marked by the connective, and people have to derive from the propositional content that they are dealing with some kind of reasoning. Compared to the counterpart marked with *kejian*, where the connective already indicates the subjective nature of the relation, this process leads to an increase in reading times in the *suoyi* condition.

One could wonder whether knowledge about the genre to which a text belongs creates expectations about the involvement of the speaker in the statements that are presented in the text, thereby posing an alternative explanation to findings on local coherence relations, such as the ones presented by Canestrelli et al. (2013) and Li et al. (2017). Several researchers have assumed that such global expectations guide the cognitive activities involved in text comprehension processes as well as the ways in which readers represent discourse information in memory (see Zwaan and Rapp 2006 for an overview; see also Steen 2011). And Sanders (1997) has actually shown that the interpretation of causal relations that are ambiguous between a subjective and an objective interpretation is affected by the genre of the text. His results revealed that, for such ambiguous cases, descriptive texts lead to more objective interpretations while argumentative texts lead to more subjective interpretations.

Canestrelli and colleagues (2016) explored whether the documented processing asymmetry between *want* and *omdat* would be smaller, or even canceled out, if the text belongs to a genre that makes clear that the text should be interpreted as a personal opinion. They found that the presence of evaluative adjectives and adverbs such as *terribly*, *fantastic* and *ridiculous* at the beginning of a text, which indicate that the author is emotionally involved in the matter under discussion (Thompson and Hunston 2000), led to longer processing times of subsequent text

regions compared to texts with the same information but without being preceded by such evaluative markers. Overall, readers appeared to take more time to interpret information that is embedded in a subjective genre. Crucially, however, genre did not affect the processing of subjective causal relations: an immediate disadvantage in processing time was observed immediately after *want* compared to *omdat* in both the subjective and the objective genre under investigation. That is, the activation of an argumentative genre does not facilitate readers' representation of a subjective CLAIM-ARGUMENT relation. As Canestrelli et al. (2016:70) conclude,

> the cognitive processes underlying the processing difficulty of subjective compared to objective causal relations, as marked by *want* and *omdat*, is related to a modification of a particular utterance as a conclusion or claim,

and that "the relative complexity of subjective relations seems to be inherent to these relations and does not depend on the context of the genre." This underscores the importance of Subjectivity at the level of local coherence relations.

5. Subjectivity in language development

If Subjectivity is a basic cognitive notion, we expect the causal categories to be relevant for the way in which children acquire connectives and relations. More precisely, we expect the conceptual categories to show a different pattern in acquisition. Most children build their first multi-clause discourse before the age of three; instead of uttering one clause at a time, they start producing combined clauses (Clark 2003). At first, the coherence relations between these clauses remain implicit. Later, children learn how to use connectives to make coherence relations explicit. Both naturalistic and experimental studies of first language acquisition show that additive relations are acquired before causals, and that children produce additive connectives before causal connectives (Bloom et al. 1980; Evers-Vermeul and Sanders 2009; Spooren and Sanders 2008).

In terms of children's understanding of different types of Causality, the picture has long been less clear (Sanders and Spooren 2009a). As Evers-Vermeul, Bogaerds-Hazenberg and Sanders (2016) have shown, many experimental acquisition studies do not distinguish between different types of causal relations and connectives. In addition, experimental items designed to test children's early understanding of causality often display differences in order of the segments as well, which in turn frequently affects the type of Causality involved. For example, the content relation in (26) is turned into an epistemic relation if the order of the segments is reversed, as in (27).

(26) *The kite flew because the wind blew.*

(27) *The wind blew because the kite flew.*

Naturalistic and experimental studies that do discriminate different types of Causality have been found to contradict each other, but this is probably due to differences in the contexts in which data were collected (Evers-Vermeul and Sanders 2011; Spooren and Sanders 2008); the type of relations children produce depends on the communicative setting. For instance, in an argumentative task, children use more subjective relations, whereas in a narrative, objective relations prevail.

For example, Kyratzis, Guo and Ervin-Tripp (1990) found that in English, speech-act causal relations are frequent even at a very early age, whereas epistemic causal relations are acquired very late. The latter hardly occur, even in their oldest age group of 6;7- to 12;0-year-olds, but this is probably a consequence of the fact that their data were collected in a context heavily biased toward speech-act relations. Other studies show that subjective relations that involve reasoning are acquired later than objective relations involving descriptions of causal chains in the real world, thereby underpinning the cognitive relevance of Subjectivity. For Dutch 6- to 11-year-olds, Spooren and Sanders (2008) report how younger children use proportionally more objective content relations than older children do. And in a longitudinal corpus study among Dutch children aged 1;6–5;6, Evers-Vermeul and Sanders (2011) show that children as young as 2;8 are able to produce causal connectives in the content and the speech-act domains, but that the epistemic domain is acquired later. Studying the acquisition of French *parce que* in the Childes database, Zufferey (2010) replicated these findings: children acquire the epistemic use later than content and speech-act uses.

However, children appear to be sensitive to all types of causal relations from very early on. In two experiments, Dutch children aged 3;1–6;0 had to describe causally related events, argue with and instruct a hand puppet (Evers-Vermeul and Sanders 2011). These experiments revealed that even three-year-olds can produce causal connectives in all three domains, illustrating again that the communicative setting in which data are collected is important.

In a growth-curve analysis of English and German acquisition data, in which the role of parental input was also taken into account, van Veen (2011; van Veen et al. 2014) found that objective causal relations are acquired first, with volitional content relations developing ahead of non-volitional content relations. The subjective relations are acquired last. The exact order in which speech-act and epistemic relations are acquired, however, is not that clear-cut. The data underestimated children's development of elicited speech-act relations, which made a fair comparison of epistemic relations and speech-act relations impossible.

This developmental pattern can be explained as follows: children first learn causality by acting as human agents, then begin to grasp the notion of non-volitional causality, upon which they begin to understand that other partners in communication have their own minds and their own intentions (see Theory of Mind), to which they have to relate. In this phase, they begin to develop speech-act and ultimately epistemic uses (van Veen 2011; Zufferey 2010). In order to understand and produce subjective relations, children need to be able to follow the reasoning of the speaker. They need to see the other as a Subject of Consciousness, similar to themselves, and they need to learn that this other SoC expresses views and reasons in a certain way. To put it in Verhagen's (2005) terms, intersubjectivity is at play: the coordination of cognitive systems between speakers and hearers, which is the very basis of discourse and a precondition for language use. This developmental trajectory suggests an appealing picture: children gradually learn to behave intersubjectively, and therefore the clear subjective uses of discourse connectives appear later in the acquisition process.

6. Conclusion and future developments

This chapter focused on causal relations in discourse. We have looked at various subcategories of Causality, as defined in terms of Subjectivity, a notion that has frequently been operationalized in terms of domains (content, epistemic, speech act). Collecting converging evidence, and taking an integrative approach to Subjectivity, we have discussed three types of empirical studies: (i) corpus studies on language use, (ii) experimental studies on discourse processing and representation, and (iii) corpus-based and experimental studies on language acquisition.

As for the corpus studies, the systematic use of a particular lexical item to express a certain type of causal relationship implies that people distinguish between several types of Causality. We have shown how the Dutch lexicon displays the same regularities for backward and forward order, whereas cross-linguistic comparison suggests similar distinctions in French, German and Chinese. Still, we need to be careful, because we are dealing with tendencies rather than strict rules. Theoretically, the data are best interpreted in terms of categories: the categories of objective and subjective causality have prototypical and less prototypical cases. On the basis of large numbers of occurrences in various media and genres, it was possible to sketch a profile of prototypical use for connectives like Dutch *want* and *omdat*. The deviations from that type of use can also be interpreted in terms of the core elements of these prototype profiles (Sanders and Spooren 2013, 2015).

However, connective lexica of some languages do not seem to be organized in these categories. The case of English *because* is especially interesting in this respect,

because in written language it can be used in all domains of Causality. This may mean that *because* is indeed a general causal connective. Another possibility is that differences between possible subtypes of Causality expressed by *because* are encoded at another linguistic level in English: that of prosody (see also Degand, this volume). We have discussed some explorative studies on that topic here. This example shows how important it is to feed theories of connectives and coherence relations with corpus studies of spontaneous language use in communicative situations that allow for direct interaction. Systematic comparison of various genres and media is imperative.

This and related work on the organization of the lexicon of causal connectives provides a window on conceptual categorization. The results suggest that Causality and Subjectivity are two basic cognitive notions that organize our knowledge of coherence relations; notions like these help us explain the system and use of relations and their linguistic expressions in everyday language use, and presenting converging evidence, we have subsequently shown how they explain how language users process and represent discourse representation (Canestrelli et al. 2013, 2016), and how children acquire connectives and coherence relations (Evers-Vermeul and Sanders 2009: 2011; Spooren and Sanders 2008; see also Sanders and Spooren 2009a, 2009b).

Insights from both processing and acquisition studies suggest there is reason to believe that subjective causal relations are cognitively more complex than objective causal relations. This complexity seems to be related to the fact that the subjective information in the discourse has to be interpreted as being communicated by a Subject of Consciousness (SoC), a character or other source, often the speaker or author. Contextual information provided by the genre of the text does not diminish the processing cost that is due to the construction of a mental representation that includes the SoC: subjective relations are relatively complex, in persuasive as well as in informative texts (Canestrelli et al. 2016).

Finally, we believe that the use of converging evidence from different empirical methods provides a set of windows on causal categorization in discourse, allowing us to see a spectacular landscape of Subjectivity and Causality in discourse and cognition. In this chapter we have argued that evidence from (cross-)linguistic analyses, including language use in various media, and from acquisition and discourse processing is needed to do so. As the overview of different kinds of linguistic data in Gilquin and Gries (2009: 5) shows, this selection of data forms just a tip of the iceberg in terms of methodological possibilities. In fact, several recent developments in the field promise further methodological progress.

To begin with, it is clear that proposals like ours should be put to the test in other languages, asking whether similar basic notions can be revealed. Apart from analyzing monolingual corpora in detail, it appears to be very insightful to

study parallel translation corpora, which provide data that are specifically useful for cross-linguistic comparison (Cartoni, Zufferey, and Meyer 2013; Degand 2004; Hoek et al. 2017; see Gast, this volume for an illustration regarding concessive relations).

For empirical work on corpora we can also make use of annotated discourse corpora like the Penn Discourse Treebank (Prasad et al. 2008) and the Rhetorical Structure Theory Treebank (Carlson and Marcu 2001). Thanks to this type of corpora, it is possible to search for all types of discourse relations, whether they remain implicit or are linguistically marked by cue phrases or connectives. From annotations in the Penn Discourse Treebank (PDTB Research Group 2008), we know that more than half of all discourse relations are not explicitly marked by a connective or cue phrase. Going back to the research questions pursued in the current chapter, it would be interesting to compare implicit causal relations to causal relations expressed with connectives, and see whether alternative signals are used (see Andersson and Spenader 2014; Asr and Demberg 2012; Das and Taboada 2013; Hoek 2018; Hoek and Zufferey 2015). This brings us to the important issue of other signals than connectives and cue phrases: how do subjective and objective relations co-occur with other linguistic elements, such as stance markers? Collocational analyses (Gries 2013; Speelman 2017) are promising in that respect (Wei 2018; Wei, Evers-Vermeul, and Sanders 2017).

Other developments in corpus linguistics and computational linguistics now allow us to use various kinds of automated analyses, for instance by using subjectivity lexicons, asking the question to what extent these lead to results similar to the "manual" interpretation by experts, and probably supporting such analyses (Levshina and Degand 2016; Santana et al. 2017). The use of crowdsourcing methods is another promising development, which provides further insight into naïve language users' intuitions on connective use (Scholman 2019; Scholman and Demberg 2017). Finally, further experimentation in processing experiments, among them in the *Visual World Paradigm*, promise to give a better view on language users' mental representations of Subjectivity (Wei 2018; Wei et al. 2017).

Theoretically speaking, both corpus and experimental data are likely to clarify *whether* Subjectivity is involved, but also *whose* perspective is being represented (Sanders, Sanders, and Sweetser 2009, 2012), and *what type of* subjectivity (for instance expressing certainty or emotions, or commenting on the style; Conrad and Biber 2000). These may be the most important theoretical questions to answer in the near future.

References

Andersson, Marta. 2016. "The Architecture of Result Relations: Corpus and Experimental Approaches to Result Coherence Relations in English." Unpublished PhD diss., Sweden: Stockholm University.

Andersson, Marta, and Jennifer Spenader. 2014. "Result and Purpose Relations With and Without *so*." *Lingua* 148: 1–27. https://doi.org/10.1016/j.lingua.2014.05.001

Anscombre, Jean-Claude, and Oswald Ducrot. 1983. *L'argumentation dans la langue*. Bruxelles: Pierre Mardaga.

Athanasiadou, Angeliki, Costas Canakis, and Bert Cornillie. 2006. *Subjectification: Various Paths to Subjectivity*. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110892970

Asr, Fatimeh T., and Vera Demberg. 2012. "Implicitness of Discourse Relations." In *Proceedings of COLING 2012*, 2669–2684. Mumbai, India.

Bloom, Lois, Margaret Lahey, Lois Hood, Karin Lifter, and Kathleen Fiess. 1980. "Complex Sentences: Acquisition of Syntactic Connectives and the Semantic Relations They Encode." *Journal of Child Language* 7: 235–261. https://doi.org/10.1017/S0305000900002610

Canestrelli, Anneloes R., Willem M. Mak, and Ted J. M. Sanders. 2013. "Causal Connectives in Discourse Processing: How Differences in Subjectivity are Reflected in Eye Movements." *Language and Cognitive Processes* 28(9): 1394–1413. https://doi.org/10.1080/01690965.2012.685885

Canestrelli, Anneloes R., Willem M. Mak, and Ted J. M. Sanders. 2016. "The Influence of Genre on the Processing of Objective and Subjective Causal Relations: Evidence from Eye-tracking." In *Genre in Language, Discourse and Cognition*, ed. by Ninke Stukker, Wilbert Spooren, and Gerard Steen, 51–73. Berlin/Boston: De Gruyter Mouton.

Carlson, Lynn, and Daniel Marcu. 2001. *Discourse Tagging Reference Manual* [online: http://www.isi.edu/~marcu/discourse/tagging-ref-manual.pdf.].

Cartoni, Bruno, Sandrine Zufferey, and Thomas Meyer. 2013. "Annotating the Meaning of Discourse Connectives by Looking at their Translation: The Translation-spotting Technique." *Dialogue & Discourse* 4(2): 65–86. https://doi.org/10.5087/dad.2013.204

Chafe, Wallace. 1994. *Discourse, Consciousness, and Time: The Flow and Displacement of Conscious Experience in Speaking and Writing*. Chicago: The University of Chicago Press.

Clark, Eve V. 2003. *First Language Acquisition*. Cambridge: Cambridge University Press.

Clark, Hebert H. 1996. *Using Language*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511620539

Conrad, Susan, and Douglas Biber. 2000. "Adverbial Marking of Stance in Speech and Writing." In *Evaluation in Text: Authorial Stance and the Construction of Discourse*, ed. by Susan Hunston, and Geoff Thompson, 56–73. Oxford/New York: Cambridge University Press.

Couper-Kuhlen, Elizabeth. 1996. "Intonation and Clause Combining in Discourse: The Case of *Because*." *Pragmatics* 6(3): 389–426. https://doi.org/10.1075/prag.6.3.04cou

Couper-Kuhlen, Elizabeth, and Bernd Kortmann. 2000. *Cause, Condition, Concession, and Contrast: Cognitive and Discourse Perspectives*. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110219043

Das, Debopam, and Maite Taboada. 2013. "Explicit and Implicit Coherence Relations: A Corpus Study." In *Proceedings of the 2013 Annual Conference of the Canadian Linguistic Association*, Victoria, Canada.

Degand, Liesbeth. 2001. *Form and Function of Causation: A Theoretical and Empirical Investigation of Causal Constructions in Dutch*. Leuven: Peeters.

Degand, Liesbeth. 2004. "Contrastive Analyses, Translation and Speaker Involvement: The Case of *puisque* and *aangezien*." In *Language, Culture and Mind*, ed. by Michel Achard, and Suzanne Kemmer, 251–270. Stanford: CSLI Publications.

Degand, Liesbeth, and Henk Pander Maat. 2003. "A Contrastive Study of Dutch and French Causal Connectives on the Speaker Involvement Scale." In *Usage-Based Approaches to Dutch*, ed. by Arie Verhagen, and Jeroen van de Weijer, 175–199. Utrecht: LOT.

de Vries, Jan W. 1971. "Want en omdat." *De Nieuwe Taalgids* 64: 414–420.

Diessel, Holger, and Katja Hetterle. 2011. "Causal Clauses: A Cross-linguistic Investigation of Their Structure, Meaning, and Use." In *Linguistic Universals and Language Variation*, ed. by Peter Siemund, 23–54. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110238068.23

Evers-Vermeul, Jacqueline. 2005. The Development of Dutch Connectives: Change and Acquisition as Windows on Form-Function Relations. PhD diss., Utrecht University, Utrecht: LOT [online: http://www.lotpublications.nl/Documents/110_fulltext.pdf].

Evers-Vermeul, Jacqueline, Suzanne Bogaerds-Hazenberg, and Ted Sanders. 2016. "Establishing Coherence using Connectives: A Developmental Overview." In *Twenty-Third Annual Meeting of the Society for the Scientific Study of Reading*, Porto, Portugal.

Evers-Vermeul, Jacqueline, Liesbeth Degand, Benjamin Fagard, and Liesbeth Mortier. 2011. "Historical and Comparative Perspectives on Subjectification: A Corpus-based Analysis of Dutch and French Causal Connectives." *Linguistics* 49(2): 445–478. https://doi.org/10.1515/ling.2011.014

Evers-Vermeul, Jacqueline, Jet Hoek, and Merel C. J. Scholman. 2017. "On Temporality in Discourse Annotation: Theoretical and Practical Considerations." *Dialogue and Discourse* 8(2): 1–20.

Evers-Vermeul, Jacqueline, and Ted Sanders. 2009. "The Emergence of Dutch Connectives: How Cumulative Cognitive Complexity Explains the Order of Acquisition." *Journal of Child Language* 36: 829–854. https://doi.org/10.1017/S0305000908009227

Evers-Vermeul, Jacqueline, and Ted Sanders. 2011. "Discovering Domains: On the Acquisition of Causal Connectives." *Journal of Pragmatics* 43: 1645–1662. https://doi.org/10.1016/j.pragma.2010.11.015

Ford, Cecilia E. 1993. *Grammar in Interaction: Adverbial Clauses in American English Conversations*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511554278

Gibbs, Raymond W. , Jr. 2007. "Why Cognitive Linguists Should Care More about Empirical Methods." In *Methods in Cognitive Linguistics*, ed. by Mónica González-Márquez, Irene Mittelberg, Seana Coulson, and Michael J. Spivey, 2–18. Amsterdam: John Benjamins. https://doi.org/10.1075/hcp.18.06gib

Gilquin, Gaëtanelle, and Stefan Th. Gries. 2009. "Corpora and Experimental Methods: A State-of-the-art Review." *Corpus Linguistics and Linguistic Theory* 5(1): 1–26. https://doi.org/10.1515/CLLT.2009.001

Gohl, Christine. 2000. "Causal Relations in Spoken Discourse: Asyndetic Constructions as a Means for Giving Reasons." In *Cause, Condition, Concession, and Contrast: Cognitive and Discourse Perspectives*, ed. by Elizabeth Couper-Kuhlen, and Bernd Kortmann, 83–110. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110219043.1.83

Gries, Stefan. 2013. "50-something Years of Work on Collocations: What is or should be next…" *International Journal of Corpus Linguistics* 18(1): 137–165. https://doi.org/10.1075/ijcl.18.1.09gri

Gries, Stefan Th., Beate Hampe, and Doris Schönefeld. 2005. "Converging Evidence: Bringing together Experimental and Corpus Data on the Association of Verbs and Constructions." *Cognitive Linguistics* 16(4): 635–676. https://doi.org/10.1515/cogl.2005.16.4.635

Groupe λ-l. 1975. "Car, parce que, puisque." *Revue Romane* 10(2): 248–280.

Günthner, Susanne. 1993. "*Weil* – Man kann es ja wissenschaftlich untersuchen: Diskurspragmatische Aspekte der Wortstellung in *Weil*-Sätzen." *Linguistische Berichte* 143: 37–55.

Hoek, Jet. 2018. Making Sense of Discourse: On Discourse Segmentation and the Linguistic Marking of Coherence Relations. PhD diss., Utrecht University, Utrecht: LOT.

Hoek, Jet, and Sandrine Zufferey. 2015. "Factors Influencing the Implicitation of Discourse Relations across Languages." In *Proceedings 11th Joint ACL-ISO Workshop on Interoperable Semantic Annotation (ISA-11)*, 39–45. London, United Kingdom.

Hoek, Jet, Sandrine Zufferey, Jacqueline Evers-Vermeul, and Ted J. M. Sanders. 2017. "Cognitive Complexity and the Linguistic Marking of Coherence Relations: A Parallel Corpus Study." *Journal of Pragmatics* 121: 113–131. https://doi.org/10.1016/j.pragma.2017.10.010

Huiskes, Mike. 2010. The Role of the Clause for Turn-taking in Dutch Conversations. PhD diss., Utrecht University, Utrecht: LOT [online: http://www.lotpublications.nl/Documents/257_fulltext.pdf.].

Kehler, Andrew. 2002. *Coherence, Reference and the Theory of Grammar*. Stanford: CSLI Publications.

Keller, Rudi. 1995. "The Epistemic *Weil*." In *Subjectivity and Subjectivisation: Linguistic Perspectives*, ed. by Dieter Stein, and Susan Wright, 16–30. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511554469.002

Knott, Alistair, and Robert Dale. 1994. "Using Linguistic Phenomena to Motivate a Set of Coherence Relations." *Discourse Processes* 18: 35–62. https://doi.org/10.1080/01638539409544883

Knott, Alistair, and Ted Sanders. 1998. "The Classification of Coherence Relations and Their Linguistic Markers: An Exploration of Two Languages." *Journal of Pragmatics* 30: 135–175. https://doi.org/10.1016/S0378-2166(98)00023-X

Knott, Alistair, Ted Sanders, and Jon Oberlander. 2001. "Levels of Representation in Discourse Relations." *Cognitive Linguistics* 12(3): 197–209.

Kyratzis, Amy, Jiansheng Guo, and Susan Ervin-Tripp. 1990. "Pragmatic Conventions Influencing Children's Use of Causal Constructions in Natural Discourse." In *Proceedings of the 16th annual meeting of the Berkeley Linguistics Society*, ed. by Kira Hall, Jean Pierre Koenig, Michael Meacham, Sondra Reinman, and Laurel A. Sutton, 205–214. Berkeley, CA: BLS.

Langacker, Ronald W. 1990. "Subjectification." *Cognitive Linguistics* 1: 5–38. https://doi.org/10.1515/cogl.1990.1.1.5

Levshina, Natalia, and Liesbeth Degand. 2016. "Just Because: In Search of Objective Criteria of Subjectivity Expressed by Causal Connectives." *Dialogue & Discourse* 8(1): 132–150.

Li, Fang, Jacqueline Evers-Vermeul, and Ted Sanders. 2013. "Subjectivity and Result Marking in Mandarin: A Corpus-based Investigation." *Chinese Language and Discourse* 4(1): 74–119. https://doi.org/10.1075/cld.4.1.03li

Li, Fang, Ted Sanders, and Jacqueline Evers-Vermeul. 2016. "On the Subjectivity of Mandarin Reason Connectives: Robust Profiles or Genre-sensitivity?" In *Genre in Language, Discourse and Cognition*, ed. by Ninke Stukker, Wilbert Spooren, and Gerard Steen, 15–49. Berlin/New York: De Gruyter.

Li, Fang, Willem M. Mak, Jacqueline Evers-Vermeul, and Ted J. M. Sanders. 2017. "On the Online Effects of Subjectivity Encoded in Causal Connectives." *Review of Cognitive Linguistics* 15: 34–57. https://doi.org/10.1075/rcl.15.1.02li

Lyons, John. 1995. *Linguistic Semantics: An Introduction*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511810213

Mann, William C., and Sandra A. Thompson. 1986. "Relational Propositions in Discourse." *Discourse Processes* 9: 57–90. https://doi.org/10.1080/01638538609544632

Martin, James R. 1992. *English Text: System and Structure*. Amsterdam: Benjamins. https://doi.org/10.1075/z.59

Noordman, Leo, and Femke de Blijzer. 2000. "On the Processing of Causal Relations." In *Cause, Condition, Concession, and Contrast: Cognitive and Discourse Perspectives*, ed. by Elizabeth Couper-Kuhlen, and Bernd Kortmann, 35–56. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110219043.1.35

Pander Maat, Henk, and Liesbeth Degand. 2001. "Scaling Causal Relations and Connectives in Terms of Speaker Involvement." *Cognitive Linguistics* 12(3): 211–245.

Pander Maat, Henk, and Ted Sanders. 2000. "Domains of Use or Subjectivity? The Distribution of Three Dutch Causal Connectives Explained." In *Cause, Condition, Concession and Contrast: Cognitive and Discourse Perspectives*, ed. by Elizabeth Couper-Kuhlen, and Bernd Kortmann, 59–81. Berlin/New York: Mouton de Gruyter. https://doi.org/10.1515/9783110219043.1.57

Pander Maat, Henk, and Ted Sanders. 2001. "Subjectivity in Causal Connectives: An Empirical Study of Language in Use." *Cognitive Linguistics* 12: 247–273.

Pasch, Renate. 1983. "Die Kausalkonjunktionen 'da', 'denn', und 'weil': Drei Konjunktionen – drei lexikalische Klassen." *Deutsch als Fremdsprache* 20: 332–337.

PDTB Research Group. 2008. "The Penn Discourse Treebank 2.0 Annotation Manual." In *Technical Report IRCS-08-01*, Philadelphia, Institute for Research in Cognitive Science, University of Pennsylvania [online: https://www.seas.upenn.edu/~pdtb/PDTBAPI/pdtb-annotation-manual.pdf.].

Persoon, Ingrid, Ted Sanders, Hugo Quené, and Arie Verhagen. 2010. "Een coördinerende *omdat*-constructie in gesproken Nederlands? Tekstlinguïstische en prosodische aspecten." *Nederlandse Taalkunde* 15: 259–282. https://doi.org/10.5117/NEDTAA2010.3.EEN_454

Pit, Mirna. 2003. How to Express Yourself with a Causal Connective: Subjectivity and Causal Connectives in Dutch, German and French. PhD diss., Utrecht University, Amsterdam/New York: Rodopi.

Pit, Mirna. 2006. "Determining Subjectivity in Text: The Case of Backward Causal Connectives in Dutch." *Discourse Processes* 41: 151–174. https://doi.org/10.1207/s15326950dp4102_3

Prasad, Rashmi, Nikhil Dinesh, Alan Lee, Eleni Miltsakaki, Livio Robaldo, Aravind Joshi, and Bonnie Webber. 2008. "The Penn Discourse Treebank 2.0." In *Proceedings of the 6th International Conference of Language Resources and Evaluation (LREC 2008)*, Marrakech, Morocco [online: https://www.seas.upenn.edu/~pdtb/papers/pdtb-lrec08.pdf].

Redeker, Gisela. 1990. "Ideational and Pragmatic Markers of Discourse Structure." *Journal of Pragmatics* 14(3): 367–381. https://doi.org/10.1016/0378-2166(90)90095-U

Risselada, Rodie, and Wilbert Spooren. 1998. "Introduction: Discourse Markers and Coherence Relations." *Journal of Pragmatics* 29: 131–133. https://doi.org/10.1016/S0378-2166(98)00022-8

Rutherford, William E. 1970. "Some Observations Concerning Subordinate Clauses in English." *Language* 46(1): 97–115. https://doi.org/10.2307/412410

Sanders, José, Ted Sanders, and Eve Sweetser. 2012. "Responsible Subjects and Discourse Causality: How Mental Spaces and Perspective Help Identifying Subjectivity in Dutch Backward Causal Connectives." *Journal of Pragmatics* 44: 191–213. https://doi.org/10.1016/j.pragma.2011.09.013

Sanders, Ted. 1997. "Semantic and Pragmatic Sources of Coherence: On the Categorization of Coherence Relations in Context." *Discourse Processes* 24: 119–147. https://doi.org/10.1080/01638539709545009

Sanders, Ted, Joost Schilperoord, and Wilbert Spooren (eds). 2001. *Text Representation: Linguistic and Psycholinguistic Aspects*. Amsterdam: Benjamins. https://doi.org/10.1075/hcp.8

Sanders, Ted, José Sanders, and Eve Sweetser. 2009. "Causality, Cognition and Communication: A Mental Space Analysis of Subjectivity in Causal Connectives." In *Causal Categories in Discourse and Cognition*, ed. by Ted Sanders, and Eve Sweetser, 19–59. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110224429.19

Sanders, Ted, and Wilbert Spooren. 2009a. "Causal Categories in Discourse: Converging Evidence from Language Use." In *Causal Categories in Discourse and Cognition*, ed. by Ted Sanders, and Eve Sweetser, 205–246. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110224429.205

Sanders, Ted, and Wilbert Spooren. 2009b. "The Cognition of Discourse Coherence." In *Discourse, Of Course*, ed. by Jan Renkema, 197–212. Amsterdam: Benjamins. https://doi.org/10.1075/z.148.20san

Sanders, Ted, and Wilbert Spooren. 2013. "Exceptions to Rules: A Qualitative Analysis of Backward Causal Connectives in Dutch Naturalistic Discourse." *Text and Talk* 33(3): 377–398. https://doi.org/10.1515/text-2013-0018

Sanders, Ted, and Wilbert Spooren. 2015. "Causality and Subjectivity in Discourse: The Meaning and Use of Causal Connectives in Spontaneous Conversation, Chat Interactions and Written Text." *Linguistics* 53(1): 53–92. https://doi.org/10.1515/ling-2014-0034

Sanders, Ted J. M., Wilbert P. M. Spooren, and Leo G. M. Noordman. 1992. "Toward a Taxonomy of Coherence Relations." *Discourse Processes* 15: 1–35. https://doi.org/10.1080/01638539209544800

Sanders, Ted, and Eve Sweetser (eds.). 2009. *Causal Categories in Discourse and Cognition*. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110224429

Sandra, Dominiek, and Sally Rice. 1995. "Network Analyses of Prepositional Meaning: Mirroring whose Mind – the Linguist's or the Language User's?" *Cognitive Linguistics* 6: 89–130. https://doi.org/10.1515/cogl.1995.6.1.89

Santana, Andrea, Dorien Nieuwenhuijsen, Wilbert Spooren, and Ted Sanders. 2017. "Causality and Subjectivity in Spanish Connectives: Exploring the Use of Automatic Subjectivity Analyses in Various Text Types." *Discours* [online: http://journals.openedition.org/discours/9307]. https://doi.org/10.4000/discours.9307

Schiffrin, Deborah. 2001. "Discourse Markers: Language, Meaning and Context." In *The Handbook of Discourse Analysis*, ed. by Deborah Schiffrin, Deborah Tannen, and Heidi E. Hamilton, 54–75. Oxford: Basil Blackwell.

Schleppegrell, Mary J. 1991. "Paratactic *Because*." *Journal of Pragmatics* 16(4): 323–337. https://doi.org/10.1016/0378-2166(91)90085-C

Scholman, Merel C. J. 2019. Coherence Relations in Discourse and Cognition: Comparing Approaches, Annotations, and Interpretations. PhD diss., Saarland University.

Scholman, Merel C. J., and Vera Demberg. 2017. "Examples and Specifications that Prove a Point: Identifying Elaborative and Argumentative Discourse Relations." *Dialogue & Discourse* 8(2): 56–83.

Speelman, Dirk. 2017. *Mastering Corpus Linguistics Methods: A Practical Introduction with Antconc and R*. Hoboken: Wiley-Blackwell.

Spooren, Wilbert, and Rodie Risselada. 1997. "Special Issue on Discourse Markers." *Discourse Processes* 24: 119–147.

Spooren, Wilbert, and Ted Sanders. 2008. "The Acquisition of Coherence Relations: On Cognitive Complexity in Discourse." *Journal of Pragmatics* 40: 2003–2026. https://doi.org/10.1016/j.pragma.2008.04.021

Spooren, Wilbert, Ted Sanders, Mike Huiskes, and Liesbeth Degand. 2010. "Subjectivity and Causality: A Corpus Study of Spoken Language." In *Empirical and Experimental Methods in Cognitive/Functional Research*, ed. by Sally Rice, and John Newman, 241–255. Chicago: CSLI/University of Chicago Press.

Steen, Gerard. 2011. "Genre Between the Humanities and the Sciences." In *Bi-directionality in the Cognitive Sciences*, ed. by Marcus Callies, Wolfram Keller, and Astrid Lohöfer, 21–42. Amsterdam/Philadelphia: John Benjamins. https://doi.org/10.1075/hcp.30.03ste

Stein, Dieter, and Susan Wright. 1995. *Subjectivity and Subjectivisation*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511554469

Stukker, Ninke. 2005. Causality Marking across Levels of Language Structure: A Cognitive Semantic Analysis of Causal Verbs and Causal Connectives in Dutch. PhD diss., Utrecht University, Utrecht: LOT [online: http://www.lotpublications.nl/Documents/118_fulltext.pdf].

Stukker, Ninke, and Ted Sanders. 2012. "Subjectivity and Prototype Structure in Causal Connectives: A Cross-linguistic Perspective." *Journal of Pragmatics* 44(2): 169–190. https://doi.org/10.1016/j.pragma.2011.06.011

Stukker, Ninke, Ted Sanders, and Arie Verhagen. 2008. "Causality in Verbs and in Discourse Connectives. Converging Evidence of Cross-level Parallels in Dutch Linguistic Categorization." *Journal of Pragmatics* 40(7): 1296–1322. https://doi.org/10.1016/j.pragma.2007.10.005

Stukker, Ninke, Ted Sanders, and Arie Verhagen. 2009. "Categories of Subjectivity in Dutch Causal Connectives: A Usage-based Analysis." In *Causal Categories in Discourse and Cognition*, ed. by Ted Sanders, and Eve Sweetser, 119–171. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110224429.119

Sweetser, Eve E. 1990. *From Etymology to Pragmatics: Metaphorical and Cultural Aspects of Semantic Structure*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511620904

Thompson, Geoff, and Susan Hunston. 2000. "Evaluation: An Introduction." In *Evaluation in Text: Authorial Stance and the Construction of Discourse*, ed. by Geoff Thompson and Susan Hunston, 1–27. Oxford: Oxford University Press.

Traugott, Elizabeth C. 1995. "Subjectification in Grammaticalization." In *Subjectivity and Subjectivisation. Linguistic Perspectives*, ed. by Dieter Stein, and Susan Wright, 31–54. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511554469.003

Traxler, Matthew J., Michael D. Bybee, and Martin J. Pickering. 1997. "Influence of Connectives on Language Comprehension: Eye-tracking Evidence for Incremental Interpretation." *The Quarterly Journal of Experimental Psychology* 50A(3): 481–497. https://doi.org/10.1080/027249897391982

Traxler, Matthew J., Anthony J. Sanford, Joy P. Aked, and Linda M. Moxey. 1997. "Processing Causal and Diagnostic Statements in Discourse." *Journal of Experimental Psychology: Learning, Memory, and Cognition* 23(1): 88–101.

van Veen, Rosie. 2011. The Acquisition of Causal Connectives: The Role of Parental Input and Cognitive Complexity. PhD diss., Utrecht University, Utrecht: LOT [online: http://www.lotpublications.nl/Documents/286_fulltext.pdf].

van Veen, Rosie, Jacqueline Evers-Vermeul, Ted Sanders, and Huub van den Bergh. 2014. "*Why? Because I'm Talking to You!* Parental Input and Cognitive Complexity as Determinants of Children's Connective Acquisition." In *The Pragmatics of Discourse Coherence*, ed. by Helmut Gruber, and Gisela Redeker, 209–242. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Verhagen, Arie. 2005. *Constructions of Intersubjectivity: Discourse, Syntax, and Cognition*. Oxford: Oxford University Press.

Wegener, Heide. 2000. "*Da*, *denn* und *weil* – Der Kampf der Konjunktionen: Zur Grammatikalisierung im kausalen Bereich." In *Deutsche Grammatik in Theorie und Praxis*, ed. by Rolf Thieroff, Matthias Tamrat, Nanna Fuhrhop, and Oliver Teuber, 69–81. Tübingen: Niemeyer. https://doi.org/10.1515/9783110933932.69

Wei, Yipu. 2018. Causal Connectives and Perspective Markers in Chinese: The Encoding and Processing of Subjectivity in Discourse. PhD diss., Utrecht University, Utrecht: LOT [online: https://www.lotpublications.nl/Documents/482_fulltext.pdf].

Wei, Yipu, Jacqueline Evers-Vermeul, and Ted Sanders. 2017. "Perspective Marking and Subjectivity in Coherence Relations: A Collocation Analysis of Chinese Connectives." In *CogLing7*, Nijmegen, The Netherlands.

Wei, Yipu, Pim Mak, Jacqueline Evers-Vermeul, and Ted Sanders. 2017. "The Role of Linguistic Cues in Constructing Subjectivity: Evidence from the Visual World Paradigm." In *Fourteenth International Cognitive Linguistics Conference*, Tartu, Estonia.

Zufferey, Sandrine. 2010. *Lexical Pragmatics and Theory of Mind: The Acquisition of Connectives as a Window on Cognitive Development*. Amsterdam: Benjamins. https://doi.org/10.1075/pbns.201

Zufferey, Sandrine. 2012. "*Car, parce que, puisque* revisited: Three Empirical Studies on French Causal Connectives." *Journal of Pragmatics* 44(2): 138–153. https://doi.org/10.1016/j.pragma.2011.09.018

Zwaan, Rolf, and David Rapp. 2006. "Discourse Comprehension." In *Handbook of Psycholinguistics*, 2nd edition, ed. by Matthew Traxler, and Morton A. Gernsbacher, 725–764. New York: Academic Press. https://doi.org/10.1016/B978-012369374-7/50019-5

CHAPTER 11

Subjectivity of English connectives

A corpus and experimental investigation of result forward causality signals in written language

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The current study sets out to investigate naturally produced English causal relations from the point of view of conceptual and linguistic features that contribute to their intended interpretations as Volitional or Non-volitional RESULT. These features include two discourse connectives: *as a result* and *for this reason* and the extent of the overlap between the semantic information they encode and the relation type they mark.

The paper reports on a mixed-method approach combining a corpus investigation of RESULT in the British National Corpus (BNC) and two opinion-asking experiments conducted via the crowdsourcing marketplace – Amazon Mechanical Turk (AMT). The findings demonstrate that despite their functional flexibility across different causal categories, English resultative connectives show significant tendencies to mark specific coherence relations. The converging methodology proves that expert linguistic intuitions are shared by ordinary language users and their notion of differences between causal event types.

Keywords: causal relations, crowdsourcing, discourse connectives, subjectivity, volition

1. Introduction and background

As commonly demonstrated in the literature, language users categorize causal events into objective and subjective types, which is reflected in cross-linguistically proved tendencies to felicitously mark this distinction with different discourse connectives (see Sanders and Evers-Vermeul, this volume). For instance:

https://doi.org/10.1075/pbns.305.11and

(1) (NVR): It rained all night. *As a result* the streets are all wet.[1]

(2) (VR): It rained all night. *For this reason* the conference organizers have cancelled the morning picnic.

While both (1) and (2) above convey a type of CAUSAL coherence relation, the conceptual difference between these types (signaled by the different choice of the connectives), pertains to the presence (or absence) of a volitional and intentional participant of the conveyed situation – a *Subject of Consciousness* (hence SoC; Pander Maat and Sanders 2001: 251). In non-volitional relations (1) there intrinsically is no SoC responsible for causality. In real-world volitional relations (2), by contrast, it is the explicitly verbalized character who functions as an intentionally and volitionally acting SoC, who becomes the source of causality of the relation (Stukker and Sanders 2009).

These distinctions pertain to Sweetser's (1990; see also Sanders and Evers-Vermeul, this volume) idea that relations between causal events exist not only in the domain of external real-world situations, but quite commonly relate to the internal domain of the speaker's reasoning and exchange between interlocutors. For instance:

(3) It was a hot day, s*o* Jan went swimming. (real-world)

(4) Their car is not there, *so* they are not at home. (epistemic)

(5) We are having a party, *so* what do you want to drink? (speech act)

While in (3) the causal relation exists in the sociophysical domain, both in (4) and (5) it is the current speaker who is the SoC of the discourse relation, since she acts as the concluder/produces an utterance, which is performing an action in itself (Austin 1955[1962]: 5).

It is generally agreed that discourse relations with an SoC are more subjective than those without an SoC, which is why language users consistently choose signals that are "compatible" with the relation type they intend to communicate. This idea has been empirically confirmed in several corpus studies on French, German and Dutch (Pander Maat and Sanders 2000; Pander Maat and Degand 2001; Degand and Pander Maat 2003; Pit 2003; Stukker and Sanders 2009, 2012; Sanders and Spooren 2015). However, despite sometimes very pronounced preferences, discourse connectives have been demonstrated to be seldom restricted to one relation type and are quite commonly used in other contexts (e.g., Stukker and Sanders 2009, 2012; Sanders and Spooren 2015). These findings may have particularly

1. Non-volitional RESULT relation will be referred to as NVR and Volitional RESULT as VR throughout the paper.

interesting implications for the English language, since the use of English connectives, unlike that of their French or Dutch equivalents, is believed to be much more unconstrained (e.g., Sweetser 1990; Sanders and Spooren 2015: 55).

Perhaps surprisingly, English causal connectives have mainly been used as a reference point or "control group" for analyses of discourse relations in other languages, or in studies where constructed examples were discussed (with a notable exception of the contrastive study of English and French by Zufferey and Cartoni 2012). The phrases *as a result* and *for this reason* have not been studied systematically before (but see Andersson 2016). One interesting feature that could potentially be a reason for differences in their functions is that their head phrases operate in opposite directions in the causal relation – while "result" follows a cause, "reason" precedes a consequent. Yet, both phrases are hyponyms of the ambiguous connective *so*, and both mark forward causal relations (i.e., CAUSE-RESULT; see Sanders and Evers-Vermeul, this volume).

The question about potential differences in the connective use in this case will therefore likely pertain to subtle discourse information contributing to both relation interpretation and a specific connective choice. Given the difference between the situation types illustrated in (1) and (2) above, and based on their very specific nature, it can be intuitively assumed that *as a result* and *for this reason* specialize in marking different causal events.

Such an assumption, however, has little (if any) empirical support. The connective *as a result* quite often figures in the literature as an example of a "standard" signal of Non-volitional RESULT in constructed examples, whereas *for this reason* has only been briefly mentioned by Knott and Sanders (1998: 155) and argued be limited to the domain of real-world volitional relations (in terms of Sweetser 1990). However, none of these claims have been empirically verified. In natural English, *for this reason* (similarly to *as a result*) is rather formal and used mostly in written language. It is also quite infrequent (approximately 789 target instances were identified in written part of the BNC), which suggests that it may have a limited range of uses. Potential tendencies to use different connectives in different domains are therefore an interesting theoretical question – not only because English remains quite unexplored in this respect (cf. Andersson 2016), but also because of the purported functional flexibility of the connectives in this language.

While certain tendencies for connectives to occur in specific discourse environment have been confirmed in cross-linguistic corpus studies, the felicitousness of a specific phrase in the context seems to depend on the degree of volition and intentionality of the participant in the relation (among other factors).[2] Consider (6)

2. For instance: the presence of certain linguistic elements in the context, which do not necessarily involve a volitionally acting SoC, but contribute to a more subjective character of the

(the example is borrowed from Jasinskaja 2009: 17; the connectives in the brackets added for the purpose of the present study):

(6) NVR: She fed him poisoned stew *and so*/(*as a result*/**for this reason*) he died.

To check which of the two paraphrases of *so* proposed in (6) is more suitable, ten native speakers of English were consulted for the purpose of the current study. They unanimously agreed that *as a result* was the felicitous alternative and explicated that *for this reason* seems unacceptable in this context, since it implies deliberate acting by the protagonist of the second clause (*he*). Such an interpretation is not likely in the case of dying (!!). However, the phrase *for this reason* could have been used in (6), but only if the RESULT argument also was constructed from the perspective of a voluntarily acting participant:

(7) VR: She tried to feed him a poisoned stew and *so/for this reason/?as a result* he left her.

Note that in the context of (7), *as a result* would sound, as Pander Maat and Degand (2001: 234) put it, "rather silly since it suggests that the speaker did not act intentionally at all". The same group of native speakers of English found the phrase infelicitous in intentional and/or mental activity contexts such as (7). Interestingly, it seems that some relation types convey a reason or motivation for the participant of the RESULT event to volitionally act in a certain way (7), whereas others express causes independent on the participant's will (6). As the relations above suggest, the connectives analyzed are likely to have preferences for marking either volitional acts motivated by some prior events (7) or non-volitional situations following causes independent of the participant's will and intention (6); however, this assumption can be systematically tested by varying the discourse markers and investigating possible tendencies, constraints and "non-prototypical" uses.

As mentioned, English discourse connectives have been argued to be more flexibly used across the discourse domains than their counterparts in other languages (e.g., Stukker and Sanders 2012). Dutch, for instance, divides the semantic space of causal relations more precisely than English – the phrase *daardoor* ('as a result') is restricted to non-volitional relations without an SoC, whereas *dus* ('so') is uncommon in relations other than epistemic (e.g., Stukker and Sanders 2009: 21). In English, the connective *since* can signal both epistemic relations and speech act relations, while *because* (on a par with *so*) covers all causality types (Sweetser 1990; Stukker and Sanders 2012: 185). Further, despite the differences between the

utterance (e.g., evaluative adjectives; see also Stukker and Sanders 2009 on their discussion of non-prototypical connective uses).

potential tendencies for the connectives to occur with certain events types demonstrated in (6) and (7) above, the analyzed phrases can be felicitously used also in less prototypical contexts:

(8) Many other cases raise only hints, come from uncertain contexts, or are doubtful for other reasons. *As a result* it is not worth discussing them fully here.
(BNC: B2P 1334)

As should be clear from (8), the English *as a result* (in contrast to the Dutch *daardoor*) is operative in an ARGUMENT-CLAIM relation (i.e., one with an SoC), even though it may not be a prototypical signal of an epistemic context. The question that the current study seeks to answer is, therefore, (I) whether the analyzed English connectives show significant tendencies for certain discourse environments in natural language production; (II) what these tendencies depend on; (III) whether consistent intuitions about the connective functions are shared by language users. To answer these questions, the investigation combines two empirical methodologies (methodology of "converging evidence", see Sanders and Evers-Vermeul, this volume): an analysis of the RESULT coherence relations in the British National Corpus (BNC) and two opinion-asking experiments conducted via the crowdsourcing marketplace – Amazon Mechanical Turk (AMT).

2. Corpus study

2.1 Material and methods

The present corpus samples of *as a result* and *for this reason* include 250 examples of the target (connective)[3] uses per connective obtained from the written British National Corpus (all genres, 90 million words; accessed via BNC*Web* interface CQP Edition version 4.2, 2008). The BNC comprises a total of 100,106,008 words of both spoken and written genres, and a wide range of proportionally sampled text categories (McEnery, Xiao and Tono 2006: 16), which, along with its great coverage, makes it a natural choice in English corpus studies.

In the following, several specific distinctions between RESULT relations with and without an SoC will be discussed. It is important to note that the semantic information encoded by the connectives was not treated as determinant in the process of coding for the relation type (but their contribution to the relational meaning will be discussed in 2.1.1 below). The main criterion used for the distinction between

3. One example of non-target uses are sentence-final instances; also, the phrase *as a result of* is a non-connective use.

different relation types was the presence of a volitional/intentional discourse entity (an SoC) responsible for the causal relation as a doer/speaker.

Section 2.1.1 below provides examples of several interesting (and potentially problematic) aspects of coding for a specific relation type, which show the complexity of the event types involved and, as a consequence, illustrate the most likely reasons for specific connective choices.

2.1.1 *Coding for RESULT relation types*

Judging on volitionality and intentionality of the event is not always a straightforward task due to commonly occurring contextual attenuation of the participant's responsibility for the causal relationship. However, a basic distinction between situations where no volitional entity is present and those with a volitionally acting SoC can be made based on a simple "action test" (Culicover and Jackendoff 2005: 525), which consists in adding the chunk "what X did was Y" to the event under consideration:

(9) NVR: The Ministry of Agriculture has said that sooner or later the pound will get an easier ride on the currency markets and that cereal farmers, who since Black Wednesday have almost doubled their projected income, must guard against being caught by sudden changes. *As a result*, grain farmers, who already include the latest reports from the agricultural futures markets in their morning reading, are learning to sniff the financial air through the latest exchange rate columns and business page comment. (BNC: K5H 2742)

The test is infelicitous in (9), even though there is no real syntactic mismatch between "doing" and "learning"; however, there is a semantic difference between "learning to sniff", and learning French, as in (ii) below:

(i) ?What the grain farmers did was learning to sniff the financial air through the latest exchange rate columns and business page comment.

(ii) What Anna did was learning French in three months.

As we see above, the test is infelicitous in the case of no volitional instigator of an action in the context of the relation (i). It is unlikely that the grain farmers have a volitional role in bringing about the result conveyed in (9), as they are not in control of the causal event. What we observe in this relation is the change in the verb's status from generic to specific (Langacker 2000: 301) (cued by the progressive aspect). The phrase *as a result* additionally emphasizes this aspect.

Another interesting discourse feature related to the presence (or absence) of an SoC in discourse context are beliefs, feelings and attitudes:

(10) VR: It is important that children have time to play, pursue interests and hobbies and take part in informal organised activities with other children and alone. *For this reason* we do not believe in formal homework on a regular basis. (BNC: K5C 2185)

The verb *believe* in (10) is not felicitous with Culicover and Jackendoff's "action test", which means a low responsibility of the participant for bringing about the event. However, the context of the first clause implies that the attitude expressed in the second clause may be a deliberate choice, for which the participant can be at least tenuously responsible. Also, the phrase *for this reason* is compatible with the mental reasoning of the 1st person Subject, which further suggests that the relation conveys a belief within the scope of the SoC's reasoning (conclusion).[4]

Another type of RESULT events, which also originate in the mind of an SoC, are speech act relations. Consider:

(11) They have not been included in the examples given in Figures 2.1 and 2.2." *For this reason*, the reader should resist the temptation to follow the figures given in the examples (…) (BNC: HSE 173)

Along with the modal operator *should*, the phrase *for this reason* endorses the reading of (11) as a causal relation where the SoC intentionally makes the utterance (request/instruction) in order to achieve a goal (i.e., not just "saying something", Austin 1955[1962]). The first sentence motivates/provides a reason for the Speaker to make this utterance, which is additionally emphasized by the connective choice.

By contrast, in (12) below, while the 1st person evaluation is an instance of a direct report on the Speaker's inner feelings (similarly to other propositional attitudes, such as: individual knowledge, perception, and experience etc., Sanders and Spooren 2015: 66), the connective *as a result* objectifies the nature of the effect as independent of the Speaker's free will:

(12) My right hon. Friend the Secretary of State and my hon. Friend the Minister have achieved in the Bill a delicate balance between encouragement of the private utilities so that they remain profitable and strengthening consumer interests, without excessive bureaucracy. *As a result*, I have never been less tempted to support an Opposition motion (…). (BNC: HHW 10606)

4. A somewhat different case are relations expressed in a 3rd person or by nominal Subjects, often unclear as to the presence of an SoC, since they most commonly convey a descriptive indication of another person's attitudes and not the speaker's direct participation in the construction of causality via her personal stance (Biber and Finegan 1989: 97). Such instances were coded as non-volitional, unlike the Volitional Result in (10).

However, (12) does not cease to convey a subjective impression/feeling of the concluder SoC, and *as a result* simply signals an objective effect under the scope of this conclusion. In (13) below, in contrast, the phrase contributes to the intended interpretation of the relation as non-volitional:

(13) NVR: I came away from the Oxford seminar with a clear idea in my mind about what I should do to stimulate discussion on this subject in Wales. *As a result*, I have drafted a document which I am hoping to publish and circulate widely. (BNC: GXG 636)

(13) conveys a situation which was not fully dependent on the SoC's will, even though it results in a volitional action. Yet, the CAUSE segment cannot be regarded as a reason or motivation for the SoC to act, which is a prerequisite of a volitional action (recall (6) and (7) in Section 1 above). Instead, the volitional action in the RESULT segment can be seen as a situation induced by the prior event. The connective *as a result* emphasizes the objective nature of the relation – situation X happened and Y is what happened as a consequence.

Finally, an interesting example is (14) below, which conveys an action that is controlled by the protagonist merely physiologically and instinctively, without any motivation to act, and so the insects cannot be regarded as an SoC:

(14) Before flight can occur the thoracic flight-muscles must attain a sufficiently high temperature and *for this reason* some insects carry out preliminary vibrations of the wings before flight (…) (BNC: EVW 664)

In this relation, the connective *for this reason* seems to give access to the domain of the Speaker's reasoning about the external world (endowing the insects with a certain degree of responsibility for the action), which renders non-volitional relations epistemic (Pander Maat and Degand 2001: 235). Interestingly, while not entirely incorrect, the phrase *as a result* would not really be felicitous in the intended context of (14), since it would convey a simple non-volitional relation describing events as they are in the external world (i.e., there is a need for X and, *as a result*, Y happens).

Given the observations in the current section, along with the preliminary intuitions discussed in Section 1 above, it can be concluded that while both *as a result* and *for this reason* have specific semantic profiles/prototypical meanings (Stukker and Sanders 2009), under special discourse circumstances (including the Speaker's pragmatic goals), they can be felicitously used in less prototypical contexts. Section 2.2 below provides more specific corpus findings.

2.2 Results

Table 1 below provides detailed, discourse domain-related results of the corpus investigation:

Table 1. Distributions of *as a result* and *for this reason* over SoC and No-SoC RESULT types

Connective	RESULT with SoC						RESULT with No-SoC	
	Real-world domain		Epistemic		Speech act		Real-world domain	
as a result	16	(6.4%)	44	(17.5%)	0		190	(76%)
for this reason	94	(37%)	117	(46%)	11	(4.3%)	28	(11.2%)

As Table 1 shows, in the 250 instances of *as a result*, the majority of cases (190) were followed by an event categorized as Non-volitional RESULT. The remaining cases were judged to convey either an epistemic RESULT or a real-world Volitional RESULT relation. The connective *for this reason* shows gradient preferences, as the majority of instances (117) are followed by an epistemic RESULT, 94 by a real-world Volitional RESULT and 11 by a speech act. The remaining 28 sentences with *for this reason* were coded as Non-volitional RESULT.

The frequencies obtained for all relations with an SoC were subsequently collapsed and generated a total of 60 relations with *as a result* and 221 with *for this reason*. These frequencies were then compared with the figures for Non-volitional RESULT with each of the connectives. There is a statistically significant association between the connective and the type of RESULT it signals (X-squared = 210.6063, df = 1, $p < 0.01$.) as well as a strong positive association ($\varphi = 0.64$). Furthermore, there are also individual tendencies for each of the connectives to mark certain relation types – *as a result* is overwhelmingly predominant with Non-volitional RESULT (76% of the cases), while *for this reason* seems somewhat gradient between the epistemic (46%) and real-world volitional (37%) domains.

The tendencies found in the corpus confirm the initial predictions as to the lack of one-to-one mapping between the analyzed connective and the discourse domain. Yet, the English *as a result* shows an overwhelming preference for non-volitional relations and is barred from speech acts, which are commonly regarded as the most subjective relation type (e.g., Pander Maat and Degand 2001). The results for *for this reason* are somewhat less pronounced, as the connective shows a clear preference for the epistemic and volitional domains; however, it is not entirely absent in speech act and non-volitional events. As demonstrated in Section 2.1.1 above, contextually available discourse information (e.g., modality, verbs of cognition, etc.) can

endorse and enable the connective presence even in a less prototypical discourse environment. In the case of *for this reason*, one factor contributing to its functional flexibility may be the ability of the phrase to render the relation epistemic (see (14) above). This is not the case for *as a result*, which usually needs slightly more contextual "support" to signal an epistemic relation (e.g., (12) above).

3. Experimental study

Even though corpus work provides more reliable evidence than intuitions and introspection, discourse investigations inevitably rely on the analyst's subjective evaluations. Those are often supported, but may also be induced by the rich discourse context. By contrast, in the experimental environment, most of the features that may have a strengthening or weakening effect on the interpretation can be controlled for in a set of minimal pairs. In the current study these factors were: the discourse domain, i.e., (1) volitional and non-volitional character of the RESULT events in the real-world discourse domain, (2) the direct effect of a specific connective on relation interpretation, (3) and the presence/absence of the connective. This means that variables other than the presence of a real-world volitional participant in the coherence relation (e.g., speech act), have not been tested as factors that could influence the connective choice (see also Section 4 below).

The experimental tool used in the current study is Amazon Mechanical Turk (MTurk), which is a subsidiary of Amazon.com. MTurk is an on-line marketplace for human intelligence tasks, the use of which has been steadily growing since its introduction in 2005, as it is an easy, fast and cheap way to collect large amounts of data. Natural language production is one of the domains where MTurk also proves to be a useful tool for collecting information and it has been used for word sense disambiguation, textual entailments, sentiment studies, machine translations etc. (Callison-Burch and Dredze 2010). Crucially, MTurk can provide access to large groups of English native speakers, which was essential to the current study.

To minimize a potential number of responses from participants with mother tongues other than English, the answers in the present study were limited to American IP addresses only. The participants were asked at the beginning of the survey what their mother tongue was, without any indication of possible preferences. Non-native responses were discarded (the subjects were paid for their participation).

The first experiment was a sentence-completion task carried out in order to obtain the most natural examples possible of Volitional and Non-volitional RESULT. Subsequently, the harvested sentences tested the correlation between *for this reason* and *as a result* in the contexts of real-world Volitional and Non-volitional

RESULT relations in Experiment 1 (see Section 3.2 below). All the participants of the RESULT events were human beings conveyed either via a 3rd person pronoun or a noun phrase.

3.1 Sentence completion task for obtaining stereotypical instances of Volitional and Non-volitional RESULT

Initially, 24 sentence beginnings in the present tense were manually constructed. They were all non-agentive and used stative (non-action) verbs as predicates. These two features were considered desirable in order to create the most neutral CAUSE segments and to keep the items as comparable as possible.

56 native speakers of American English recruited via MTurk were asked to provide sentence continuations that best capture their intuitions about what kind of event types could be prefaced by the connectives *as a result* and *for this reason*, respectively. Half the subjects were presented with the sentence beginnings followed by the phrase *as a result* and the other half were presented with sentences followed by *for this reason*, see below:

(1) a. The pancakes are really hot and *as a result*/*for this reason*….
b. He won a million dollars and *as a result*/*for this reason*….

The answers were analysed by searching for a most frequent generic event independent of a particular participant's stylistic, formal and personal preferences. From the results 24 sentences were harvested, out of which the participants made a distinction between events that followed *for this reason* and *as a result* eight times, which were subsequently categorized as events in the RESULT segment that only occurred with one of the two connectives. Consider:

(2) a. The red dress fits her very well and *for this reason* she wears it often.
b. The red dress fits her very well and *as a result* she looks sexy and hot.

As (2a) and (2b) suggest, the distinction made by the subjects more or less converged with that between Volitional and Non-volitional RESULT relations. However, the rate with which the events chosen occurred as responses ranged from 14–46% of all responses with a mean of 30.62% for the Volitional RESULT event pairs. For Non-volitional RESULT relations, the eight unambiguous events made up between 11–29% of all responses, with a mean rate of response of 21.12%. This means that most of the responses were ambiguous between volitional and non-volitional RESULT events. Recall from the corpus findings in 2.2 above that *for this reason* has been found to be more frequently used with Volitional RESULT than *as a result*, which is strongly attracted to non-volitional relations. The completion task shows

similar tendencies, but the number of ambiguous instances (16 out of 24) is probably higher than what could be expected based on the corpus results.

There are several explanations to these findings. First, the two connectives in focus are normally used in formal written registers and therefore the fine-grained distinctions between their uses may not be very prominent for an average speaker.[5] In fact, three participants reported that they could not tell the difference between *as a result* and *for this reason*. This may also be related to their quite flexible uses across relation types. Further, the subjects were primed only with the connective phrases (with no information about the desired distinction) and expected to follow their intuitions on the most suitable sentence continuation. So, as a consequence of the likely vague insights into more subtle sense distinctions, the participants did not distinguish between Volitional and Non-volitional RESULT for the total of 16 experimental items, regardless of the connective they were prompted with:

(3) A doughnut contains a lot of sugar and *as a result/for this reason* it should be avoided/it is not good for you/you should only have one occasionally.[6]

Both those participants who were presented with the connective *for this reason* and those who saw *as a result*, most frequently proposed exactly this ending, which suggests that they may have disregarded the semantic profile of the connectives (in this case: whether they "fit" in the context of a speech act) in some cases and simply opted for the most stereotypical scenario. The high amount of sugar in doughnuts may prompt people to give advice (and hence use directives) about not overeating on them. So (3) instantiates a generic situation. In contrast, the well-fitting dress in (2a and b) conveys a more specific scenario. This finding can certainly be justified by the forced-choice character of the task; however, it further suggests that the connective is not the ultimate source of information about the relation (recall from corpus annotation methodology in Section 2.1.1 above). Finally, choosing the most stereotypical scenario over the semantic profile of the connective may also relate to the flexible nature of both phrases.

Consequently, the harvested sentences had to be manually adjusted to clearly express Volitional and Non-volitional RESULT event pairs. These pairs were subsequently used in Experiment 1, which is discussed in 3.2 below.

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5. Only four target connective uses of *for this reason* and 91 of *as a result* were found in the entire spoken section of the BNC, versus 789 relevant instances of *for this reason* and 1960 of *as a result* in the written section.

6. This prompt was eliminated in Experiment 1, as it conveys a request, while only real-world events made up the experimental items.

3.2 Experiment 1: Testing the effect of an SoC and the connective presence on the relation identification

The goal of this experiment was to verify whether agentivity and volition of the participant of the RESULT segment of a relation increase the rate of interpretation of the ambiguous connective *so* as *as a result* or *for this reason*. The two factors tested in the experiment are, therefore, the presence of an SoC volitionally acting in a real-world situation, and the connective presence. Testing the latter factor may seem counterintuitive, as RESULT relations can be retrieved without marking. However, according to the findings of the corpus study by Taboada (2006), Volitional RESULT is more frequently marked than Non-volitional RESULT (82% *vs*. 62%). It is therefore interesting to check the influence of an overt signal on the interpretation of RESULT relations controlled for the feature of volitionality.

3.2.1 *Method*

Thirty-two native speakers of American English (19 women, 13 men; mean age = 37.88; age range: 19–67) recruited via AMT were presented with 16 target sentences (see examples below) and 16 fillers. They were asked to describe the relationship between the events as *as a result, for this reason* or *although* (filler). There were four non-target responses in Experiment 1 that were removed from the analysis. Participants were paid $0.35 for their participation.

Taking inspiration from examples of Volitional and Non-volitional RESULT obtained in the sentence completion task (Section 3.1) and studied in the corpus, 16 event pairs were manually constructed. The participants of the RESULT arguments were all expressed in the 3rd person or by a nominal phrase, as it would be beyond the ambition of the current study to verify the potential balance (or a lack of it) between the cognitive statuses of different discourse participants as factors potentially figuring in the choice of the discourse connective (see Sanders, Sanders and Sweetser 2012). Eight items out of 16 included a 3rd person pronoun subject and eight a nominal subject in the RESULT segment. The CAUSE segments included eight non-volitional situations and eight volitional actions.

Two versions of each event pair were created to obtain materials for the 2 × 2 design with the factors connective presence (*so* vs. no *so*) and a volitional Subject presence in RESULT segments (Volitional vs. Non-volitional RESULT). Consider one of the constructed sentences in its four experimental versions:

Non-volitional RESULT

(4) a. The pancakes were really hot, *so* the boy burnt himself.
b. The pancakes were really hot. The boy burnt himself.

Volitional RESULT

(4) c. The pancakes were really hot, *so* the boy waited a while before he ate them.
d. The pancakes were really hot. The boy waited a while before he ate them.

Items were distributed over four lists using a Latin-square design where each item was presented once in a particular condition for each list. Each list contained equal numbers of items of each condition type. 16 filler items were added to each list containing CONTRAST sentences with the explicit connective *but*. Two randomized versions of each of the four lists were created to counteract ordering effects.

Participants were presented with a test item and three multi-word connectives which mark the relations less ambiguously than *so* (or *but*): *for this reason* for Volitional RESULT, *as a result* for Non-volitional RESULT, and *in contrast/unexpectedly* for CONTRAST. The subjects were asked to choose which connective best described the relationship between the events in the two clauses or sentences. The multiple-choice answers were always presented in the same order: *as a result, for this reason,* and *in contrast/unexpectedly*, with the latter category expected to be chosen for the filler items with the contrastive connective *but*. The experiment began with an example of a *but*-marked sentence where the answer *in contrast/unexpectedly* was already filled in. Following the 32 sentences, subjects were asked to provide biographic information about age, gender, native language, and the language that they spoke in kindergarten (specified as "at age 5"). Any subjects that reported a language other than English were excluded but were still reimbursed for their participation and the experiment was rerun for that particular list.

3.2.2 *Results*

Two-factor (connective presence *vs*. volitional participant presence) repeated-measures analyses of variance (ANOVAs) were performed, with participants (F1) and items (F2) as random factors. In Experiment 1 (Figure 1), the presence of a volitional SoC in the RESULT argument led to a significantly higher rate of *for this reason* responses from 35% ($M = 0.38$; $SE = 0.5$) to 70% ($M = 0.7$; $SE = 0.04$) ($F1\ (1, 31) = 32.67$, $p < 0.000$ and $F2\ (1, 15) = 28.43$, $p < 0.000$). The presence of the connective *so* did not have any effect on the readings of the tested coherence relations; however, a significant main effect of the coherence relation was found, which suggests that people make a distinction between relations where a volitional participant is involved and those devoid of such a participant.

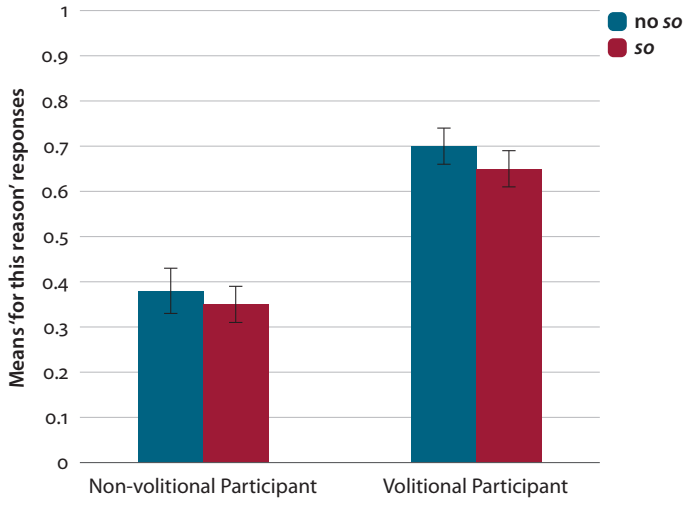

Figure 1. Mean percentage of *for this reason* responses (±1SE) for sentences with or without *so* and with or without a volitional participant using RESULT relations

4. Discussion and conclusions

The major finding of the current corpus investigation was the statistically significant relationship between the resultative event type and the connective: *as a result* shows a strong preference for Non-volitional RESULT with no SoC and is barred from speech acts. The phrase *for this reason*, in contrast, was found to be more dispersed across the discourse domains, but clearly preferred with the RESULT relations with an SoC (epistemic and volitional in particular). Given the rather low frequency of *for this reason* in the written BNC material (789 instances) and its rarity in spoken language (both of which suggest rather limited functionality), the versatile function of the phrase is quite a revealing finding.

The experimental results to a great extent corroborate these findings and indicate that the presence of a volitional participant significantly increases the rate of interpretation of the relationship between the clauses/sentences as *for this reason* (from 35% with a non-volitional Subject to 70% with a volitional one). Given quite a flexible pattern of use of *for this reason* found in the corpus, this is a satisfying result. Needless to say, experimental items are usually more artificial than naturally produced language; yet it seems that volitionality involved in the events guided the participants' choices in Experiment 1. However, the number of the ambiguous relations obtained in the Completion task suggests that the tested connectives may substantially differ from an average speaker's intuitions on language use, as they are

quite formal. It is generally acknowledged that stylistic variation related to specific uses of the connectives is a feature of proficient high-quality writing (Spooren 1997: 162).[7] Even so, the experimental results show significant correlations between the relation type and the semantics of the connectives. This is particularly important for *for this reason*, as the experiment confirms that the connective is attracted to Volitional RESULT, despite its gradient nature.

The last finding of Experiment 1 is suggestive of the impact of explicit marking on the distinction between the Volitional and Non-volitional RESULT. The presence or absence of *so* did not influence this distinction, despite prior corpus findings that Volitional RESULT is more frequently signaled with a connective (Taboada 2006). It has also been argued in the literature that Volitional RESULT is related to non-veridical (*irrealis*) readings (Trnavac and Taboada 2012), and non-veridical relations are believed to require overt signals because of their intrinsically hypothetical character. However, the current experimental items convey only real-world events (in line with the prototypical nature of RESULT, Asher and Lascarides 2003), which are intrinsically veridical. The marking requirement does therefore not apply to Volitional RESULT in the same way as to inherently non-veridical relations such as PURPOSE (Andersson and Spenader 2014; Andersson 2016).

Nevertheless, further research could test the influence of marking on the interpretations of epistemic relations, but the experimental items would have to involve factors that are not clearly comparable (for instance: epistemic and deontic modality). Also, certain tweaks to the discourse environment of the connectives can be expected to yield discernible differences between relation interpretations and, possibly, influence the marking requirement:

(5) a. The lights are out, *so* the neighbors are not at home.
b. The lights are out, *so* the neighbors may not be at home.

It seems that (5b) could be easier to interpret as a conclusion than (5a), which may not have much to do with the connective used but more likely pertains to the presence of the modal auxiliary *may* in the context of (5b). As Traxler, Sanford, Aked, and Moxey (1997: 91ff.) indicated, in English the cognitive burden of the processing of conclusions marked with the general connective *because* is alleviated by adding an attitudinal marker *perhaps* or *I think*. This suggests that the impact of discourse signals of epistemicity and illocutionary force on discourse relation interpretation and marking should be experimentally tested (presumably with more sensitive experimental techniques, such as eye tracking). Admittedly, the effect of the connective is likely to be smaller when an unambiguous phrase such as *so* is used. As Li

7. Two participants commented on the subtle difference between the investigated connectives.

(2014: 134ff.) demonstrated in the investigation of Chinese connectives, epistemic causal relations are processed faster with a more specific connective.

To sum up, the major findings and observations of the current paper are related to the presence/absence of a volitional participant (SoC) in the context of English RESULT relations. It has been argued in the literature that the meaning and use of discourse connectives can be characterized in terms of the subjective-objective distinction between causal event types (Stukker and Sanders 2009). Since discourse relations with an intentional SoC are generally regarded as more subjective (e.g., Pander-Maat and Degand 2001), they are likely to attract discourse connectives with intrinsically subjective senses, such as *for this reason*. Quite intuitively, the semantics of this connective presupposes the presence of a conscious/intentionally acting participant in the causal chain and explains its gradient preferences across different domains. By contrast, *as a result*, which appears better suited to signal objective factuality and implies a lack of a participant responsible for causality in the relation, has been found to be used less flexibly. Yet, despite their greater flexibility across discourse domains than that exhibited by their counterparts in other languages, English connectives also show significant preferences for certain relation types.

Finally, as the existing studies in the field indicate (e.g., Andersson and Spenader 2014; Scholman and Demberg 2017), non-expert interpretations of coherence relations obtained via crowdsourcing services are a useful and reliable method to gain information on sense disambiguation. The current study confirms these findings and proves even more useful in combination with the corpus analysis. However, while crowdsourcing methods indeed can provide further insight into naïve language users' intuitions on connective use (see Sanders and Evers-Vermeul, this volume), whether the method is useful for retrieval of more complex discourse information (e.g., speech acts; modality) on relation interpretation remains to be tested in future studies.

References

Andersson, Marta. 2016. "The Architecture of Result Relations. Corpus and Experimental Approaches to Result Coherence Relations in English." Unpublished PhD diss., Stockholm University.

Andersson, Marta, and Jennifer Spenader. 2014. "Result and Purpose Relations With and Without *so*." *Lingua* 148: 1–27. https://doi.org/10.1016/j.lingua.2014.05.001

Asher, Nicholas, and Alex Lascarides. 2003. *Logics of Conversation*. Cambridge: Cambridge University Press.

Austin, John L. (1955[1962]) 1975. *How to Do Things with Words*. 2nd ed. Oxford: Oxford University Press.

Biber, Douglas, and Edward Finegan. 1989. "Styles of Stance in English: Lexical and Grammatical Marking of Evidentiality and Affect." *Text* 9: 93–124. https://doi.org/10.1515/text.1.1989.9.1.93

Callison-Burch, Chris, and Mark Dredze. 2010. "Creating speech and language data with Amazon's Mechanical Turk." *Proceedings of the NAACL HT 2010 Workshop on Creating Speech and Language Data with Amazon's Mechanical Turk*, 1–12. Association for Computational Linguistics. Los Angeles.

Culicover, Peter, and Ray Jackendoff. 2005. *Simpler Syntax*. Oxford: Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199271092.001.0001

Degand, Liesbeth, and Henk Pander Maat. 2003. "A Contrastive Study of Dutch and French Causal Connectives on the Speaker Involvement Scale." In *Usage-Based Approaches to Dutch*, ed. by Arie Verhagen, and Jeroen van de Weijer, 175–199. Utrecht: LOT.

Huddleston, Rodney D., and Geoffrey K. Pullum. 2002. *The Cambridge Grammar of the English Language*. Cambridge: Cambridge University Press. https://doi.org/10.1017/9781316423530

Jasinskaja, Ekaterina. 2009. "Pragmatics and Prosody of Implicit Discourse Relations." Unpublished Phd. diss., University of Tübingen.

Knott, Alistair, and Ted Sanders. 1998. "The Classification of Coherence Relations and Their Linguistic Markers: An Exploration of Two Languages." *Journal of Pragmatics* 30: 135–175. https://doi.org/10.1016/S0378-2166(98)00023-X

Langacker, Ronald. 2000. *Grammar and Conceptualization*. Berlin/New York: Mouton de Gruyter.

Li, Fang. 2014. "Subjectivity in Mandarin Chinese. The Meaning and Use of Causal Connectives in Written Discourse." Unpublished PhD diss., University of Utrecht.

McEnery, Tony, Richard Xiao, and Yukio Tono. 2006. *Corpus-based Language Studies*. New York: Routledge.

Pander Maat, Henk, and Liesbeth Degand. 2001. "Scaling Causal Relations and Connectives in Terms of Speaker Involvement." *Cognitive Linguistics* 12(3): 211–245.

Pander Maat, Henk, and Ted Sanders. 2001. "Subjectivity in Causal Connectives: An Empirical Study of Language in Use." *Cognitive Linguistics* 12: 247–273.

Pit, Mirna. 2003. *How to Express Yourself with a Causal Connective. Subjectivity and Causal Connectives in Dutch, German and French*. Amsterdam: Rodopi.

Sanders, José, Ted J. M. Sanders, and Eve Sweetser. 2012. "Responsible subjects and discourse causality. How mental spaces and perspective help identifying subjectivity in Dutch backward causal connectives." *Journal of Pragmatics* 44: 191–213. https://doi.org/10.1016/j.pragma.2011.09.013

Sanders, Ted J. M., and Wilbert P. M. Spooren. 2015. "Causality and Subjectivity in Discourse: The Meaning and Use of Causal Connectives in Spontaneous Conversation, Chat Interactions and Written Text." *Linguistics* 53(1): 53–92. https://doi.org/10.1515/ling-2014-0034

Scholman, Merel, and Vera Demberg. 2017. "Crowdsourcing discourse interpretations: On the influence of context and the reliability of the connective insertion task." In *Proceedings of the 11th Linguistic Annotation Workshop*, Valencia, Spain: 24–33. https://doi.org/10.18653/v1/W17-0803

Spooren, Wilbert. 1997. "The processing of underspecified coherence relations." *Discourse Processes* 24(1): 149–168.

Stukker, Ninke, and Ted J. M. Sanders. 2009. "Another('s) Perspective on Subjectivity in Causal Connectives: a Usage-based Analysis of Volitional Causal Relations." *Discourse, Linearization and Segmentation in Discourse* (Special issue) 4: 1–33.

Stukker, Ninke, and Ted J. M. Sanders. 2012. "Subjectivity and Prototype Structure in Causal Connectives: A Cross-linguistic Perspective." *Journal of Pragmatics* 44(2): 169–190. https://doi.org/10.1016/j.pragma.2011.06.011

Sweetser, Eve. 1990. *From Etymology to Pragmatics: Metaphorical and Cultural Aspects of Semantic Structure*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511620904

Taboada, Maite. 2006. "Discourse Markers as Signals (or not) of Rhetorical Relations." *Journal of Pragmatics* 38(4): 567–592. https://doi.org/10.1016/j.pragma.2005.09.010

Traxler, Matthew J., Anthony J. Sanford, Joy P. Aked, and Linda M. Moxey. 1997. "Processing Causal and Diagnostic Statements in Discourse." *Journal of Experimental Psychology: Learning, Memory, and Cognition* 23(1): 88–101.

Trnavac, Radoslava, and Maite Taboada. 2012. "The Contribution of Nonveridical Rhetorical Relations to Evaluation in Discourse." *Language Sciences* 34: 301–318. https://doi.org/10.1016/j.langsci.2011.10.005

Wanner, Anja. 2009. *Deconstructing the English Passive*. Berlin/New York: Mounton de Gruyter. https://doi.org/10.1515/9783110199215

Zufferey, Sandrine, and Bruno Cartoni. 2012. "English and French Causal Connectives in Contrast." *Languages in Contrast* 12(2): 232–250. https://doi.org/10.1075/lic.12.2.06zuf

Index

This volume assembles eleven articles addressing current concerns in discourse studies from an empirical perspective. Engaging with highly topical issues, they indicate the potential of an approach to the construction of discourse via corpus-based analysis, experimentation, or combined methodologies. The subject matters of the contributions, delivered by renowned scholars and dealing with either one or several languages, range from mechanisms through which information structure, connection and discourse organization are realized, to prosody as a determinant of hierarchy and specific functions of discourse markers, as well as innovative tools for visualizing discourse structure. The resulting volume addresses scholars working in a variety of topics, who either wish to incorporate empirical methods to their research or whose work is already empirically oriented and wish to gain insight into empirical evidence on state-of-the-art discursive phenomena.

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